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Chapter 5

Namespace Documentation

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5.1.1.1 azm_sort()

```
def build_text_mat.azm_sort (
    seq )
```

Sort the nuclides by mass number

5.1.1.2 is_int()

```
def build_text_mat.is_int (
    s )
```

5.1.1.3 pointer_dic()

```
def build_text_mat.pointer_dic (
    s )
```

5.1.2 Variable Documentation

5.1.2.1 B

```
B = open('Btxt', 'w')
```

5.1.2.2 Btxt

```
string Btxt = ''
```

5.1.2.3 C

```
C = open('Ctxt', 'w')
```

5.1.2.4 child_removal

```
child_removal = -child.xs['removal'][0]
```

5.1.2.5 Ctxt

```
string Ctxt = ''
```

5.1.2.6 d_parent

```
d_parent = child.d_parent
```

5.1.2.7 d_val

```
list d_val = parent_pass.decay_a[j]
```

5.1.2.8 decay_a

```
decay_a = d.default_decay_lib_a[zamid]
```

5.1.2.9 decay_b

```
decay_b = d.default_decay_lib_b[zamid]
```

5.1.2.10 decay_file

```
decay_file = open(path_to_decay, 'r')
```

5.1.2.11 decay_line

```
decay_line = decay_file.readlines()
```

5.1.2.12 decay_nucl

```
list decay_nucl = []
```

5.1.2.13 FAM

```
list FAM = nuc_pass.check_FAM()
```

5.1.2.14 fission_val

```
list fission_val = parent_pass.xs['fission'][0]
```

5.1.2.15 fy

```
fy = d.default_fy_lib[zamid]
```

5.1.2.16 fy_file

```
fy_file = open(path_to_xs, 'r')
```

5.1.2.17 fy_line

```
fy_line = fy_file.readlines()
```

5.1.2.18 i

```
int i = 0
```

5.1.2.19 index

```
def index = pointer_dic[xs_parent[j]]
```

5.1.2.20 nuc_pass

```
list nuc_pass = passlist[i]
```

5.1.2.21 nucl_list

```
nucl_list = list(set(decay_nucl + xs_nucl))
```

5.1.2.22 parent_pass

```
list parent_pass = passlist[index]
```

5.1.2.23 passlist

```
list passlist = []
```


5.1.2.24 path_to_decay

```
path_to_decay = os.path.join(os.path.dirname(__file__), '../default_libs/decay_lib')
```

5.1.2.25 path_to_fy

```
path_to_fy = os.path.join(os.path.dirname(__file__), '../default_libs/fy_lib')
```

5.1.2.26 path_to_xs

```
path_to_xs = os.path.join(os.path.dirname(__file__), '../default_libs/xs_lib')
```

5.1.2.27 pointer_dic

```
def pointer_dic = pointer_dic(nucl_list)
```

5.1.2.28 val

```
list val = fission_val*fy[j][0]*1e-2
```

5.1.2.29 xs

```
xs = d.default_xs_lib[zamid]
```

5.1.2.30 xs_file

```
xs_file = open(path_to_xs, 'r')
```

5.1.2.31 xs_line

```
xs_line = xs_file.readlines()
```

5.1.2.32 xs_nucl

```
list xs_nucl = [ ]
```

5.1.2.33 xs_parent

```
xs_parent = child.xs_parent
```

5.1.2.34 xs_val

```
list xs_val = parent_pass.xs[j][0]
```

5.1.2.35 zamid

```
list zamid = nuc_pass.nuc_zzaaam
```

5.2 compare_fy Namespace Reference

Variables

5.2.1 Variable Documentation

5.2.1.1 parent_list

```
list parent_list
```

Initial value:

```
1 = [ '902320',  
2 '922330',  
3 '922340',  
4 '922350',  
5 '922360',  
6 '922380',  
7 '932370',  
8 '932380',  
9 '942380',  
10 '942390',  
11 '942400',  
12 '942410',  
13 '942420',  
14 '952410',  
15 '952430',  
16 '962430',  
17 '962440',  
18 '962450']
```

5.2.1.2 path1

```
string path1 = '/home/julien/Open-Burnup.dev/openbu/data/other_libs/ENDFVIII/fy_lib'
```

5.2.1.3 path2

```
string path2 = '/home/julien/Open-Burnup.dev/openbu/data/other_libs/jeff33/fy_lib'
```

5.3 conv_decaylib Namespace Reference

Functions

Variables

5.3.1 Function Documentation

5.3.1.1 find_E_index()

```
def conv_decaylib.find_E_index (  
    s )
```

5.3.1.2 is_int()

```
def conv_decaylib.is_int (  
    s )
```

5.3.1.3 is_number()

```
def conv_decaylib.is_number (  
    s )
```

5.3.2 Variable Documentation

5.3.2.1 act_data

```
list act_data = [ ]
```

5.3.2.2 act_index

```
int act_index = 0
```

5.3.2.3 act_nucl

```
list act_nucl = [None]*len(act_data)
```

5.3.2.4 act_txt

```
string act_txt = '\n\n--- Actinides ---\n\n'
```

5.3.2.5 avt_data

```
list avt_data = [ ]
```

5.3.2.6 avt_index

```
int avt_index = 0
```

5.3.2.7 avt_txt

```
string avt_txt = '\n\n--- Activation Products ---\n\n'
```

5.3.2.8 decay_lib

```
decay_lib = open('/home/julien/Open-Burnup.dev/openbu/data/decay_lib', 'w')
```

5.3.2.9 fp_data

```
list fp_data = []
```

5.3.2.10 fp_index

```
int fp_index = 0
```

5.3.2.11 fp_nucl

```
list fp_nucl = [None]*len(fp_data)
```

5.3.2.12 fp_txt

```
string fp_txt = '\n\n--- Fission Products ---\n\n'
```

5.3.2.13 h

```
int h = 0
```

5.3.2.14 i

```
i = i[:index[k]+1-h] + i[index[k]+1+1-h:]
```

5.3.2.15 index

```
def index = find_E_index(i)
```

5.3.2.16 name

```
name = passpt.name
```

5.3.2.17 ori_lib

```
ori_lib = open(path_to_orilib)
```

5.3.2.18 ori_line

```
ori_line = ori_lib.readlines()
```

5.3.2.19 passpt

```
passpt = passport(zamid)
```

5.3.2.20 path_to_orilib

```
string path_to_orilib = '/home/julien/princeton/origen/libs/decay.lib'
```

5.3.2.21 redundant_count

```
int redundant_count = 0
```

5.3.2.22 time_dic

```
dictionary time_dic = {1.0:'s', 2.0:'m', 3.0:'h', 4.0:'d', 5.0:'y', 6.0:'stable', 7.0:'1e3y',  
8.0:'1e6y', 9.0:'1e9y'}
```

5.3.2.23 txt

```
string txt = act_txt + fp_txt + avt_txt
```

5.3.2.24 zamid

```
list zamid = i.split()[1]
```

5.4 conv_fylib Namespace Reference

Functions

Variables

5.4.1 Function Documentation

5.4.1.1 find_E_index()

```
def conv_fylib.find_E_index (  
    s )
```

5.4.1.2 is_int()

```
def conv_fylib.is_int (  
    s )
```

5.4.1.3 is_number()

```
def conv_fylib.is_number (  
    s )
```

5.4.2 Variable Documentation

5.4.2.1 fathers

```
list fathers = ['902320','922330','922350','922380', '942390','942410','962450','982490']
```

5.4.2.2 fp_data

```
list fp_data = []
```

5.4.2.3 fp_index

```
int fp_index = 0
```

5.4.2.4 fp_txt

```
string fp_txt = '\n\n--- Fission Products Yields ---\n\n'
```

5.4.2.5 fy_lib

```
fy_lib = open('/home/julien/Open-Burnup.dev/openbu/data/fy_lib', 'w')
```

5.4.2.6 line

```
line = ori_line[i]
```

5.4.2.7 line2

```
line2 = ori_line[i+1]
```

5.4.2.8 name

```
name = passpt.nuc_name
```

5.4.2.9 ori_lib

```
ori_lib = open(path_to_orilib)
```

5.4.2.10 ori_line

```
ori_line = ori_lib.readlines()
```


5.4.2.11 passpt

```
passpt = passport(zamid)
```

5.4.2.12 path_to_orilib

```
string path_to_orilib = '/home/julien/origen22/libs/pwrue.lib'
```

5.4.2.13 time_dic

```
dictionary time_dic = {}
```

5.4.2.14 txt

```
string txt = fp_txt
```

5.4.2.15 zamid

```
list zamid = line.split()[1]
```

5.5 conv_fylib_janis-csv Namespace Reference

Functions

Variables

5.5.1 Function Documentation

5.5.1.1 find_E_index()

```
def conv_fylib_janis-csv.find_E_index (
    s )
```

5.5.1.2 `is_int()`

```
def conv_fylib_janis-csv.is_int (
    s )
```

5.5.1.3 `is_number()`

```
def conv_fylib_janis-csv.is_number (
    s )
```

5.5.2 Variable Documentation

5.5.2.1 `count`

```
int count = 0
```

5.5.2.2 `fathers_name`

```
list fathers_name
```

5.5.2.3 `fathers_zamid`

```
list fathers_zamid = [utils.name_to_zamid(utils.openmc_name_to_openbu_name(x)) for x in fathers_name]
```

5.5.2.4 `fp_data`

```
list fp_data = []
```

5.5.2.5 `fp_index`

```
int fp_index = 0
```

5.5.2.6 fp_txt

```
string fp_txt = '\n\n--- Fission Products Yields ---\n\n'
```

5.5.2.7 jeff33_lib

```
jeff33_lib = open(path_to_jeff33_lib)
```

5.5.2.8 jeff33_line

```
jeff33_line = jeff33_lib.readlines()
```

5.5.2.9 line

```
line = jeff33_line[i]
```

5.5.2.10 name

```
list name = fp_data[i][0]
```

5.5.2.11 new_line

```
list new_line = ['0.0' if x in ['', '\n'] else x for x in line]
```

5.5.2.12 obu_fy_lib

```
obu_fy_lib = open('/home/julien/Open-Burnup.dev/openbu/data/other_libs/ENDFVIII/obu_endfVIII↵_fy_lib', 'w')
```

5.5.2.13 obu_name

```
obu_name = utils.openmc_name_to_openbu_name(name)
```

5.5.2.14 path_to_jeff33_lib

```
string path_to_jeff33_lib = '/home/julien/Open-Burnup.dev/openbu/data/other_libs/ENDFVIII/ENDFVIII_ind_fy_noheader.csv'
```

5.5.2.15 reduced_nucl_set

```
reduced_nucl_set = data.reduced_nucl_set
```

5.5.2.16 time_dic

```
dictionary time_dic = {}
```

5.5.2.17 uncertainty

```
list uncertainty = fp_data[i][2*j+2].rstrip()
```

5.5.2.18 val

```
list val = fp_data[i][2*j+1]
```

5.5.2.19 zamid

```
zamid = utils.name_to_zamid(obu_name)
```

5.6 conv_nndc_decaylib Namespace Reference

Variables

5.6.1 Variable Documentation

5.6.1.1 br

```
br = line[2]
```

5.6.1.2 br_error

```
br_error = line[3]
```

5.6.1.3 column_title

```
list column_title = ['line', 'zaid', 'br', 'br error', 'daughter s', 'energy', 'energy error',  
'half life', 'half life error', 's', 'name', 'type']
```

5.6.1.4 data_dict

```
dictionary data_dict = {}
```

5.6.1.5 daughter_s

```
daughter_s = line[4]
```

5.6.1.6 decay_dict

```
dictionary decay_dict = {}
```

5.6.1.7 endf

```
string endf = 'yes'
```

5.6.1.8 ENDF8_file

```
ENDF8_file = open('/home/julien/Open-Burnup.dev/openbu/data/other_libs/ENDFVIII/endlf-b-viii.↵  
0-decay-openmc.csv', 'r')
```

5.6.1.9 from_excited_zamid

```
list from_excited_zamid = []
```

5.6.1.10 half_life

```
dictionary half_life = line[7]
```

5.6.1.11 half_life_error

```
dictionary half_life_error = line[8]
```

5.6.1.12 hl_dict

```
dictionary hl_dict = {}
```

5.6.1.13 i

```
int i = 0
```

5.6.1.14 line

```
line = line.split(',')
```

5.6.1.15 lines

```
lines = ENDF8_file.readlines()
```

5.6.1.16 name

```
name = line[10]
```

5.6.1.17 nucl_index

```
list nucl_index = []
```

5.6.1.18 nucl_name

```
list nucl_name = []
```

5.6.1.19 OpenBU_format

```
OpenBU_format = open('/home/julien/Open-Burnup.dev/openbu/data/other_libs/ENDFVIII/obu_ENDFV←  
III_decay_reduced', 'w')
```

5.6.1.20 passpt

```
passpt = Passport(zamid)
```

5.6.1.21 reac_dict

```
dictionary reac_dict = {}
```

5.6.1.22 reac_name_dict

```
dictionary reac_name_dict
```

Initial value:

```
1 = {'IT': 'gamma', 'beta-': 'betaneg', 'ec/beta+': 'betapos', 'alpha': 'alpha', 'neutron': 'neutron', '  
    proton': 'proton',  
2 'n': 'neutron', 'p': 'proton'}
```

5.6.1.23 reac_type

```
dictionary reac_type = line[11].replace('\n', '')
```

5.6.1.24 reduced_nucl_set

```
reduced_nucl_set = data.reduced_nucl_set
```

5.6.1.25 s

```
s = line[9]
```

5.6.1.26 state_dict

```
dictionary state_dict = {'0.0': '', '0': '', '1.0': 'X', '1': 'X'}
```

5.6.1.27 to_excited_zamid

```
list to_excited_zamid = []
```


5.6.1.28 txt

```
string txt = '=====\\n'
```

5.6.1.29 unit

```
dictionary unit = 's'
```

5.6.1.30 zamid

```
list zamid = line[1][:-4] + line[1][-3:] + '{}'.format(s)
```

5.7 conv_xslib Namespace Reference

Functions

Variables

5.7.1 Function Documentation

5.7.1.1 find_E_index()

```
def conv_xslib.find_E_index (  
    s )
```

5.7.1.2 is_int()

```
def conv_xslib.is_int (  
    s )
```

5.7.1.3 is_number()

```
def conv_xslib.is_number (  
    s )
```

5.7.2 Variable Documentation

5.7.2.1 act_data

```
list act_data = []
```

5.7.2.2 act_index

```
int act_index = 0
```

5.7.2.3 act_txt

```
string act_txt = '\n\n--- Actinides ---\n\n'
```

5.7.2.4 act_xs_key

```
list act_xs_key = ['(n,gamma)', '(n,2n)', '(n,3n)', 'fission', '(n,gamma)X', '(n,2n)X', 'removal']
```

5.7.2.5 avt_data

```
list avt_data = []
```

5.7.2.6 avt_index

```
int avt_index = 0
```

5.7.2.7 avt_txt

```
string avt_txt = '\n\n--- Activation Products ---\n\n'
```

5.7.2.8 avt_xs_key

```
list avt_xs_key = ['(n,gamma)', '(n,2n)', '(n,a)', '(n,p)', '(n,gamma)X', '(n,2n)X', 'removal']
```

5.7.2.9 fp_data

```
list fp_data = []
```

5.7.2.10 fp_index

```
int fp_index = 0
```

5.7.2.11 fp_nucl

```
list fp_nucl = [None]*len(fp_data)
```

5.7.2.12 fp_txt

```
string fp_txt = '\n\n--- Fission Products ---\n\n'
```

5.7.2.13 fp_xs_key

```
list fp_xs_key = ['(n,gamma)', '(n,2n)', '(n,a)', '(n,p)', '(n,gamma)X', '(n,2n)X', 'removal']
```

5.7.2.14 name

```
name = passpt.name
```

5.7.2.15 ori_lib

```
ori_lib = open(path_to_orilib)
```

5.7.2.16 ori_line

```
ori_line = ori_lib.readlines()
```

5.7.2.17 passpt

```
passpt = Passport(zamid)
```

5.7.2.18 path_to_orilib

```
string path_to_orilib = '/home/julien/origen/libs/pwrpupu.lib'
```

5.7.2.19 txt

```
string txt = act_txt + fp_txt + avt_txt
```

5.7.2.20 xs_lib

```
xs_lib = open('/home/julien/Open-Burnup.dev/openbu/data/xs_lib_pupu', 'w')
```

5.7.2.21 zamid

```
list zamid = i.split()[1]
```

5.8 convert_decay-old-format_to-new-format Namespace Reference

Variables

5.8.1 Variable Documentation

5.8.1.1 decay

```
decay = l.split()[1]
```

5.8.1.2 decay_b_dic

```
dictionary decay_b_dic = {}
```

5.8.1.3 decay_dict

```
dictionary decay_dict = decay_b_dic[zamid]
```

5.8.1.4 dic

```
dictionary dic = dic_list[i]
```

5.8.1.5 dic_list

```
dictionary dic_list = {}
```

5.8.1.6 half_life

```
dictionary half_life = decay_dict['half-life']*d.time_dic[unit]
```

5.8.1.7 hl_s

```
hl_s = float(d.time_dic[dic['unit']]*float(dic['half-life']))
```

5.8.1.8 line

```
line = decay_file.readlines()
```

5.8.1.9 name

```
name = passpt.name
```

5.8.1.10 new_format

```
new_format = open('/home/julien/Open-Burnup.dev/openbu/data/other_libs/argonne/decay_lib_new↵  
_format', 'w')
```

5.8.1.11 nucl_list

```
list nucl_list = []
```

5.8.1.12 order_nucl_list

```
order_nucl_list = utils.order_nuclide_per_z(nucl\_list)
```

5.8.1.13 ori_lib

```
string ori_lib = '/home/julien/Open-Burnup.dev/test/argonne/decay_lib_argonne'
```

5.8.1.14 passpt

```
passpt = Passport(zamid)
```

5.8.1.15 r

```
int r = 0
```

5.8.1.16 rest

```
int rest = (1 - float(dic['betapos']) - float(dic['alpha']) - float(dic['gamma']))
```

5.8.1.17 total_decay

```
total_decay = m.log(2)/hl_s
```

5.8.1.18 txt

```
string txt = '=====\n'
```

5.8.1.19 unit

```
dictionary unit = l.split()[2]
```

5.8.1.20 val

```
val = l.split()[3]
```

5.8.1.21 zamid

```
zamid = l.split()[1]
```

5.9 find_isomeric_branching Namespace Reference

Variables

5.9.1 Variable Documentation

5.9.1.1 name

```
name = utils.zamid_to_name(nucl)
```

5.9.1.2 ngamma

```
ngamma = xs_dic[nucl]['(n,gamma)'][0]
```

5.9.1.3 ngammaX

```
ngammaX = xs_dic[nucl]['(n,gamma)X'][0]
```

5.9.1.4 order_selected_zamid

```
order_selected_zamid = utils.order_nuclide_per_z(selected_zamid)
```

5.9.1.5 path

```
string path = '/home/julien/Open-Burnup.dev/openbu/data/default_libs/xs_lib'
```

5.9.1.6 selected_name

```
selected_name = []
```

5.9.1.7 selected_zamid

```
list selected_zamid = []
```

5.9.1.8 total

```
total = ngamma+ngammaX
```


5.9.1.9 xs_dic

```
xs_dic = d.read_xs_lib(path)
```

5.10 nuclide_chart_compare_fy Namespace Reference

Variables

5.10.1 Variable Documentation

5.10.1.1 path1

```
string path1 = '/home/julien/Open-Burnup.dev/openbu/data/default_libs/fy_lib'
```

5.10.1.2 path2

```
string path2 = '/home/julien/Open-Burnup.dev/openbu/data/other_libs/jeff33/jeff33_fy_lib'
```

5.11 nuclide_chart_jeff33-32 Namespace Reference

Variables

5.11.1 Variable Documentation

5.11.1.1 decay_lib

```
string decay_lib = '/home/julien/Open-Burnup.dev/openbu/data/default_libs/decay_lib'
```

5.11.1.2 fy_lib

```
string fy_lib = '/home/julien/Open-Burnup.dev/openbu/data/default_libs/fy_lib'
```

5.12 openbu Namespace Reference

5.13 openbu.cell Namespace Reference

Classes

- class [Cell](#)
- class [Initial_nucl_not_in_Nucl_set](#)
- class [Initial_nucl_not_set](#)
- class [Nucl_set_not_in_Lib_nucl](#)
- class [Nuclide_list_redundant](#)
- class [Passlist_not_defined](#)

5.14 openbu.couple Namespace Reference

5.15 openbu.couple.couple_openmc Namespace Reference

Classes

- class [Couple_openmc](#)
- class [Initial_nuclides_not_in_nuclide_list](#)
- class [STOP](#)

5.16 openbu.couple.openmc_fix Namespace Reference

Functions

5.16.1 Function Documentation

5.16.1.1 add_periodic_surfaces()

```
def openbu.couple.openmc_fix.add_periodic_surfaces (
    cell,
    periodic_surface_dict )
```

5.16.1.2 read_periodic_surfaces()

```
def openbu.couple.openmc_fix.read_periodic_surfaces ( )
```

5.17 openbu.data Namespace Reference

Variables

5.17.1 Variable Documentation

5.17.1.1 default_atm_mass_lib

```
default_atm_mass_lib = read_mass_lib(default_atm_mass_lib_path)
```

5.17.1.2 default_atm_mass_lib_path

```
default_atm_mass_lib_path = os.path.join(os.path.dirname(__file__), 'default_libs/mass.mas12')
```

Generate the default libraries.

5.17.1.3 default_B

```
default_B = default_xs_mat_from_Btxt()
```

5.17.1.4 default_C

```
default_C = default_decay_mat_from_Ctxt()
```

Generate the default matrices and nuclide lists.

5.17.1.5 default_decay_b_lib_path

```
default_decay_b_lib_path = os.path.join(os.path.dirname(__file__), 'default_libs/decay_lib_↵  
reduced')
```

5.17.1.6 default_decay_lib_a

```
default_decay_lib_a = conv_decay_b_a(default_decay_lib_b)
```

5.17.1.7 default_decay_lib_b

```
default_decay_lib_b = read_decay_lib(default_decay_b_lib_path)
```

5.17.1.8 default_fy_lib

```
default_fy_lib = read_fy_lib(default_fy_lib_path)
```

5.17.1.9 default_fy_lib_path

```
default_fy_lib_path = os.path.join(os.path.dirname(__file__), 'default_libs/fy_lib_reduced')
```

5.17.1.10 default_xs_lib

```
default_xs_lib = read_xs_lib(default_xs_lib_path)
```

5.17.1.11 default_xs_lib_path

```
default_xs_lib_path = os.path.join(os.path.dirname(__file__), 'default_libs/xs_lib')
```

5.18 openbu.data.list_and_dict Namespace Reference

Variables

5.18.1 Variable Documentation

5.18.1.1 decay_key_a

```
list decay_key_a = ['total', 'half-life', 'betaneg', 'betanegX', 'betapos', 'betaposX', 'alpha', 'gamma']
```

5.18.1.2 decay_key_b

```
list decay_key_b = ['unit','total', 'half-life', 'betaneg', 'betanegX', 'betapos', 'betaposX', 'alpha', 'gamma']
```

5.18.1.3 decay_prod_fromS_toS

```
dictionary decay_prod_fromS_toS = {'betaneg':[1,0,0], 'betapos':[-1,0,0], 'alpha':[-2,-4,0], 'neutron':[0,-1,0], 'proton':[-1,-1,0]}
```

5.18.1.4 decay_prod_fromS_toX

```
dictionary decay_prod_fromS_toX = {'betanegX':[1,0,1], 'betaposX':[-1,0,1], 'alphaX':[-2,-4,1], 'neutronX':[-1,0,1], 'protonX':[-1,-1,1]}
```

5.18.1.5 decay_prod_fromX_toS

```
dictionary decay_prod_fromX_toS = {'Xbetaneg':[1,0,-1], 'Xbetapos':[-1,0,-1], 'Xalpha':[-2,-4,-1], 'Xgamma':[-1,0,0,-1], 'Xneutron':[0,-1,-1], 'Xproton':[-1,-1,-1]}
```

5.18.1.6 decay_prod_fromX_toX

```
dictionary decay_prod_fromX_toX = {'XbetanegX':[1,0,0], 'XbetaposX':[-1,0,0], 'XalphaX':[-2,-4,0], 'XneutronX':[0,-1,0], 'XprotonX':[-1,-1,0]}
```

5.18.1.7 fiss_nuc

```
list fiss_nuc = ['902320', '922330', '922350', '922380', '942390', '942410', '962450', '982490']
```

5.18.1.8 MT_dic

```
dictionary MT_dic = {102: '(n,gamma)', 18: 'fission', 16: '(n,2n)', 17: '(n,3n)', 22: '(n,a)'}
```

5.18.1.9 NATURAL_ABUNDANCE

```
dictionary NATURAL_ABUNDANCE
```

5.18.1.10 NAX_nucl_list

```
list NAX_nucl_list = ['30060', '30070', '40100', '50100', '50110', '60140', '110220', '170350',
'170360', '170370', '200410', '200420', '220460', '220470', '220480', '220490', '220500',
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'781950', '781960', '781980', '801980', '801990', '802000', '802010', '802020', '822050',
'822060', '822070', '832101']
```

5.18.1.11 NAX_z_list

```
list NAX_z_list = [3, 5, 17, 22, 24, 26, 28, 34, 38, 40, 42, 44, 46, 47, 48, 49, 50, 51, 52,
55, 56, 57, 58, 60, 62, 63, 64, 66, 68, 72, 74, 76, 78, 80, 82]
```

5.18.1.12 nuc_name_dic

```
dictionary nuc_name_dic = {}
```

5.18.1.13 nuc_zz_dic

```
dictionary nuc_zz_dic = {v: k for k, v in list(nuc_name_dic.items())}
```

5.18.1.14 nucl_FAM

```
list nucl_FAM = ['Actinides', 'Fission Products', 'Activation Products']
```

5.18.1.15 Pu_isotopes_name

```
list Pu_isotopes_name = ['Pu-238', 'Pu-239', 'Pu-240', 'Pu-241', 'Pu-242', 'Pu-243']
```

5.18.1.16 Pu_isotopes_zamid

```
list Pu_isotopes_zamid = ['94238', '94239', '94240', '94241', '94242', '94243']
```

5.18.1.17 reduced_nucl_set

```
list reduced_nucl_set = ['10010', '10020', '10030', '20030', '20040', '30060', '30070', '40070',  
'40090', '40100', '50100', '50110', '60120', '60130', '60140', '70140', '70150', '80160',  
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'992541', '992550', '1002540', '1002550']
```

5.18.1.18 stable_dic_a

```
list stable_dic_a = [ 0., 'stable', 0., 0., 0., 0., 0., 0.]
```

5.18.1.19 stable_dic_b

```
list stable_dic_b = ['n/a', 0., 'stable', 0., 0., 0., 0., 0.]
```

5.18.1.20 time_dic

```
dictionary time_dic = {'s': 1, 'm': 60, 'h':3600, 'd': 24*3600, 'y': 24*3600*365.25, '1e3y':↵
:1e3*24*3600*365.25, '1e6y':1e6*24*3600*365.25, '1e9y':1e9*24*3600*365.25}
```

5.18.1.21 unit_dic

```
dictionary unit_dic = {'m':1e-3, 'c':1e-2, 'd':1e-1, 'k':1e3, 'M':1e6, 'G':1e9}
```

5.18.1.22 xs_key

```
list xs_key = ['(n,gamma)', '(n,gamma)X', '(n,2n)', '(n,2n)X', '(n,a)', '(n,p)', 'fission',
'(n,3n)', 'removal']
```

5.18.1.23 xs_lib_object_name_dict

```
dictionary xs_lib_object_name_dict = {'ngamma': '(n,gamma)', 'n2n': '(n,2n)', 'n3n': '(n,3n)',
'nalp': '(n,alpha)', 'fission': 'fission', 'removal': 'removal'}
```

5.18.1.24 xs_prod_fromS_toS

```
dictionary xs_prod_fromS_toS = {'(n,gamma)': [0,1,0], '(n,2n)': [0,-1,0], '(n,3n)': [0,-2,0], '(n,p)'↵
: [-1,0,0], '(n,a)': [-2,-3,0]}
```

5.18.1.25 xs_prod_fromS_toX

```
dictionary xs_prod_fromS_toX = {'(n,2n)X': [0,-1,1], '(n,gamma)X': [0,1,1]}
```

5.18.1.26 xs_prod_fromX_toS

```
dictionary xs_prod_fromX_toS = {'X(n,gamma)': [0,1,-1], 'X(n,2n)': [0,-1,-1], 'X(n,3n)': [0,-2,-1], '↵
X(n,p)': [-1,0,-1], 'X(n,a)': [-2,-3,-1]}
```

5.18.1.27 xs_prod_fromX_toX

```
dictionary xs_prod_fromX_toX = {'X(n,2n)X':[0,-1,0], 'X(n,gamma)X':[0,1,0]}
```

5.19 openbu.data.read_lib_functions Namespace Reference

Functions

5.19.1 Function Documentation

5.19.1.1 conv_decay_b_a()

```
def openbu.data.read_lib_functions.conv_decay_b_a (  
    decay_b )
```

5.19.1.2 default_decay_mat_from_Ctxt()

```
def openbu.data.read_lib_functions.default_decay_mat_from_Ctxt ( )
```

5.19.1.3 default_nucl_list_from_txt()

```
def openbu.data.read_lib_functions.default_nucl_list_from_txt ( )
```

5.19.1.4 default_xs_mat_from_Btxt()

```
def openbu.data.read_lib_functions.default_xs_mat_from_Btxt ( )
```

5.19.1.5 read_decay_lib()

```
def openbu.data.read_lib_functions.read_decay_lib (  
    decay_lib_path )
```

5.19.1.6 read_fy_lib()

```
def openbu.data.read_lib_functions.read_fy_lib (
    fy_lib_path )
```

5.19.1.7 read_isomeric_data()

```
def openbu.data.read_lib_functions.read_isomeric_data ( )
```

5.19.1.8 read_mass_lib()

```
def openbu.data.read_lib_functions.read_mass_lib (
    mass_lib_path )
```

5.19.1.9 read_xs_lib()

```
def openbu.data.read_lib_functions.read_xs_lib (
    xs_lib_path )
```

5.20 openbu.input Namespace Reference

Classes

- class [Input](#)

5.21 openbu.nax Namespace Reference

5.22 openbu.nax.functions Namespace Reference

Classes

- class [Batch](#)

Functions

5.22.1 Function Documentation

5.22.1.1 bateman_step_solution()

```
def openbu.nax.functions.bateman_step_solution (
    chain,
    init_abun_list,
    nuclide,
    step,
    path,
    cell,
    fluence,
    ng_xs_seq_dict,
    tot_xs_seq_dict )
```

5.22.1.2 bateman_step_solution_matrix()

```
def openbu.nax.functions.bateman_step_solution_matrix (
    chain,
    abund,
    batch,
    cell,
    dphi,
    EFPD )
```

5.22.1.3 bateman_term()

```
def openbu.nax.functions.bateman_term (
    chain,
    init_abun,
    nuclide,
    step,
    path,
    cell,
    fluence,
    ng_xs_seq_dict,
    tot_xs_seq_dict )
```

5.22.1.4 concatenate_history_fluence()

```
def openbu.nax.functions.concatenate_history_fluence (
    history_matrix_list )
```

5.22.1.5 concatenate_history_fluence_from_pu_prod_matrix_list()

```
def openbu.nax.functions.concatenate_history_fluence_from_pu_prod_matrix_list (
    history_matrix_list )
```

5.22.1.6 concatenate_history_matrix()

```
def openbu.nax.functions.concatenate_history_matrix (
    history_matrix_list )
```

5.22.1.7 concatenate_pu_cum_prod_history_matrix()

```
def openbu.nax.functions.concatenate_pu_cum_prod_history_matrix (
    pu_prod_history_matrix_list )
```

5.22.1.8 concatenate_pu_prod_history_matrix()

```
def openbu.nax.functions.concatenate_pu_prod_history_matrix (
    pu_prod_history_matrix_list )
```

5.22.1.9 convert_density_to_mass()

```
def openbu.nax.functions.convert_density_to_mass (
    concatenated_pu_prod_history_matrix,
    path,
    fuel_cell,
    scale_up_factor = None )
```

5.22.1.10 cumulate_pu_prod_history_matrix()

```
def openbu.nax.functions.cumulate_pu_prod_history_matrix (
    concatenate_pu_prod_history_matrix )
```

5.22.1.11 `fraction_derivative()`

```
def openbu.nax.functions.fraction_derivative (
    concatenate_history_matrix,
    history_fluence,
    chain )
```

5.22.1.12 `get_chain_nuclide_index()`

```
def openbu.nax.functions.get_chain_nuclide_index (
    chain,
    nuclide )
```

5.22.1.13 `get_chain_nuclide_name()`

```
def openbu.nax.functions.get_chain_nuclide_name (
    chain,
    index )
```

5.22.1.14 `get_chain_nuclide_nat_abun()`

```
def openbu.nax.functions.get_chain_nuclide_nat_abun (
    chain,
    nuclide )
```

5.22.1.15 `get_combine_indexes()`

```
def openbu.nax.functions.get_combine_indexes (
    index_list1,
    index_list2 )
```

5.22.1.16 `get_eos_abun_from_matrix()`

```
def openbu.nax.functions.get_eos_abun_from_matrix (
    step_solution_matrix )
```


5.22.1.17 get_fluence_derivative_dict()

```
def openbu.nax.functions.get_fluence_derivative_dict (
    ratio_derivative_dict )
```

5.22.1.18 get_history_matrix_list()

```
def openbu.nax.functions.get_history_matrix_list (
    operation_history,
    chain,
    cell )
```

5.22.1.19 get_history_mid_fluence()

```
def openbu.nax.functions.get_history_mid_fluence (
    history_fluence,
    step_break_indexes )
```

5.22.1.20 get_nat_abun_list_from_chain()

```
def openbu.nax.functions.get_nat_abun_list_from_chain (
    chain )
```

5.22.1.21 get_nuclide_list_from_chain()

```
def openbu.nax.functions.get_nuclide_list_from_chain (
    chain )
```

5.22.1.22 get_pu_prod_history_matrix_list()

```
def openbu.nax.functions.get_pu_prod_history_matrix_list (
    operation_history,
    fuel_cell,
    NAX_cell )
```

5.22.1.23 `get_ratio_derivative_dict()`

```
def openbu.nax.functions.get_ratio_derivative_dict (
    ratio_evolution,
    history_fluence,
    batch_break_indexes,
    step_break_indexes )
```

5.22.1.24 `get_ratio_evolution()`

```
def openbu.nax.functions.get_ratio_evolution (
    chain,
    history_matrix )
```

5.22.1.25 `invert_ratio()`

```
def openbu.nax.functions.invert_ratio (
    ratio_evolution_dict,
    ratio_name_list )
```

5.22.1.26 `invert_ratio_name()`

```
def openbu.nax.functions.invert_ratio_name (
    ratio_name )
```

5.22.1.27 `list_NAX_ng_chain()`

```
def openbu.nax.functions.list_NAX_ng_chain ( )
```

5.22.1.28 `list_NAX_ng_chain_from_output()`

```
def openbu.nax.functions.list_NAX_ng_chain_from_output (
    path,
    cell,
    step )
```

5.22.1.29 locate_batch_break()

```
def openbu.nax.functions.locate_batch_break (
    history_matrix_list )
```

5.22.1.30 locate_batch_break_end_start()

```
def openbu.nax.functions.locate_batch_break_end_start (
    history_matrix_list )
```

5.22.1.31 locate_batch_break_from_pu_prod_matrix_list()

```
def openbu.nax.functions.locate_batch_break_from_pu_prod_matrix_list (
    history_matrix_list )
```

5.22.1.32 locate_step_break()

```
def openbu.nax.functions.locate_step_break (
    history_matrix_list )
```

5.22.1.33 plot_chain_fluence_relative_error_history()

```
def openbu.nax.functions.plot_chain_fluence_relative_error_history (
    ratio_evolution,
    fluence_derivative_dict,
    history_mid_fluence,
    sampled_index )
```

5.22.1.34 plot_chain_fraction_derivative_history()

```
def openbu.nax.functions.plot_chain_fraction_derivative_history (
    fraction_derivative_dict,
    history_mid_fluence )
```

5.22.1.35 `plot_compare_ng_chain_densities_with_salameche()`

```
def openbu.nax.functions.plot_compare_ng_chain_densities_with_salameche (
    chain,
    fluence_points_seq,
    mat,
    path,
    cell )
```

5.22.1.36 `plot_cum_pu_prod_against_fluence()`

```
def openbu.nax.functions.plot_cum_pu_prod_against_fluence (
    cumulate_pu_prod_history_matrix,
    concatenate_history_fluence )
```

5.22.1.37 `plot_fluence_relative_error_with_ratio_history()`

```
def openbu.nax.functions.plot_fluence_relative_error_with_ratio_history (
    ratio_evolution,
    fluence_derivative_dict,
    history_mid_fluence,
    sampled_index,
    chain,
    history_matrix,
    history_fluence,
    ratio_uncertainty )
```

5.22.1.38 `plot_mass_pu_cum_prod_against_fluence()`

```
def openbu.nax.functions.plot_mass_pu_cum_prod_against_fluence (
    mass_pu_prod_history_matrix,
    concatenate_history_fluence,
    batch_break_indexes = None )
```

5.22.1.39 `plot_mass_pu_prod_against_fluence()`

```
def openbu.nax.functions.plot_mass_pu_prod_against_fluence (
    mass_pu_prod_history_matrix,
    concatenate_history_fluence,
    batch_break_indexes = None )
```

5.22.1.40 plot_mass_pu_prod_against_ratio()

```
def openbu.nax.functions.plot_mass_pu_prod_against_ratio (
    ratio_name,
    sampled_ratio,
    mass_pu_prod )
```

5.22.1.41 plot_ng_chain_densities()

```
def openbu.nax.functions.plot_ng_chain_densities (
    chain,
    fluence_points_seq,
    mat )
```

5.22.1.42 plot_ng_chain_densities_history()

```
def openbu.nax.functions.plot_ng_chain_densities_history (
    chain,
    history_matrix,
    history_fluence,
    different_axes )
```

5.22.1.43 plot_ng_chain_ratio_derivative_history()

```
def openbu.nax.functions.plot_ng_chain_ratio_derivative_history (
    ratio_evolution,
    ratio_derivative_dict,
    history_mid_fluence,
    sampled_index )
```

5.22.1.44 plot_ng_chain_ratio_history()

```
def openbu.nax.functions.plot_ng_chain_ratio_history (
    chain,
    ratio_evolution,
    history_fluence )
```

5.22.1.45 `plot_pu_prod()`

```
def openbu.nax.functions.plot_pu_prod (
    fuel_cell,
    NAX_cell,
    operation_history,
    path,
    scale_up_factor = None )
```

5.22.1.46 `plot_pu_prod_against_fluence()`

```
def openbu.nax.functions.plot_pu_prod_against_fluence (
    concatenate_pu_prod_history_matrix,
    concatenate_history_fluence )
```

5.22.1.47 `plot_selected_fluence_relative_error_history()`

```
def openbu.nax.functions.plot_selected_fluence_relative_error_history (
    selected_list,
    selected_ratio_dict,
    selected_fluence_derivative_dict,
    history_mid_fluence,
    sampled_index,
    ratio_uncertainty,
    cut_off = None,
    batch_break_indexes = None )
```

5.22.1.48 `plot_selected_ratio_history()`

```
def openbu.nax.functions.plot_selected_ratio_history (
    selected_list,
    selected_ratio_dict,
    history_fluence,
    batch_break_indexes = None )
```

5.22.1.49 `pu_prod_matrix()`

```
def openbu.nax.functions.pu_prod_matrix (
    batch,
    fuel_cell,
    NAX_cell,
    EFPD )
```

5.22.1.50 review_all_ratio_candidates()

```
def openbu.nax.functions.review_all_ratio_candidates (
    NAX_cell,
    operation_history,
    path,
    ratio_uncertainty )
```

5.22.1.51 review_selected_ratio_candidates()

```
def openbu.nax.functions.review_selected_ratio_candidates (
    NAX_cell,
    operation_history,
    path,
    selected_list,
    ratio_uncertainty,
    cut_off = None )
```

5.22.1.52 sample_data_with_sample_indexes()

```
def openbu.nax.functions.sample_data_with_sample_indexes (
    sampled_indexes,
    data )
```

5.22.1.53 sample_ratio_evolution_on_fluence_grid()

```
def openbu.nax.functions.sample_ratio_evolution_on_fluence_grid (
    ratio_evolution,
    old_fluence_grid,
    new_fluence_grid )
```

5.22.1.54 sampled_index()

```
def openbu.nax.functions.sampled_index (
    batch_break_indexes )
```

5.23 openbu.passlist Namespace Reference

Classes

- class [Neg_decay](#)
- class [Neg_xs](#)
- class [Nuc_xs_not_found](#)
- class [Passlist](#)

5.23.1 Detailed Description

Create list of passport, set mass, decay and xs

5.24 openbu.passport Namespace Reference

Classes

- class [Incorrect_nuc_id](#)
- class [No_fission_XS](#)
- class [Not_a_Fission_Product](#)
- class [Nuc_xs_not_found](#)
- class [Passport](#)
- class [XS_not_yet_set](#)

5.24.1 Detailed Description

This module defines the Python class passport used in Open-Burnup

5.25 openbu.salameche Namespace Reference

5.26 openbu.salameche.burn Namespace Reference

Functions

5.26.1 Function Documentation

5.26.1.1 burn()

```
def openbu.salameche.burn.burn (
    system )
```

5.26.1.2 burn_cell()

```
def openbu.salameche.burn.burn_cell (
    bucell,
    s,
    mode )
```


5.26.1.3 burn_step()

```
def openbu.salameche.burn.burn_step (
    system,
    s,
    mode )
```

5.26.1.4 burn_substep()

```
def openbu.salameche.burn.burn_substep (
    bucell,
    B,
    C,
    N,
    s,
    ss,
    ssn,
    mode )
```

5.26.1.5 burn_substep_pc()

```
def openbu.salameche.burn.burn_substep_pc (
    cell,
    B,
    C,
    N,
    s,
    i )
```

5.26.1.6 burn_substep_pcME4()

```
def openbu.salameche.burn.burn_substep_pcME4 (
    cell,
    B,
    C,
    N,
    s,
    i )
```

5.27 openbu.salameche.cram Namespace Reference

Functions

5.27.1 Detailed Description

Compute the solution of the matricial depletion equation using the CRAM method

5.27.2 Function Documentation

5.27.2.1 CRAM16()

```
def openbu.salameche.cram.CRAM16 (
    At,
    N_0 )
```

CRAM uses the Chebishev rational approximation method to compute the solution of the matricial depletion equation

5.27.2.2 CRAM_density_check()

```
def openbu.salameche.cram.CRAM_density_check (
    bucell,
    N )
```

5.27.2.3 CRAM_reality_check()

```
def openbu.salameche.cram.CRAM_reality_check (
    cell,
    index_dic,
    N )
```

5.28 openbu.salameche.mat_builder Namespace Reference

Functions

5.28.1 Detailed Description

Uses the passport list to build the transmutation matrix

5.28.2 Function Documentation

5.28.2.1 `_gen_mat_folder()`

```
def openbu.salameche.mat_builder._gen_mat_folder (  
    path ) [private]
```

5.28.2.2 `_get_decay_mat()`

```
def openbu.salameche.mat_builder._get_decay_mat (  
    passlist ) [private]
```

Build the cross section matrix

5.28.2.3 `_get_decay_mat_text()`

```
def openbu.salameche.mat_builder._get_decay_mat_text (  
    decay_mat,  
    cell ) [private]
```

5.28.2.4 `_get_initial_vect()`

```
def openbu.salameche.mat_builder._get_initial_vect (  
    passlist ) [private]
```

5.28.2.5 `_get_mat_folder_path()`

```
def openbu.salameche.mat_builder._get_mat_folder_path (  
    cell ) [private]
```

5.28.2.6 `_get_xs_mat()`

```
def openbu.salameche.mat_builder._get_xs_mat (  
    passlist ) [private]
```

Build the cross section matrix

5.28.2.7 `_get_xs_mat_text_1()`

```
def openbu.salameche.mat_builder._get_xs_mat_text_1 (  
    xs_mat,  
    cell ) [private]
```

5.28.2.8 `_get_xs_mat_text_2()`

```
def openbu.salameche.mat_builder._get_xs_mat_text_2 (  
    xs_mat,  
    cell,  
    flux ) [private]
```

5.28.2.9 `_print_all_mat_to_text()`

```
def openbu.salameche.mat_builder._print_all_mat_to_text (  
    xs_mat,  
    decay_mat,  
    cell,  
    s ) [private]
```

5.28.2.10 `decay_mat_from_txt()`

```
def openbu.salameche.mat_builder.decay_mat_from_txt (  
    Ctxt_name )
```

5.28.2.11 `initial_vect_from_txt()`

```
def openbu.salameche.mat_builder.initial_vect_from_txt (  
    mattxt_name,  
    passdic )
```

5.28.2.12 `nucl_list_from_txt()`

```
def openbu.salameche.mat_builder.nucl_list_from_txt (  
    mattxt_name )
```

5.28.2.13 xs_mat_from_txt()

```
def openbu.salameche.mat_builder.xs_mat_from_txt (
    Btxt_name )
```

5.29 openbu.salameche.py_pade Namespace Reference

Functions

5.29.1 Function Documentation

5.29.1.1 pade()

```
def openbu.salameche.py_pade.pade (
    At,
    N )
```

5.30 openbu.sequence Namespace Reference

Classes

- class [Sequence](#)
- class [Step_0](#)

5.31 openbu.standalone Namespace Reference

Classes

- class [Stand_alone](#)

5.32 openbu.system Namespace Reference

Classes

- class [Cell_name_not_found](#)
- class [System](#)

5.33 openbu.utils Namespace Reference

5.34 openbu.utils.data_processor Namespace Reference

Classes

- class [xs_name_not_found](#)

Functions

5.34.1 Function Documentation

5.34.1.1 `compare_xs_bu_evolution_from_path()`

```
def openbu.utils.data_processor.compare_xs_bu_evolution_from_path (
    bucell,
    nuclide,
    xs_name_list,
    path_list,
    name_list )
```

5.34.1.2 `convert_dens_seq_to_cum_dens_seq()`

```
def openbu.utils.data_processor.convert_dens_seq_to_cum_dens_seq (
    dens_seq )
```

5.34.1.3 `find_step_from_time()`

```
def openbu.utils.data_processor.find_step_from_time (
    path,
    cell,
    time )
```

5.34.1.4 `find_substep_from_time()`

```
def openbu.utils.data_processor.find_substep_from_time (
    path,
    cell,
    time )
```

5.34.1.5 get_cum_dens()

```
def openbu.utils.data_processor.get_cum_dens (
    nuclide,
    path )
```

5.34.1.6 get_cum_pu_subseq_mat()

```
def openbu.utils.data_processor.get_cum_pu_subseq_mat (
    path,
    cell,
    EFPD )
```

5.34.1.7 get_extra_fluence_from_time()

```
def openbu.utils.data_processor.get_extra_fluence_from_time (
    path,
    cell,
    time )
```

5.34.1.8 get_extra_subfluence_from_time()

```
def openbu.utils.data_processor.get_extra_subfluence_from_time (
    path,
    cell,
    time )
```

5.34.1.9 get_fluence_seq()

```
def openbu.utils.data_processor.get_fluence_seq (
    path,
    cell )
```

5.34.1.10 get_fluence_seq_until_time()

```
def openbu.utils.data_processor.get_fluence_seq_until_time (
    path,
    cell,
    final_time )
```

5.34.1.11 `get_fluence_subseq()`

```
def openbu.utils.data_processor.get_fluence_subseq (
    path,
    cell )
```

5.34.1.12 `get_fluence_subseq_until_time()`

```
def openbu.utils.data_processor.get_fluence_subseq_until_time (
    path,
    cell,
    final_time )
```

5.34.1.13 `get_nucl_atomic_mass()`

```
def openbu.utils.data_processor.get_nucl_atomic_mass (
    nucl )
```

5.34.1.14 `get_pu_subseq_mat()`

```
def openbu.utils.data_processor.get_pu_subseq_mat (
    path,
    cell,
    EFPD )
```

5.34.1.15 `get_step_fluence_length()`

```
def openbu.utils.data_processor.get_step_fluence_length (
    path,
    cell )
```

5.34.1.16 `get_step_time_length_seq()`

```
def openbu.utils.data_processor.get_step_time_length_seq (
    path )
```


5.34.1.17 `get_time_averaged_flux()`

```
def openbu.utils.data_processor.get_time_averaged_flux (
    path,
    cell )
```

5.34.1.18 `get_time_averaged_xs()`

```
def openbu.utils.data_processor.get_time_averaged_xs (
    nuclide,
    xs_name,
    path,
    cell )
```

5.34.1.19 `get_tot_xs()`

```
def openbu.utils.data_processor.get_tot_xs (
    nuclide,
    path,
    cell )
```

5.34.1.20 `get_total_mass_density()`

```
def openbu.utils.data_processor.get_total_mass_density (
    path,
    cell,
    step )
```

5.34.1.21 `interpolation_between_two_points()`

```
def openbu.utils.data_processor.interpolation_between_two_points (
    pair1,
    pair2,
    x )
```

5.34.1.22 `plot_bucell_nuclide_network()`

```
def openbu.utils.data_processor.plot_bucell_nuclide_network (
    nuclide,
    step,
    path,
    cell,
    threshold )
```

5.34.1.23 `plot_flux()`

```
def openbu.utils.data_processor.plot_flux (
    bucell )
```

5.34.1.24 `plot_flux_from_path()`

```
def openbu.utils.data_processor.plot_flux_from_path (
    bucell,
    path_to_simulation )
```

5.34.1.25 `plot_flux_spectrum_bu_evolution_from_path()`

```
def openbu.utils.data_processor.plot_flux_spectrum_bu_evolution_from_path (
    bucell_list,
    steps_list,
    path )
```

5.34.1.26 `plot_kinf_from_path()`

```
def openbu.utils.data_processor.plot_kinf_from_path (
    path_to_simulation )
```

5.34.1.27 `plot_lethargy_spectrum_bu_evolution_from_path()`

```
def openbu.utils.data_processor.plot_lethargy_spectrum_bu_evolution_from_path (
    bucell_list,
    steps_list,
    path )
```

5.34.1.28 plot_matrix_bysign_from_compressed_matrix()

```
def openbu.utils.data_processor.plot_matrix_bysign_from_compressed_matrix (
    path,
    step,
    cell )
```

5.34.1.29 plot_matrix_from_compressed_matrix()

```
def openbu.utils.data_processor.plot_matrix_from_compressed_matrix (
    path,
    step,
    cell )
```

5.34.1.30 plot_nuclide_dens()

```
def openbu.utils.data_processor.plot_nuclide_dens (
    bucell,
    nuclide )
```

5.34.1.31 plot_nuclide_dens_from_passport()

```
def openbu.utils.data_processor.plot_nuclide_dens_from_passport (
    bucell,
    nuclide )
```

5.34.1.32 plot_nuclide_dens_from_path()

```
def openbu.utils.data_processor.plot_nuclide_dens_from_path (
    bucell,
    nuclide,
    path_to_simulation )
```

5.34.1.33 plot_xs_bu_evolution()

```
def openbu.utils.data_processor.plot_xs_bu_evolution (
    bucell_list,
    nuclide,
    xs_name )
```

5.34.1.34 `plot_xs_bu_evolution_from_path()`

```
def openbu.utils.data_processor.plot_xs_bu_evolution_from_path (
    bucell_list,
    nuclide,
    xs_name,
    path )
```

5.34.1.35 `plot_xs_dens_flux()`

```
def openbu.utils.data_processor.plot_xs_dens_flux (
    bucell,
    xs_nuclide,
    xs_name,
    dens_nuclide,
    xs_path,
    dens_path )
```

5.34.1.36 `plot_xs_time_evolution()`

```
def openbu.utils.data_processor.plot_xs_time_evolution (
    bucell,
    nuclide,
    xs_name )
```

5.34.1.37 `plot_xs_time_evolution_from_path()`

```
def openbu.utils.data_processor.plot_xs_time_evolution_from_path (
    bucell,
    nuclide,
    xs_name,
    path )
```

5.34.1.38 `rank_nuclide_per_dens()`

```
def openbu.utils.data_processor.rank_nuclide_per_dens (
    bucell,
    step_list,
    path )
```

5.34.1.39 rank_nuclide_per_reac_rate()

```
def openbu.utils.data_processor.rank_nuclide_per_reac_rate (
    bucell,
    step_list,
    path,
    file_name )
```

5.34.1.40 read_bu_seq()

```
def openbu.utils.data_processor.read_bu_seq (
    path )
```

5.34.1.41 read_dens()

```
def openbu.utils.data_processor.read_dens (
    nuclide,
    path )
```

5.34.1.42 read_dens_nucl()

```
def openbu.utils.data_processor.read_dens_nucl (
    path,
    cell )
```

5.34.1.43 read_energy_bin_length()

```
def openbu.utils.data_processor.read_energy_bin_length (
    path )
```

5.34.1.44 read_energy_mid_points()

```
def openbu.utils.data_processor.read_energy_mid_points (
    path )
```

5.34.1.45 read_flux()

```
def openbu.utils.data_processor.read_flux (
    path )
```

5.34.1.46 read_flux_spectrum()

```
def openbu.utils.data_processor.read_flux_spectrum (
    path,
    steps_list )
```

5.34.1.47 read_flux_subseq()

```
def openbu.utils.data_processor.read_flux_subseq (
    path )
```

5.34.1.48 read_kinf_seq()

```
def openbu.utils.data_processor.read_kinf_seq (
    path )
```

5.34.1.49 read_nuclide_reac_rank()

```
def openbu.utils.data_processor.read_nuclide_reac_rank (
    nuclide,
    step,
    path )
```

5.34.1.50 read_time_seq()

```
def openbu.utils.data_processor.read_time_seq (
    path )
```

5.34.1.51 read_xs_nucl()

```
def openbu.utils.data_processor.read_xs_nucl (
    path,
    bucell )
```

5.34.1.52 read_xs_seq()

```
def openbu.utils.data_processor.read_xs_seq (
    nuclide,
    xs_name,
    path,
    cell )
```

5.35 openbu.utils.functions Namespace Reference

Classes

- class [Empty_argument](#)
- class [MidpointNormalize](#)

Functions

Variables

5.35.1 Function Documentation

5.35.1.1 bu_namelist_to_mc_namelist()

```
def openbu.utils.functions.bu_namelist_to_mc_namelist (
    name_list )
```

5.35.1.2 cell_dict_to_cell_list()

```
def openbu.utils.functions.cell_dict_to_cell_list (
    cell_dict )
```

5.35.1.3 `convert_spectrum_to_janis_weighting_format()`

```
def openbu.utils.functions.convert_spectrum_to_janis_weighting_format (
    path_to_simulation,
    bucell,
    BU )
```

5.35.1.4 `decay_to_halflife()`

```
def openbu.utils.functions.decay_to_halflife (
    decay_constant,
    unit )
```

5.35.1.5 `find_zamid_precursor()`

```
def openbu.utils.functions.find_zamid_precursor (
    zamid,
    reaction )
```

5.35.1.6 `gen_cell_folder()`

```
def openbu.utils.functions.gen_cell_folder (
    name,
    dir_path )
```

5.35.1.7 `gen_folder()`

```
def openbu.utils.functions.gen_folder (
    folder_name,
    dir_path )
```

5.35.1.8 `get_all_nucl()`

```
def openbu.utils.functions.get_all_nucl (
    list_of_dict )
```


5.35.1.9 get_bu_sec_conv_factor()

```
def openbu.utils.functions.get_bu_sec_conv_factor (
    vol,
    ihm )
```

5.35.1.10 get_cell_folder_path()

```
def openbu.utils.functions.get_cell_folder_path (
    file_name,
    dir_path )
```

5.35.1.11 get_decay_nucl()

```
def openbu.utils.functions.get_decay_nucl (
    decay_a_lib )
```

5.35.1.12 get_folder_path()

```
def openbu.utils.functions.get_folder_path (
    folder_name,
    dir_path )
```

5.35.1.13 get_fy_nucl()

```
def openbu.utils.functions.get_fy_nucl (
    fy_lib )
```

5.35.1.14 get_fy_parent_nucl()

```
def openbu.utils.functions.get_fy_parent_nucl (
    fy_lib )
```

5.35.1.15 get_hm()

```
def openbu.utils.functions.get_hm (
    passlist,
    hm_vol )
```

5.35.1.16 get_keylist_from_dict()

```
def openbu.utils.functions.get_keylist_from_dict (
    dict )
```

5.35.1.17 get_list_redundant_elt()

```
def openbu.utils.functions.get_list_redundant_elt (
    l )
```

5.35.1.18 get_name_natural_abundance()

```
def openbu.utils.functions.get_name_natural_abundance (
    name )
```

5.35.1.19 get_name_z()

```
def openbu.utils.functions.get_name_z (
    name )
```

5.35.1.20 get_openmc_xs_nucl_list()

```
def openbu.utils.functions.get_openmc_xs_nucl_list ( )
```

5.35.1.21 get_xs_nucl()

```
def openbu.utils.functions.get_xs_nucl (
    xs_lib )
```

5.35.1.22 get_zamid_a()

```
def openbu.utils.functions.get_zamid_a (
    zamid )
```

5.35.1.23 get_zamid_n()

```
def openbu.utils.functions.get_zamid_n (
    zamid )
```

5.35.1.24 get_zamid_natural_abundance()

```
def openbu.utils.functions.get_zamid_natural_abundance (
    zamid )
```

5.35.1.25 get_zamid_s()

```
def openbu.utils.functions.get_zamid_s (
    zamid )
```

5.35.1.26 get_zamid_z()

```
def openbu.utils.functions.get_zamid_z (
    zamid )
```

5.35.1.27 halflife_to_decay()

```
def openbu.utils.functions.halflife_to_decay (
    half_life,
    unit )
```

5.35.1.28 halflife_to_second()

```
def openbu.utils.functions.halflife_to_second (
    half_life,
    unit )
```

5.35.1.29 is_int()

```
def openbu.utils.functions.is_int (
    s )
```

5.35.1.30 is_list_redundant()

```
def openbu.utils.functions.is_list_redundant (
    l )
```

5.35.1.31 is_lista_in_listb()

```
def openbu.utils.functions.is_lista_in_listb (
    lista,
    listb )
```

5.35.1.32 is_name()

```
def openbu.utils.functions.is_name (
    string )
```

5.35.1.33 is_number()

```
def openbu.utils.functions.is_number (
    s )
```

5.35.1.34 is_zamid()

```
def openbu.utils.functions.is_zamid (
    string )
```

5.35.1.35 mc_namelist_to_bu_namelist()

```
def openbu.utils.functions.mc_namelist_to_bu_namelist (
    name_list )
```

5.35.1.36 moving_average()

```
def openbu.utils.functions.moving_average (
    data,
    window )
```

5.35.1.37 name_list_to_zamid_list()

```
def openbu.utils.functions.name_list_to_zamid_list (
    name_list )
```

5.35.1.38 name_to_zamid()

```
def openbu.utils.functions.name_to_zamid (
    name )
```

Finds and returns the zaaam id of the nuclide

5.35.1.39 openbu_name_to_openmc_name()

```
def openbu.utils.functions.openbu_name_to_openmc_name (
    name )
```

5.35.1.40 openmc_name_to_openbu_name()

```
def openbu.utils.functions.openmc_name_to_openbu_name (
    name )
```

5.35.1.41 order_nuclide_name_per_z()

```
def openbu.utils.functions.order_nuclide_name_per_z (
    nucl_name_list )
```

5.35.1.42 order_nuclide_per_a()

```
def openbu.utils.functions.order_nuclide_per_a (
    nucl_list )
```

5.35.1.43 order_nuclide_per_z()

```
def openbu.utils.functions.order_nuclide_per_z (
    nucl_list )
```

5.35.1.44 plot_compare_libs()

```
def openbu.utils.functions.plot_compare_libs (
    lib1_path,
    lib2_path,
    fiissile_parent )
```

5.35.1.45 plot_compare_libs_sum_over_parents()

```
def openbu.utils.functions.plot_compare_libs_sum_over_parents (
    lib1_path,
    lib2_path,
    parent_list )
```

5.35.1.46 plot_compare_two_nuclear_data_on_nuclide_chart()

```
def openbu.utils.functions.plot_compare_two_nuclear_data_on_nuclide_chart (
    decay_path1,
    fy_path1,
    decay_path2,
    fy_path2 )
```

5.35.1.47 plot_nuclide_chart_color_per_nuclear_data()

```
def openbu.utils.functions.plot_nuclide_chart_color_per_nuclear_data (
    decay_path,
    fy_path )
```

5.35.1.48 plot_nuclide_chart_compare_fy()

```
def openbu.utils.functions.plot_nuclide_chart_compare_fy (
    lib1_path,
    lib2_path,
    fissile_parent )
```

5.35.1.49 read_BUCell_vol()

```
def openbu.utils.functions.read_BUCell_vol (
    path,
    cell )
```

5.35.1.50 smooth_triangle()

```
def openbu.utils.functions.smooth_triangle (
    data,
    degree,
    dropVals = False )
```

5.35.1.51 zamid_list_to_name_list()

```
def openbu.utils.functions.zamid_list_to_name_list (
    zamid_list )
```

5.35.1.52 zamid_to_name()

```
def openbu.utils.functions.zamid_to_name (
    zamid )
```

"Finds and returns the name of the nuclide"

5.35.2 Variable Documentation**5.35.2.1 NA**

```
float NA = 6.02214086e+23
```

5.36 openbu.utils.printer Namespace Reference

Variables

5.36.1 Variable Documentation

5.36.1.1 xs_lib_header

```
string xs_lib_header = '=====\\n'
```

5.37 openbu.utils.reactions_class Namespace Reference

Classes

- class [decay_lib](#)
- class [Empty_data](#)
- class [fy_lib](#)
- class [xs_lib](#)

5.37.1 Detailed Description

This module defines multiple Python class that are designed to be used by the user when using the Python environment to define and launch an OpenBU calculation

5.38 plot_full_reduced_lib_chart Namespace Reference

Variables

5.38.1 Variable Documentation

5.38.1.1 decay_path1

```
string decay_path1 = '/home/julien/Open-Burnup.dev/openbu/data/other_libs/ENDFVIII/decay_lib'
```


5.38.1.2 decay_path2

```
string decay_path2 = '/home/julien/Open-Burnup.dev/openbu/data/other_libs/ENDFVIII/decay_lib_←  
_reduced'
```

5.38.1.3 fy_path1

```
string fy_path1 = '/home/julien/Open-Burnup.dev/openbu/data/other_libs/ENDFVIII/fy_lib'
```

5.38.1.4 fy_path2

```
string fy_path2 = '/home/julien/Open-Burnup.dev/openbu/data/other_libs/ENDFVIII/fy_lib_←  
reduced'
```

5.39 read_energy_grid Namespace Reference

Variables

5.39.1 Variable Documentation

5.39.1.1 energy_grid

```
list energy_grid = []
```

5.39.1.2 energy_grid_mat

```
list energy_grid_mat = []
```

5.39.1.3 file

```
file = open('eaf-2010-multiplicities/' + file_name, 'r')
```

5.39.1.4 file_name_list

```
list file_name_list = [x for x in listdir('eaf-2010-multiplicities') if '_2.' not in x]
```

5.39.1.5 intersection

```
intersection = set(energy_grid_mat[0]).intersection(*energy_grid_mat)
```

5.39.1.6 line

```
line = line.split(',')
```

5.39.1.7 lines

```
lines = file.readlines()
```

5.39.1.8 union

```
union = list(set().union(*energy_grid_mat))
```

5.40 read_fy Namespace Reference

Variables

5.40.1 Variable Documentation

5.40.1.1 directory

```
string directory = 'ENDF-B-VIII.0_nfy'
```

5.40.1.2 f

```
list f = files[3]
```

5.40.1.3 file_name

```
file_name = file.split('_')
```

5.40.1.4 files

```
list files = [file for file in os.listdir(directory) if ".endf" in file]
```

5.40.1.5 nucl_name

```
nucl_name = file_name[1]+file_name[2]
```

5.41 xs_flux_folder Namespace Reference

Variables

5.41.1 Variable Documentation

5.41.1.1 diff

```
diff = abs(spect_point-xs_point)
```

5.41.1.2 spectrum_energy_bin

```
list spectrum_energy_bin = [1.2, 5.3, 20, 53.5, 89.01, 100]
```

5.41.1.3 xs_energy_bin

```
list xs_energy_bin = [i for i in range(100)]
```

5.41.1.4 xs_energy_index

```
list xs_energy_index = []
```

5.41.1.5 xs_point

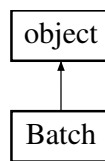
```
list xs_point = xs_energy_bin[j]
```


Chapter 6

Class Documentation

6.1 Batch Class Reference

Inheritance diagram for Batch:



Public Member Functions

Private Attributes

6.1.1 Constructor & Destructor Documentation

6.1.1.1 __init__()

```
def __init__ (
    self,
    path )
```

6.1.2 Member Function Documentation

6.1.2.1 ng_xs_seq_dict()

```
def ng_xs_seq_dict (  
    self )
```

6.1.2.2 path()

```
def path (  
    self )
```

6.1.2.3 path_output()

```
def path_output (  
    self )
```

6.1.2.4 read_nuclide_list_xs()

```
def read_nuclide_list_xs (  
    self,  
    nuclide_list,  
    cell )
```

6.1.2.5 tot_xs_seq_dict()

```
def tot_xs_seq_dict (  
    self )
```

6.1.3 Member Data Documentation

6.1.3.1 _ng_xs_seq_dict

```
_ng_xs_seq_dict [private]
```

6.1.3.2 `_path`

`_path` [private]

6.1.3.3 `_path_output`

`_path_output` [private]

6.1.3.4 `_tot_xs_seq_dict`

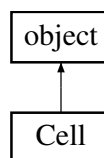
`_tot_xs_seq_dict` [private]

The documentation for this class was generated from the following file:

- `/Users/mouginot/work/app/OpenBU/openbu/nax/functions.py`

6.2 Cell Class Reference

Inheritance diagram for Cell:



Public Member Functions

Public Attributes

Static Public Attributes

Private Member Functions

Private Attributes

Static Private Attributes

6.2.1 Constructor & Destructor Documentation

6.2.1.1 `__init__()`

```
def __init__ (
    self,
    cell_id,
    name )
```

6.2.2 Member Function Documentation

6.2.2.1 `_check_nucl_list_consistency()`

```
def _check_nucl_list_consistency (
    self ) [private]
```

6.2.2.2 `_gen_allreacs_ranking()`

```
def _gen_allreacs_ranking (
    self ) [private]
```

6.2.2.3 `_gen_fission_leaves()`

```
def _gen_fission_leaves (
    self ) [private]
```

6.2.2.4 `_gen_fission_tree()`

```
def _gen_fission_tree (
    self ) [private]
```

6.2.2.5 `_gen_leaves()`

```
def _gen_leaves (
    self ) [private]
```


6.2.2.6 `_print_current_allreacs_rank()`

```
def _print_current_allreacs_rank (
    self ) [private]
```

6.2.2.7 `_print_dens()`

```
def _print_dens (
    self,
    time_point,
    bu_point,
    s ) [private]
```

6.2.2.8 `_print_general_dens_1()`

```
def _print_general_dens_1 (
    self,
    s ) [private]
```

6.2.2.9 `_print_initial_dens()`

```
def _print_initial_dens (
    self ) [private]
```

6.2.2.10 `_print_substep_dens()`

```
def _print_substep_dens (
    self,
    s ) [private]
```

6.2.2.11 `_print_summary_allreacs_rank()`

```
def _print_summary_allreacs_rank (
    self,
    summary_path ) [private]
```

6.2.2.12 _print_summary_dens()

```
def _print_summary_dens (
    self,
    summary_path ) [private]
```

6.2.2.13 _print_summary_flux_spectrum()

```
def _print_summary_flux_spectrum (
    self,
    summary_path,
    mg_energy_bin ) [private]
```

6.2.2.14 _print_summary_isomeric_branching_ratio()

```
def _print_summary_isomeric_branching_ratio (
    self,
    summary_path ) [private]
```

6.2.2.15 _print_summary_subdens()

```
def _print_summary_subdens (
    self,
    summary_path ) [private]
```

6.2.2.16 _print_summary_xs()

```
def _print_summary_xs (
    self,
    summary_path ) [private]
```

6.2.2.17 _print_tree()

```
def _print_tree (
    self ) [private]
```

6.2.2.18 _print_xs_lib()

```
def _print_xs_lib (
    self ) [private]
```

6.2.2.19 _reduce_nucl_set()

```
def _reduce_nucl_set (
    self ) [private]
```

6.2.2.20 _set_all_leaves()

```
def _set_all_leaves (
    self ) [private]
```

6.2.2.21 _set_allreacs_dic()

```
def _set_allreacs_dic (
    self,
    s,
    ss,
    ssn ) [private]
```

6.2.2.22 _set_bu_sec_conv_factor()

```
def _set_bu_sec_conv_factor (
    self ) [private]
```

6.2.2.23 _set_fission_leaves()

```
def _set_fission_leaves (
    self ) [private]
```

6.2.2.24 _set_fission_tree()

```
def _set_fission_tree (
    self ) [private]
```

6.2.2.25 _set_folder()

```
def _set_folder (
    self ) [private]
```

6.2.2.26 _set_ihm()

```
def _set_ihm (
    self ) [private]
```

6.2.2.27 _set_initial_nucl()

```
def _set_initial_nucl (
    self,
    nucl_id_list ) [private]
```

6.2.2.28 _set_leaves()

```
def _set_leaves (
    self ) [private]
```

6.2.2.29 _set_libs_from_input()

```
def _set_libs_from_input (
    self,
    lib ) [private]
```

6.2.2.30 _set_MC_tallies()

```
def _set_MC_tallies (
    self,
    mc_nuclide_densities,
    flux_tally,
    flux_spectrum_tally,
    rxn_rate_tally,
    sampled_isomeric_branching_data,
    sampled_ng_cross_section_data,
    xs_mode,
    s ) [private]
```

6.2.2.31 _set_sequence_from_input()

```
def _set_sequence_from_input (
    self,
    sequence_dict ) [private]
```

6.2.2.32 _set_step_dens()

```
def _set_step_dens (
    self ) [private]
```

6.2.2.33 _set_step_isomeric_branching_ratio()

```
def _set_step_isomeric_branching_ratio (
    self,
    flux_spectrum,
    sampled_isomeric_branching_data,
    sampled_ng_cross_section_data ) [private]
```

6.2.2.34 _set_tree()

```
def _set_tree (
    self ) [private]
```

6.2.2.35 _update_dens()

```
def _update_dens (
    self,
    N,
    ss,
    ssn ) [private]
```

6.2.2.36 _update_flux()

```
def _update_flux (
    self,
    pow_dens ) [private]
```

6.2.2.37 _update_pow_dens()

```
def _update_pow_dens (
    self,
    flux ) [private]
```

6.2.2.38 bu_sec_conv_factor()

```
def bu_sec_conv_factor (
    self )
```

Returns the absolute values of the decay constant of the nuclide

6.2.2.39 check_act_presence()

```
def check_act_presence (
    self )
```

6.2.2.40 copy_cell_folders_to_step_folder()

```
def copy_cell_folders_to_step_folder (
    self,
    s )
```

6.2.2.41 decay_a_lib()

```
def decay_a_lib (
    self )
```

6.2.2.42 decay_b_lib()

```
def decay_b_lib (
    self )
```

6.2.2.43 fission_leaves()

```
def fission_leaves (
    self )
```

6.2.2.44 fission_tree()

```
def fission_tree (
    self )
```

6.2.2.45 folder_path()

```
def folder_path (
    self )
```

6.2.2.46 fy_lib()

```
def fy_lib (
    self )
```

6.2.2.47 gen_folder()

```
def gen_folder (
    self )
```

6.2.2.48 get_act_passport_list()

```
def get_act_passport_list (  
    self )
```

6.2.2.49 get_avt_passport_list()

```
def get_avt_passport_list (  
    self )
```

6.2.2.50 get_decay_nucl()

```
def get_decay_nucl (  
    self )
```

6.2.2.51 get_fp_passport_list()

```
def get_fp_passport_list (  
    self )
```

6.2.2.52 get_fy_nucl()

```
def get_fy_nucl (  
    self )
```

6.2.2.53 get_fy_parent_nucl()

```
def get_fy_parent_nucl (  
    self )
```

6.2.2.54 get_hm()

```
def get_hm (  
    self )
```


6.2.2.55 get_lib_nucl()

```
def get_lib_nucl (
    self )
```

6.2.2.56 get_nucl_ao()

```
def get_nucl_ao (
    self,
    nucl_id )
```

6.2.2.57 get_nucl_dens_for_openmc()

```
def get_nucl_dens_for_openmc (
    self,
    nucl_id )
```

6.2.2.58 get_nucl_list()

```
def get_nucl_list (
    self )
```

6.2.2.59 get_nucl_subao()

```
def get_nucl_subao (
    self,
    nucl_id,
    nucl_list )
```

6.2.2.60 get_nuclide()

```
def get_nuclide (
    self,
    nuclide_id )
```

6.2.2.61 get_passlist()

```
def get_passlist (
    self,
    nucl_list )
```

6.2.2.62 get_subtotal_dens()

```
def get_subtotal_dens (
    self,
    nucl_list )
```

6.2.2.63 get_subtotal_dens_counting_zero_dens()

```
def get_subtotal_dens_counting_zero_dens (
    self,
    nucl_list )
```

6.2.2.64 get_total_dens()

```
def get_total_dens (
    self )
```

6.2.2.65 get_tree()

```
def get_tree (
    self )
```

6.2.2.66 get_xs_nucl()

```
def get_xs_nucl (
    self )
```

6.2.2.67 `hm_vol()` [1/2]

```
def hm_vol (
    self )
```

6.2.2.68 `hm_vol()` [2/2]

```
def hm_vol (
    self,
    hm_vol )
```

6.2.2.69 `id()`

```
def id (
    self )
```

6.2.2.70 `ihm()`

```
def ihm (
    self )
```

Returns the absolute values of the decay constant of the nuclide

6.2.2.71 `index_dict()` [1/2]

```
def index_dict (
    self )
```

6.2.2.72 `index_dict()` [2/2]

```
def index_dict (
    self,
    index_dict )
```

6.2.2.73 `init_nucl()` [1/2]

```
def init_nucl (
    self )
```

6.2.2.74 `init_nucl()` [2/2]

```
def init_nucl (
    self,
    init_nucl )
```

6.2.2.75 `initial_nucl()`

```
def initial_nucl (
    self )
```

6.2.2.76 `leaves()`

```
def leaves (
    self )
```

6.2.2.77 `MC_XS_nucl_list()` [1/2]

```
def MC_XS_nucl_list (
    self )
```

6.2.2.78 `MC_XS_nucl_list()` [2/2]

```
def MC_XS_nucl_list (
    self,
    MC_XS_nucl_list )
```

6.2.2.79 `name()`

```
def name (
    self )
```

6.2.2.80 `nucl_set()` [1/2]

```
def nucl_set (
    self )
```

6.2.2.81 `nucl_set()` [2/2]

```
def nucl_set (
    self,
    nucl_set )
```

6.2.2.82 `overwrite_xs()`

```
def overwrite_xs (
    self,
    xs_object )
```

6.2.2.83 `passdic()` [1/2]

```
def passdic (
    self )
```

6.2.2.84 `passdic()` [2/2]

```
def passdic (
    self,
    passdic )
```

6.2.2.85 `passlist()` [1/2]

```
def passlist (
    self )
```

6.2.2.86 passlist() [2/2]

```
def passlist (
    self,
    passlist )
```

6.2.2.87 sequence()

```
def sequence (
    self )
```

6.2.2.88 set_bu_sec_conv_factor()

```
def set_bu_sec_conv_factor (
    self,
    vol,
    ihm )
```

6.2.2.89 set_decay()

```
def set_decay (
    self,
    decay_object )
```

6.2.2.90 set_decay_lib()

```
def set_decay_lib (
    self,
    decay_lib_path )
```

6.2.2.91 set_default_decay_lib()

```
def set_default_decay_lib (
    self )
```

6.2.2.92 set_default_decay_lib_no_add()

```
def set_default_decay_lib_no_add (
    self )
```

6.2.2.93 set_default_fy_lib()

```
def set_default_fy_lib (
    self )
```

6.2.2.94 set_default_fy_lib_no_add()

```
def set_default_fy_lib_no_add (
    self )
```

6.2.2.95 set_default_xs_lib()

```
def set_default_xs_lib (
    self )
```

6.2.2.96 set_default_xs_lib_no_add()

```
def set_default_xs_lib_no_add (
    self )
```

6.2.2.97 set_fy()

```
def set_fy (
    self,
    fy_object )
```

6.2.2.98 set_fy_lib()

```
def set_fy_lib (
    self,
    fy_lib_path )
```

6.2.2.99 set_ihm()

```
def set_ihm (
    self,
    passlist,
    hm_vol )
```

6.2.2.100 set_initial_dens()

```
def set_initial_dens (
    self,
    dens_dict )
```

6.2.2.101 set_passlist()

```
def set_passlist (
    self,
    nucl_list )
```

6.2.2.102 set_sequence()

```
def set_sequence (
    self,
    sequence,
    mode = 'stand_alone' )
```

6.2.2.103 set_xs()

```
def set_xs (
    self,
    xs_object )
```

6.2.2.104 set_xs_lib()

```
def set_xs_lib (
    self,
    xs_lib_path )
```


6.2.2.105 `vol()` [1/2]

```
def vol (
    self )
```

6.2.2.106 `vol()` [2/2]

```
def vol (
    self,
    vol )
```

6.2.2.107 `xs_lib()`

```
def xs_lib (
    self )
```

6.2.3 Member Data Documentation**6.2.3.1** `_bu_sec_conv_factor`

```
_bu_sec_conv_factor [private]
```

6.2.3.2 `_decay_a_lib`

```
_decay_a_lib [private]
```

6.2.3.3 `_decay_b_lib`

```
_decay_b_lib [private]
```

6.2.3.4 `_fission_leaves`

```
_fission_leaves [private]
```

6.2.3.5 _fission_tree

`_fission_tree` [private]

6.2.3.6 _FMF

`_FMF` [private]

6.2.3.7 _folder_path

`_folder_path` [private]

6.2.3.8 _fy_lib

`_fy_lib` [private]

6.2.3.9 _hm_vol

`_hm_vol` [private]

6.2.3.10 _id

`_id` [private]

6.2.3.11 _ihm

`_ihm` [static], [private]

6.2.3.12 _index_dict

`_index_dict` [private]

6.2.3.13 `_init_nucl`

```
_init_nucl [private]
```

6.2.3.14 `_initial_nucl`

```
_initial_nucl [private]
```

6.2.3.15 `_leaves`

```
_leaves [private]
```

6.2.3.16 `_MC_XS_nucl_list`

```
_MC_XS_nucl_list [private]
```

6.2.3.17 `_NA`

```
float _NA = 6.02214086e+23 [static], [private]
```

6.2.3.18 `_name`

```
_name [private]
```

6.2.3.19 `_nucl_set`

```
_nucl_set [private]
```

6.2.3.20 `_output_summary_path`

```
_output_summary_path [private]
```

6.2.3.21 `_passdic`

```
_passdic [private]
```

6.2.3.22 `_passlist`

```
_passlist [private]
```

6.2.3.23 `_sequence`

```
_sequence [private]
```

6.2.3.24 `_total_leaves`

```
_total_leaves [private]
```

6.2.3.25 `_tree`

```
_tree [private]
```

6.2.3.26 `_vol`

```
_vol [private]
```

6.2.3.27 `_xs_lib`

```
_xs_lib [private]
```

6.2.3.28 `append_file`

```
append_file = open(file_name, 'w') [static]
```

6.2.3.29 append_txt

```
string append_txt = ' {} \n'.format(time_point) [static]
```

6.2.3.30 dens

```
dens = nuc_pass.current_dens [static]
```

6.2.3.31 ihm

```
def ihm = utils.get_hm(passlist, vol) [static]
```

6.2.3.32 j

```
int j = i-2 [static]
```

6.2.3.33 line

```
line = lines[i] [static]
```

6.2.3.34 lines

```
lines = read_file.readlines() [static]
```

6.2.3.35 nuc_pass

```
nuc_pass = passport_list[j] [static]
```

6.2.3.36 nucl_set

```
nucl_set
```

6.2.3.37 passlist

```
passlist
```

6.2.3.38 read_file

```
read_file = open(file_name, 'r') [static]
```

6.2.3.39 vol

```
def vol = self.vol [static]
```

6.2.3.40 zero_dens_1_atm

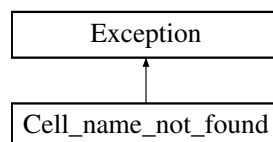
```
int zero_dens_1_atm = 1E-24 [static]
```

The documentation for this class was generated from the following file:

- /Users/mouginot/work/app/OpenBU/openbu/[cell.py](#)

6.3 Cell_name_not_found Class Reference

Inheritance diagram for Cell_name_not_found:

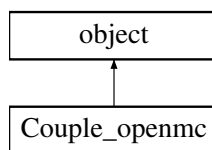


The documentation for this class was generated from the following file:

- /Users/mouginot/work/app/OpenBU/openbu/[system.py](#)

6.4 Couple_openmc Class Reference

Inheritance diagram for Couple_openmc:



Public Member Functions

Public Attributes

Static Public Attributes

Private Member Functions

Private Attributes

6.4.1 Constructor & Destructor Documentation

6.4.1.1 __init__()

```
def __init__ (
    self,
    MC_input_path = None,
    xs_mode = 'no constant lib',
    MPI = None )
```

6.4.2 Member Function Documentation

6.4.2.1 _change_cell_materials()

```
def _change_cell_materials (
    self ) [private]
```

6.4.2.2 `_pre_run()`

```
def _pre_run (
    self,
    root_cell ) [private]
```

6.4.2.3 `_read_user_settings()`

```
def _read_user_settings (
    self ) [private]
```

6.4.2.4 `_set_cross_sections_path()`

```
def _set_cross_sections_path (
    self,
    pre_run_path ) [private]
```

6.4.2.5 `_set_initial_summary()`

```
def _set_initial_summary (
    self,
    path = os.getcwd() ) [private]
```

6.4.2.6 `_set_kinf()`

```
def _set_kinf (
    self ) [private]
```

6.4.2.7 `_set_root_cell()`

```
def _set_root_cell (
    self,
    root_cell_name ) [private]
```


6.4.2.8 _set_statepoint()

```
def _set_statepoint (
    self,
    path = os.getcwd() ) [private]
```

6.4.2.9 _set_updated_summary()

```
def _set_updated_summary (
    self,
    path = os.getcwd() ) [private]
```

6.4.2.10 add_zero_dens_nuclides()

```
def add_zero_dens_nuclides (
    self,
    cell )
```

6.4.2.11 batches() [1/2]

```
def batches (
    self )
```

6.4.2.12 batches() [2/2]

```
def batches (
    self,
    batches )
```

6.4.2.13 bounding_box()

```
def bounding_box (
    self )
```

6.4.2.14 burn()

```
def burn (  
    self )
```

6.4.2.15 copy_MC_files()

```
def copy_MC_files (  
    self,  
    s )
```

6.4.2.16 copy_user_input()

```
def copy_user_input (  
    self )
```

6.4.2.17 export_geometry_to_xml()

```
def export_geometry_to_xml (  
    self )
```

6.4.2.18 export_material_to_xml()

```
def export_material_to_xml (  
    self )
```

6.4.2.19 export_settings_to_xml()

```
def export_settings_to_xml (  
    self )
```

6.4.2.20 export_tallies_to_xml()

```
def export_tallies_to_xml (  
    self )
```

6.4.2.21 gen_user_input_folder()

```
def gen_user_input_folder (
    self )
```

6.4.2.22 get_all_nucl_rxn_tally()

```
def get_all_nucl_rxn_tally (
    self,
    bucell )
```

6.4.2.23 get_bucell_from_cell()

```
def get_bucell_from_cell (
    self )
```

6.4.2.24 get_flux_spectrum_tally()

```
def get_flux_spectrum_tally (
    self,
    bucell )
```

6.4.2.25 get_flux_tally()

```
def get_flux_tally (
    self,
    bucell )
```

6.4.2.26 get_nucl_to_be_tallied()

```
def get_nucl_to_be_tallied (
    self,
    bucell )
```

6.4.2.27 import_openmc()

```
def import_openmc (
    self,
    root_cell )
```

6.4.2.28 inactive() [1/2]

```
def inactive (
    self )
```

6.4.2.29 inactive() [2/2]

```
def inactive (
    self,
    inactive )
```

6.4.2.30 init_nucl_dict()

```
def init_nucl_dict (
    self )
```

6.4.2.31 initial_couple_step_normalization()

```
def initial_couple_step_normalization (
    self,
    norma_mode )
```

6.4.2.32 initial_summary()

```
def initial_summary (
    self )
```

6.4.2.33 materials()

```
def materials (
    self )
```

6.4.2.34 MC_input_path()

```
def MC_input_path (
    self )
```

6.4.2.35 MC_XS_nucl_list() [1/2]

```
def MC_XS_nucl_list (
    self )
```

6.4.2.36 MC_XS_nucl_list() [2/2]

```
def MC_XS_nucl_list (
    self,
    MC_XS_nucl_list )
```

6.4.2.37 MPI()

```
def MPI (
    self )
```

6.4.2.38 no_decay()

```
def no_decay (
    self )
```

6.4.2.39 nucl_list_dict()

```
def nucl_list_dict (
    self )
```

6.4.2.40 openmc_bin_path() [1/2]

```
def openmc_bin_path (  
    self )
```

6.4.2.41 openmc_bin_path() [2/2]

```
def openmc_bin_path (  
    self,  
    openmc_bin_path )
```

6.4.2.42 particles() [1/2]

```
def particles (  
    self )
```

6.4.2.43 particles() [2/2]

```
def particles (  
    self,  
    particles )
```

6.4.2.44 pass_nuclide_densities()

```
def pass_nuclide_densities (  
    self,  
    cell_dict,  
    bucell_dict )
```

6.4.2.45 pass_vol()

```
def pass_vol (  
    self,  
    cell_dict,  
    bucell_dict )
```

6.4.2.46 root_cell() [1/2]

```
def root_cell (
    self )
```

6.4.2.47 root_cell() [2/2]

```
def root_cell (
    self )
```

6.4.2.48 run_openmc()

```
def run_openmc (
    self )
```

6.4.2.49 select_bucells()

```
def select_bucells (
    self,
    bucell_list )
```

6.4.2.50 sequence() [1/2]

```
def sequence (
    self )
```

6.4.2.51 sequence() [2/2]

```
def sequence (
    self,
    sequence )
```

6.4.2.52 set_bounding_box()

```
def set_bounding_box (
    self,
    ll,
    ur )
```

6.4.2.53 set_decay_from_object()

```
def set_decay_from_object (
    self,
    bucell,
    object )
```

6.4.2.54 set_decay_lib()

```
def set_decay_lib (
    self,
    decay_lib_path )
```

6.4.2.55 set_default_decay_lib()

```
def set_default_decay_lib (
    self )
```

6.4.2.56 set_default_fy_lib()

```
def set_default_fy_lib (
    self )
```

6.4.2.57 set_default_xs_lib()

```
def set_default_xs_lib (
    self )
```


6.4.2.58 set_dens_to_cells()

```
def set_dens_to_cells (
    self )
```

6.4.2.59 set_fy_from_object()

```
def set_fy_from_object (
    self,
    bucell,
    object )
```

6.4.2.60 set_fy_lib()

```
def set_fy_lib (
    self,
    fy_lib_path )
```

6.4.2.61 set_init_nucl()

```
def set_init_nucl (
    self,
    cell_dict,
    bucell_dict )
```

6.4.2.62 set_init_nucl_dict()

```
def set_init_nucl_dict (
    self,
    root_cell )
```

6.4.2.63 set_MC_XS_nuc_list_to_bucells()

```
def set_MC_XS_nuc_list_to_bucells (
    self )
```

6.4.2.64 set_MC_XS_nucl_list()

```
def set_MC_XS_nucl_list (
    self )
```

6.4.2.65 set_MPI()

```
def set_MPI (
    self,
    execu,
    tasks )
```

6.4.2.66 set_root_universe()

```
def set_root_universe (
    self )
```

6.4.2.67 set_sampled_isomeric_branching_data()

```
def set_sampled_isomeric_branching_data (
    self )
```

6.4.2.68 set_sampled_ng_cross_section_data()

```
def set_sampled_ng_cross_section_data (
    self )
```

6.4.2.69 set_sequence()

```
def set_sequence (
    self,
    sequence )
```

6.4.2.70 set_settings()

```
def set_settings (
    self,
    settings,
    init_dist )
```

6.4.2.71 set_tallies_to_bucells()

```
def set_tallies_to_bucells (
    self,
    s )
```

6.4.2.72 set_vol()

```
def set_vol (
    self,
    vol_dict )
```

6.4.2.73 set_vol_to_cell()

```
def set_vol_to_cell (
    self,
    voll,
    pre_run_path )
```

6.4.2.74 set_xs_lib()

```
def set_xs_lib (
    self,
    xs_lib_path )
```

6.4.2.75 settings()

```
def settings (
    self )
```

6.4.2.76 statepoint()

```
def statepoint (
    self )
```

6.4.2.77 step_normalization()

```
def step_normalization (
    self,
    s )
```

6.4.2.78 system() [1/2]

```
def system (
    self )
```

6.4.2.79 system() [2/2]

```
def system (
    self,
    system )
```

6.4.2.80 updated_summary()

```
def updated_summary (
    self )
```

6.4.2.81 xs_mode()

```
def xs_mode (
    self )
```

6.4.3 Member Data Documentation

6.4.3.1 _batches

_batches [private]

6.4.3.2 _bounding_box

_bounding_box [private]

6.4.3.3 _cross_sections_path

_cross_sections_path [private]

6.4.3.4 _decay_lib_path

_decay_lib_path [private]

6.4.3.5 _decay_lib_set

_decay_lib_set [private]

6.4.3.6 _exec

_exec [private]

6.4.3.7 _fy_lib_path

_fy_lib_path [private]

6.4.3.8 _fy_lib_set

_fy_lib_set [private]

6.4.3.9 _inactive

```
_inactive [private]
```

6.4.3.10 _init_nucl_dict

```
_init_nucl_dict [private]
```

6.4.3.11 _initial_summary

```
_initial_summary [private]
```

OpenMC Summary src does not close the hdf5 file it opens When OpenBU tries to shutil.rmtree the pre_run folder, it can't because a stream to summary.h5 is still open We therefore close it here !!!! This should be modified in OpenMC at some points #####.

!!!! This should be modified in OpenMC at some points #####

6.4.3.12 _MC_input_path

```
_MC_input_path [private]
```

6.4.3.13 _MC_XS_nucl_list

```
_MC_XS_nucl_list [private]
```

6.4.3.14 _MPI

```
_MPI [private]
```

6.4.3.15 _openmc_bin_path

```
_openmc_bin_path [private]
```

6.4.3.16 _particles

`_particles` [private]

6.4.3.17 _periodic_surfaces_dict

`_periodic_surfaces_dict` [private]

6.4.3.18 _root_cell

`_root_cell` [private]

6.4.3.19 _root_universe

`_root_universe` [private]

6.4.3.20 _sampled_isomeric_branching_data

`_sampled_isomeric_branching_data` [private]

6.4.3.21 _sampled_ng_cross_section_data

`_sampled_ng_cross_section_data` [private]

6.4.3.22 _sequence

`_sequence` [private]

6.4.3.23 _settings

`_settings` [private]

6.4.3.24 `_statepoint`

```
_statepoint [private]
```

6.4.3.25 `_system`

```
_system [private]
```

6.4.3.26 `_tasks`

```
_tasks [private]
```

6.4.3.27 `_updated_summary`

```
_updated_summary [private]
```

OpenMC Summary src does not close the hdf5 file it opens When OpenBU tries to shutil.rmtree the pre_run folder, it can't because a stream to summary.h5 is still open We therefore close it here !!!! This should be modified in OpenMC at some points #####.

!!!! This should be modified in OpenMC at some points #####

6.4.3.28 `_volume_set`

```
_volume_set [private]
```

6.4.3.29 `_xs_lib_set`

```
_xs_lib_set [private]
```

6.4.3.30 `_xs_mode`

```
_xs_mode [private]
```


6.4.3.31 batches

```
batches = settings['batches'] [static]
```

6.4.3.32 energy_bin

```
energy_bin = openmc.EnergyFilter([0., 20.0e6]) [static]
```

6.4.3.33 inactive

```
inactive = settings['inactive'] [static]
```

6.4.3.34 init_dist

```
init_dist = setting.init_dist [static]
```

6.4.3.35 low_left_bound

```
low_left_bound = init_dist['low_left'] [static]
```

6.4.3.36 maxorder

```
int maxorder = 7 [static]
```

6.4.3.37 MC_XS_nucl_list

```
MC_XS_nucl_list
```

6.4.3.38 mg_energy

```
mg_energy = np.logspace(minorder, maxorder, (maxorder - minorder) * 30 + 1) [static]
```

6.4.3.39 mg_energy_bin

```
mg_energy_bin = openmc.EnergyFilter(mg_energy) [static]
```

6.4.3.40 mg_energy_mid_points

```
list mg_energy_mid_points = [(x+y)/2 for x,y in zip(mg_energy[1:],mg_energy[:-1])] [static]
```

6.4.3.41 minorder

```
int minorder = -3 [static]
```

6.4.3.42 MPI

```
MPI
```

6.4.3.43 output

```
output [static]
```

6.4.3.44 partices

```
partices
```

6.4.3.45 particles

```
particles = settings['particles'] [static]
```

6.4.3.46 selected_bucells_name_list

```
selected_bucells_name_list
```

6.4.3.47 selected_bucells_nucl_list_dict

selected_bucells_nucl_list_dict

6.4.3.48 sequence

sequence

6.4.3.49 settings_file

settings_file = openmc.Settings() [static]

6.4.3.50 shape

shape = [init_dist](#)['shape'] [static]

6.4.3.51 source

source [static]

6.4.3.52 space

space [static]

6.4.3.53 system

system

6.4.3.54 uniform_dist

uniform_dist = openmc.stats.Box([low_left_bound](#), [up_right_bound](#), only_fissionable=True) [static]

6.4.3.55 up_right_bound

```
up_right_bound = init_dist['up_right']  [static]
```

6.4.3.56 xs_mode

```
xs_mode
```

6.4.3.57 zero_dens_1_atm

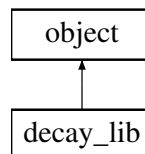
```
int zero_dens_1_atm = 1E-24  [static]
```

The documentation for this class was generated from the following file:

- /Users/mouginot/work/app/OpenBU/openbu/couple/[couple_openmc.py](#)

6.5 decay_lib Class Reference

Inheritance diagram for decay_lib:



Public Member Functions

Private Attributes

6.5.1 Constructor & Destructor Documentation

6.5.1.1 __init__()

```
def __init__ (
    self,
    id_number )
```

6.5.2 Member Function Documentation

6.5.2.1 add_data()

```
def add_data (
    self,
    zamid,
    kwargs )
```

6.5.2.2 create_decay_a()

```
def create_decay_a (
    self,
    zamid,
    dic )
```

6.5.2.3 create_decay_b()

```
def create_decay_b (
    self,
    zamid,
    dic )
```

6.5.2.4 decay_a()

```
def decay_a (
    self )
```

6.5.2.5 decay_b()

```
def decay_b (
    self )
```

6.5.2.6 dic()

```
def dic (
    self )
```

6.5.3 Member Data Documentation

6.5.3.1 `_decay_a`

`_decay_a` [private]

6.5.3.2 `_decay_b`

`_decay_b` [private]

6.5.3.3 `_dic`

`_dic` [private]

6.5.3.4 `_id`

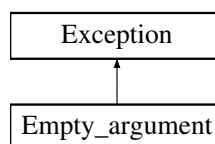
`_id` [private]

The documentation for this class was generated from the following file:

- [/Users/mouginot/work/app/OpenBU/openbu/utis/reactions_class.py](#)

6.6 `Empty_argument` Class Reference

Inheritance diagram for `Empty_argument`:



6.6.1 Detailed Description

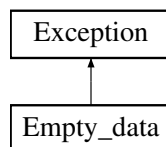
Raise when the user calls `decay_half-life_conv` without entering any argument

The documentation for this class was generated from the following file:

- [/Users/mouginot/work/app/OpenBU/openbu/utis/functions.py](#)

6.7 Empty_data Class Reference

Inheritance diagram for Empty_data:



6.7.1 Detailed Description

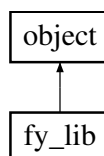
Raise when the user does not enter any data while add_data has been called for a nuclide

The documentation for this class was generated from the following file:

- `/Users/mouginot/work/app/OpenBU/openbu/utils/reactions_class.py`

6.8 fy_lib Class Reference

Inheritance diagram for fy_lib:



Public Member Functions

Private Attributes

6.8.1 Constructor & Destructor Documentation

6.8.1.1 __init__()

```
def __init__ (
    self,
    id_number )
```

6.8.2 Member Function Documentation

6.8.2.1 add_data()

```
def add_data (
    self,
    zamid,
    dic )
```

6.8.2.2 fy()

```
def fy (
    self )
```

6.8.3 Member Data Documentation

6.8.3.1 _dic

```
_dic [private]
```

6.8.3.2 _fy

```
_fy [private]
```

6.8.3.3 _id

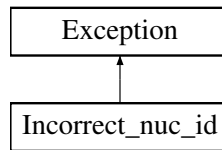
```
_id [private]
```

The documentation for this class was generated from the following file:

- /Users/mouginot/work/app/OpenBU/openbu/utis/[reactions_class.py](#)

6.9 Incorrect_nuc_id Class Reference

Inheritance diagram for Incorrect_nuc_id:



6.9.1 Detailed Description

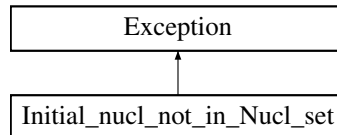
Raise when the id input format in passport instantiation is incorrect

The documentation for this class was generated from the following file:

- </Users/mouginot/work/app/OpenBU/openbu/passport.py>

6.10 Initial_nucl_not_in_Nucl_set Class Reference

Inheritance diagram for Initial_nucl_not_in_Nucl_set:



6.10.1 Detailed Description

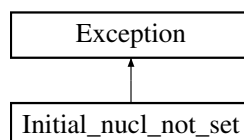
Raise when the user forgot to set the initial nuclide of the cell and tries to burn cell

The documentation for this class was generated from the following file:

- </Users/mouginot/work/app/OpenBU/openbu/cell.py>

6.11 Initial_nucl_not_set Class Reference

Inheritance diagram for Initial_nucl_not_set:



6.11.1 Detailed Description

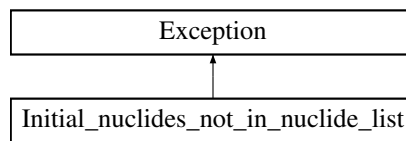
Raise when the user forgot to set the initial nuclide of the cell and tries to burn cell

The documentation for this class was generated from the following file:

- [/Users/mouginot/work/app/OpenBU/openbu/cell.py](#)

6.12 Initial_nuclides_not_in_nuclide_list Class Reference

Inheritance diagram for Initial_nuclides_not_in_nuclide_list:



6.12.1 Detailed Description

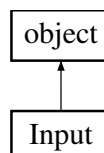
Raise when some initial nuclides are not included in nucl_list

The documentation for this class was generated from the following file:

- [/Users/mouginot/work/app/OpenBU/openbu/couple/couple_openmc.py](#)

6.13 Input Class Reference

Inheritance diagram for Input:



Public Member Functions

Public Attributes

Private Member Functions

Private Attributes

Static Private Attributes

6.13.1 Detailed Description

input reads, stores and process the input data in the input file provided by the user

6.13.2 Constructor & Destructor Documentation

6.13.2.1 `__init__()`

```
def __init__ (
    self,
    input_path )
```

6.13.3 Member Function Documentation

6.13.3.1 `_get_dens()`

```
def _get_dens (
    self,
    cell ) [private]
```

6.13.3.2 `_get_hm_vol()`

```
def _get_hm_vol (
    self,
    cell ) [private]
```

6.13.3.3 `_get_lib()`

```
def _get_lib (
    self,
    cell_id ) [private]
```

6.13.3.4 `_get_sequence()`

```
def _get_sequence (
    self,
    cell ) [private]
```

6.13.3.5 _get_vol()

```
def _get_vol (
    self,
    cell ) [private]
```

6.13.3.6 _set_cell_id()

```
def _set_cell_id (
    self ) [private]
```

6.13.3.7 _set_file()

```
def _set_file (
    self ) [private]
```

6.13.3.8 _set_MC_input_path()

```
def _set_MC_input_path (
    self ) [private]
```

6.13.3.9 _set_mode()

```
def _set_mode (
    self ) [private]
```

6.13.3.10 cell_dict()

```
def cell_dict (
    self )
```

6.13.3.11 cell_id_list()

```
def cell_id_list (
    self )
```

Returns the absolute values of the decay constant of the nuclide

6.13.3.12 cell_list()

```
def cell_list (
    self )
```

6.13.3.13 cells()

```
def cells (
    self )
```

Returns the absolute values of the decay constant of the nuclide

6.13.3.14 file()

```
def file (
    self )
```

6.13.3.15 lib()

```
def lib (
    self )
```

Returns the absolute values of the decay constant of the nuclide

6.13.3.16 MC_input_path()

```
def MC_input_path (
    self )
```

6.13.3.17 mode()

```
def mode (
    self )
```

Returns the absolute values of the decay constant of the nuclide

6.13.4 Member Data Documentation

6.13.4.1 _cell_dict [1/2]

```
dictionary _cell_dict = {} [static], [private]
```

6.13.4.2 _cell_dict [2/2]

```
_cell_dict [private]
```

6.13.4.3 _cell_id_list

```
_cell_id_list [private]
```

6.13.4.4 _cell_list

```
_cell_list [private]
```

6.13.4.5 _cells

```
_cells = None [static], [private]
```

6.13.4.6 _decay_lib_a

```
_decay_lib_a = None [static], [private]
```

6.13.4.7 `_decay_lib_b`

```
_decay_lib_b = None [static], [private]
```

6.13.4.8 `_decay_nucl`

```
_decay_nucl = None [static], [private]
```

6.13.4.9 `_file`

```
_file = None [static], [private]
```

6.13.4.10 `_fy_lib`

```
_fy_lib = None [static], [private]
```

6.13.4.11 `_lib`

```
_lib = None [static], [private]
```

6.13.4.12 `_MC_input_path`

```
_MC_input_path [private]
```

6.13.4.13 `_mode`

```
_mode = None [static], [private]
```

6.13.4.14 `_new_decay_lib_path`

```
_new_decay_lib_path = None [static], [private]
```

6.13.4.15 `_new_fy_lib_path`

```
_new_fy_lib_path = None [static], [private]
```

6.13.4.16 `_new_xs_lib_path`

```
_new_xs_lib_path = None [static], [private]
```

6.13.4.17 `_nucl_list`

```
_nucl_list = None [static], [private]
```

6.13.4.18 `_time`

```
_time = None [static], [private]
```

6.13.4.19 `_xs_lib`

```
_xs_lib = None [static], [private]
```

6.13.4.20 `_xs_nucl`

```
_xs_nucl = None [static], [private]
```

6.13.4.21 `input_path`

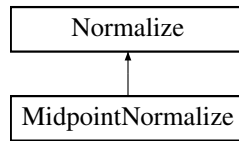
```
input_path
```

The documentation for this class was generated from the following file:

- [/Users/mouginot/work/app/OpenBU/openbu/input.py](#)

6.14 MidpointNormalize Class Reference

Inheritance diagram for MidpointNormalize:



Public Member Functions

Public Attributes

6.14.1 Detailed Description

Normalise the colorbar so that diverging bars work there way either side from a prescribed midpoint value)
e.g. `im=ax1.imshow(array, norm=MidpointNormalize(midpoint=0., vmin=-100, vmax=100))`

6.14.2 Constructor & Destructor Documentation

6.14.2.1 `__init__()`

```
def __init__ (
    self,
    vmin = None,
    vmax = None,
    midpoint = None,
    clip = False )
```

6.14.3 Member Function Documentation

6.14.3.1 `__call__()`

```
def __call__ (
    self,
    value,
    clip = None )
```

6.14.4 Member Data Documentation

6.14.4.1 midpoint

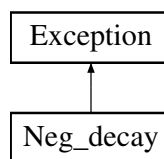
`midpoint`

The documentation for this class was generated from the following file:

- [/Users/mouginot/work/app/OpenBU/openbu/utlis/functions.py](#)

6.15 Neg_decay Class Reference

Inheritance diagram for Neg_decay:



6.15.1 Detailed Description

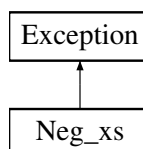
`Raise when a negative decay constant is found`

The documentation for this class was generated from the following file:

- [/Users/mouginot/work/app/OpenBU/openbu/passlist.py](#)

6.16 Neg_xs Class Reference

Inheritance diagram for Neg_xs:



6.16.1 Detailed Description

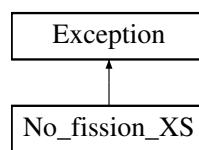
Raise when a negative cross-section is found

The documentation for this class was generated from the following file:

- </Users/mouginot/work/app/OpenBU/openbu/passlist.py>

6.17 No_fission_XS Class Reference

Inheritance diagram for No_fission_XS:



6.17.1 Detailed Description

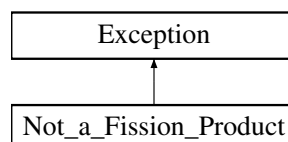
Raise when the user tries to access fission XS for a nuclide which fission XS have not been set yet

The documentation for this class was generated from the following file:

- </Users/mouginot/work/app/OpenBU/openbu/passport.py>

6.18 Not_a_Fission_Product Class Reference

Inheritance diagram for Not_a_Fission_Product:



6.18.1 Detailed Description

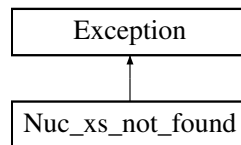
Raise when the user tries to set fission yields for a non fission product nuclide

The documentation for this class was generated from the following file:

- </Users/mouginot/work/app/OpenBU/openbu/passport.py>

6.19 Nuc_xs_not_found Class Reference

Inheritance diagram for Nuc_xs_not_found:



6.19.1 Detailed Description

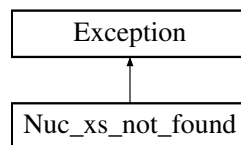
Raise when the user requests a cross-sections of a nuclide that is not in the nuclide set

The documentation for this class was generated from the following file:

- [/Users/mouginot/work/app/OpenBU/openbu/passport.py](#)

6.20 Nuc_xs_not_found Class Reference

Inheritance diagram for Nuc_xs_not_found:



6.20.1 Detailed Description

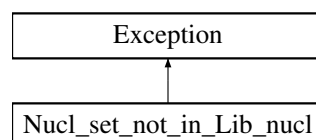
Raise when the user requests a cross-sections of a nuclide that is not in the nuclide set

The documentation for this class was generated from the following file:

- [/Users/mouginot/work/app/OpenBU/openbu/passlist.py](#)

6.21 Nucl_set_not_in_Lib_nucl Class Reference

Inheritance diagram for Nucl_set_not_in_Lib_nucl:



6.21.1 Detailed Description

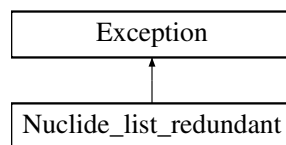
Raise when the user forgot to set the initial nuclide of the cell and tries to burn cell

The documentation for this class was generated from the following file:

- </Users/mouginot/work/app/OpenBU/openbu/cell.py>

6.22 Nuclide_list_redundant Class Reference

Inheritance diagram for Nuclide_list_redundant:

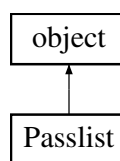


The documentation for this class was generated from the following file:

- </Users/mouginot/work/app/OpenBU/openbu/cell.py>

6.23 Passlist Class Reference

Inheritance diagram for Passlist:



Public Member Functions

Private Member Functions

Private Attributes

6.23.1 Constructor & Destructor Documentation

6.23.1.1 `__init__()`

```
def __init__ (
    self,
    nucl_list )
```

6.23.2 Member Function Documentation

6.23.2.1 `_add_nucl_list()`

```
def _add_nucl_list (
    self,
    nucl_list ) [private]
```

6.23.2.2 `_get_name_passport_dict()`

```
def _get_name_passport_dict (
    self ) [private]
```

Convert the list of passport into a dictionnary of passports where entries are the zamid of the nuclides

6.23.2.3 `_get_zamid_passport_dict()`

```
def _get_zamid_passport_dict (
    self ) [private]
```

Convert the list of passport into a dictionnary of passports where entries are the zamid of the nuclides

6.23.2.4 `_overwrite_xs()`

```
def _overwrite_xs (
    self,
    xs_dict ) [private]
```

Read and set the cross sections for each nuclide in the passports list

6.23.2.5 `_set_decay()`

```
def _set_decay (
    self,
    decay_lib_b,
    decay_lib_a ) [private]
```

Read and set the decay constants for each nuclide in the passports list

6.23.2.6 `_set_fission_child()`

```
def _set_fission_child (
    self,
    fy_nucl,
    fy_parent ) [private]
```

6.23.2.7 `_set_fy()`

```
def _set_fy (
    self,
    fy_dict ) [private]
```

Read and set the fission yields for fission products in the passports list

6.23.2.8 `_set_initial_dens()`

```
def _set_initial_dens (
    self,
    dens_dict ) [private]
```

6.23.2.9 `_set_mass()`

```
def _set_mass (
    self,
    passport_list ) [private]
```

Read and set the atomic mass for each nuclide in the passports list

6.23.2.10 `_set_xs()`

```
def _set_xs (
    self,
    xs_dict ) [private]
```

Read and set the cross sections for each nuclide in the passports list

6.23.2.11 `_set_zero_dens()`

```
def _set_zero_dens (
    self,
    passport_list ) [private]
```

6.23.2.12 `azm_order_passport_list()`

```
def azm_order_passport_list (
    self )
```

6.23.2.13 `get_index_dict()`

```
def get_index_dict (
    self )
```

6.23.2.14 `get_passport_list()`

```
def get_passport_list (
    self,
    nucl_list )
```

6.23.2.15 `neg_reac_warning()`

```
def neg_reac_warning (
    passport_list )
```


6.23.2.16 `nucl_list()`

```
def nucl_list (  
    self )
```

6.23.2.17 `order_name()`

```
def order_name (  
    self )
```

6.23.2.18 `passport_list()`

```
def passport_list (  
    self )
```

6.23.2.19 `zam_order_passport_list()`

```
def zam_order_passport_list (  
    self )
```

6.23.2.20 `zam_order_passport_list_2()`

```
def zam_order_passport_list_2 (  
    self )
```

6.23.3 Member Data Documentation**6.23.3.1** `_nucl_list`

```
_nucl_list [private]
```

6.23.3.2 `_passport_list`

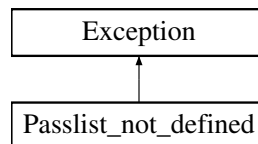
`_passport_list` [private]

The documentation for this class was generated from the following file:

- </Users/mouginot/work/app/OpenBU/openbu/passlist.py>

6.24 `Passlist_not_defined` Class Reference

Inheritance diagram for `Passlist_not_defined`:



6.24.1 Detailed Description

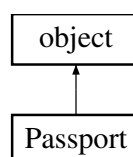
Raise when the user forgot to defined passlist for a cell

The documentation for this class was generated from the following file:

- </Users/mouginot/work/app/OpenBU/openbu/cell.py>

6.25 `Passport` Class Reference

Inheritance diagram for `Passport`:



Public Member Functions

Public Attributes

Private Member Functions

Private Attributes

Static Private Attributes

6.25.1 Detailed Description

passport stores all the relevant data of individual nuclides and offers methods to extract information on them

The passport class is individually instantiated for each nuclide. It contains two types of information: constant data, such as the atomic mass, decay constant or the element's family (actinide, fission product). Variable data such as cross sections or fission yields do vary during a simulation and need thus to be updated. Some of the data are created at the time of the instantiation of the class for a nuclide such as the element's neutron reaction daughters. Other type of data, typically large in size such as cross sections and decay constants. A setter method will enable any script that reads the data source to set this data for the passport of a specific nuclide. The code of Open-Burnup to set the data for a list of passports. The other way to explicitly set the data is to go to the data source itself, read the data and set it for the passport of a specific nuclide. This method is a user-friendly way to get information on individual nuclides.

Attributes:

- * **decay_a:** returns the absolute value of the decay constants of the nuclide
- * **decay_b:** returns the percent fraction value of the decay constants of the nuclide
- * **fy:** returns the value of fission yields in percent
- * **mass:** returns the atomic mass of the nuclide
- * **xs:** returns the absolute value of cross sections for the nuclide
- * **FAM:** returns the family group name of the nuclide
- * **xs_relatives:** returns neutron reaction's daughter nuclides' id
- * **decay_relatives:** returns decay reaction's daughter nuclides' id

Methods:

- * **set_mass():** set the atomic mass of the nuclide
- * **set_decay():** set the decay constants (both absolute values and percent fractions) of the nuclide
- * **set_xs():** set the cross sections of the nuclide
- * **set_fy():** set the fission yields of the nuclide
- * **load_mass():** load the atomic mass of the nuclide
- * **load_decay():** load the decay constants (both absolute values and percent fractions) of the nuclide
- * **load_xs():** load the cross sections of the nuclide
- * **load_fy():** load the fission yields of the nuclide
- * **get_zamid():** returns the zaaam id of the nuclide
- * **get_nuc_name():** returns the name of the nuclide

6.25.2 Constructor & Destructor Documentation

6.25.2.1 __init__()

```
def __init__(
    self,
    nuc_id )
```

6.25.3 Member Function Documentation

6.25.3.1 `_append_dens_seq()`

```
def _append_dens_seq (
    self,
    new_dens ) [private]
```

6.25.3.2 `_append_dens_subseq_mat()`

```
def _append_dens_subseq_mat (
    self,
    new_dens,
    ss ) [private]
```

6.25.3.3 `_append_xs_seq()`

```
def _append_xs_seq (
    self,
    new_xs ) [private]
```

6.25.3.4 `_get_decay_prod_from_dic()`

```
def _get_decay_prod_from_dic (
    self ) [private]
```

6.25.3.5 `_get_decay_prod_to_dic()`

```
def _get_decay_prod_to_dic (
    self ) [private]
```

6.25.3.6 `_get_id_input_type()`

```
def _get_id_input_type (
    self,
    nuc_id ) [private]
```

6.25.3.7 _get_xs_prod_from_dic()

```
def _get_xs_prod_from_dic (
    self ) [private]
```

6.25.3.8 _get_xs_prod_to_dic()

```
def _get_xs_prod_to_dic (
    self ) [private]
```

6.25.3.9 _overwrite_xs()

```
def _overwrite_xs (
    self,
    new_xs ) [private]
```

6.25.3.10 _set_all_child()

```
def _set_all_child (
    self ) [private]
```

6.25.3.11 _set_all_parent()

```
def _set_all_parent (
    self ) [private]
```

6.25.3.12 _set_decaychild()

```
def _set_decaychild (
    self ) [private]
```

6.25.3.13 _set_decayparent()

```
def _set_decayparent (
    self ) [private]
```

6.25.3.14 _set_energy_per_fission()

```
def _set_energy_per_fission (
    self ) [private]
```

6.25.3.15 _set_initial_dens()

```
def _set_initial_dens (
    self,
    new_dens ) [private]
```

set new dens to current dens and append to dens_segor

6.25.3.16 _set_state()

```
def _set_state (
    self ) [private]
```

Returns the state of the nuclide (excited or ground state)

6.25.3.17 _set_step_dens()

```
def _set_step_dens (
    self ) [private]
```

6.25.3.18 _set_substep_dens()

```
def _set_substep_dens (
    self,
    dens,
    ss ) [private]
```

6.25.3.19 _set_xs()

```
def _set_xs (
    self,
    new_xs ) [private]
```

6.25.3.20 _set_xschild()

```
def _set_xschild (
    self ) [private]
```

6.25.3.21 _set_xsparent()

```
def _set_xsparent (
    self ) [private]
```

6.25.3.22 all_child()

```
def all_child (
    self )
```

6.25.3.23 all_parent()

```
def all_parent (
    self )
```

6.25.3.24 allreacs_dic() [1/2]

```
def allreacs_dic (
    self )
```

6.25.3.25 allreacs_dic() [2/2]

```
def allreacs_dic (
    self,
    allreacs_dic )
```

6.25.3.26 allreacs_dic_list()

```
def allreacs_dic_list (
    self )
```

6.25.3.27 allreacs_dic_list_append()

```
def allreacs_dic_list_append (
    self,
    allreacs_dic )
```

6.25.3.28 append_current_sorted_allreacs_tuple_list()

```
def append_current_sorted_allreacs_tuple_list (
    self,
    sorted_allreacs,
    ss )
```

6.25.3.29 append_sorted_allreacs_tuple_mat()

```
def append_sorted_allreacs_tuple_mat (
    self )
```

6.25.3.30 creation_dic() [1/2]

```
def creation_dic (
    self )
```

6.25.3.31 creation_dic() [2/2]

```
def creation_dic (
    self,
    creation_dic )
```

6.25.3.32 current_dens() [1/2]

```
def current_dens (
    self )
```

Returns the density of the nuclide in atom per cm³

6.25.3.33 `current_dens()` [2/2]

```
def current_dens (
    self,
    new_dens )
```

set the density of the nuclide in atom per cm³

6.25.3.34 `current_sorted_allreacs_tuple_list()`

```
def current_sorted_allreacs_tuple_list (
    self )
```

6.25.3.35 `current_xs()` [1/2]

```
def current_xs (
    self )
```

Returns the cross sections data of the nuclide

6.25.3.36 `current_xs()` [2/2]

```
def current_xs (
    self,
    new_xs )
```

6.25.3.37 `decay_a()` [1/2]

```
def decay_a (
    self )
```

Returns the absolute values of the decay constant of the nuclide

6.25.3.38 decay_a() [2/2]

```
def decay_a (
    self,
    new_decay_a )
```

6.25.3.39 decay_b() [1/2]

```
def decay_b (
    self )
```

Returns the fraction percent values of the decay constant of the nuclide

6.25.3.40 decay_b() [2/2]

```
def decay_b (
    self,
    new_decay_b )
```

6.25.3.41 decay_child()

```
def decay_child (
    self )
```

Returns the decay reactions' daughter products

6.25.3.42 decay_parent()

```
def decay_parent (
    self )
```

Returns the decay reactions' daughter products

6.25.3.43 dens_seq() [1/2]

```
def dens_seq (
    self )
```

6.25.3.44 dens_seq() [2/2]

```
def dens_seq (
    self,
    new_dens_seq )
```

6.25.3.45 dens_subseq_mat()

```
def dens_subseq_mat (
    self )
```

6.25.3.46 destruction_dic() [1/2]

```
def destruction_dic (
    self )
```

6.25.3.47 destruction_dic() [2/2]

```
def destruction_dic (
    self,
    destruction_dic )
```

6.25.3.48 fission_child() [1/2]

```
def fission_child (
    self )
```

6.25.3.49 fission_child() [2/2]

```
def fission_child (
    self,
    fission_child )
```

6.25.3.50 fission_E() [1/2]

```
def fission_E (
    self )
```

6.25.3.51 fission_E() [2/2]

```
def fission_E (
    self,
    fission_E )
```

6.25.3.52 fy() [1/2]

```
def fy (
    self )
```

Returns the fission yields data in percent

6.25.3.53 fy() [2/2]

```
def fy (
    self,
    new_fy )
```

6.25.3.54 get_a()

```
def get_a (
    self )
```

Returns the mass number of the nuclide

6.25.3.55 get_all_non0_child()

```
def get_all_non0_child (
    self )
```

6.25.3.56 get_current_dens_subseq()

```
def get_current_dens_subseq (
    self )
```

6.25.3.57 get_dens_subseq()

```
def get_dens_subseq (
    self,
    s )
```

6.25.3.58 get_FAM()

```
def get_FAM (
    self )
```

6.25.3.59 get_natural_abundance()

```
def get_natural_abundance (
    self )
```

6.25.3.60 get_z()

```
def get_z (
    self )
```

Returns the atomic number of the nuclide

6.25.3.61 load_decay()

```
def load_decay (
    self )
```

Load the decay constant value of the nuclide

This method directly fetches the decay constant values from the source data and automatically set of the passport object

6.25.3.62 load_fy()

```
def load_fy (
    self )
```

Load the fission yields data of the nuclide

This method directly fetches the fission yields data from the source data and automatically set of the passport object

If the nuclide for which the fission yields data are being loaded is not a fission product, the error `*Not_a_Fission_Product*` will be raised

6.25.3.63 load_mass()

```
def load_mass (
    self )
```

Load the atomic mass of the nuclide in gram

This method directly fetches the atomic mass from the source data and automatically set of the passport object

6.25.3.64 load_xs()

```
def load_xs (
    self )
```

Load the cross sections data of the nuclide

This method directly fetches the cross sections data from the source data and automatically set of the passport object

6.25.3.65 mass() [1/2]

```
def mass (
    self )
```

Return the atomic mass of the nuclide in gram

6.25.3.66 mass() [2/2]

```
def mass (
    self,
    new_mass )
```

6.25.3.67 name()

```
def name (
    self )
```

6.25.3.68 pikachu()

```
def pikachu (
    self )
```

6.25.3.69 set_decay()

```
def set_decay (
    self,
    decay_a,
    decay_b )
```

Set the absolute and fractional values of the decay constant of the nuclide

6.25.3.70 sorted_allreacs_tuple_mat()

```
def sorted_allreacs_tuple_mat (
    self )
```

6.25.3.71 state()

```
def state (
    self )
```

6.25.3.72 xs_child()

```
def xs_child (
    self )
```

Returns the neutron reactions' daughter products

6.25.3.73 xs_parent()

```
def xs_parent (
    self )
```

Returns the neutron reactions' daughter products

6.25.3.74 xs_seq() [1/2]

```
def xs_seq (
    self )
```

6.25.3.75 xs_seq() [2/2]

```
def xs_seq (
    self,
    new_xs_seq )
```

6.25.3.76 zamid()

```
def zamid (
    self )
```


6.25.4 Member Data Documentation

6.25.4.1 `__current_sorted_allreacs_tuple_list`

`__current_sorted_allreacs_tuple_list` [private]

6.25.4.2 `_all_child`

`_all_child` [private]

6.25.4.3 `_all_parent`

`_all_parent` [private]

6.25.4.4 `_all_reacs_dic`

`_all_reacs_dic` [private]

6.25.4.5 `_allreacs_dic`

`_allreacs_dic` [private]

6.25.4.6 `_allreacs_dic_list`

`_allreacs_dic_list` [private]

6.25.4.7 `_creation_dic`

`_creation_dic` [private]

6.25.4.8 `_current_dens`

`_current_dens` [private]

6.25.4.9 `_current_dens_subseq`

`_current_dens_subseq` [private]

6.25.4.10 `_current_sorted_allreacs_tuple_list`

`_current_sorted_allreacs_tuple_list` [private]

6.25.4.11 `_current_xs`

`_current_xs` [private]

6.25.4.12 `_decay_a`

`_decay_a` [private]

6.25.4.13 `_decay_b`

`_decay_b` [private]

6.25.4.14 `_decay_child`

`_decay_child` [private]

6.25.4.15 `_decay_parent`

`_decay_parent` [private]

6.25.4.16 `_dens_seq`

```
_dens_seq [private]
```

6.25.4.17 `_dens_subseq_mat`

```
_dens_subseq_mat [private]
```

6.25.4.18 `_destruction_dic`

```
_destruction_dic [private]
```

6.25.4.19 `_fission_child`

```
_fission_child [private]
```

6.25.4.20 `_fission_E`

```
_fission_E = None [static], [private]
```

6.25.4.21 `_fy`

```
_fy [private]
```

6.25.4.22 `_mass`

```
_mass = None [static], [private]
```

6.25.4.23 `_name`

```
_name = None [static], [private]
```

6.25.4.24 `_sorted_allreacs_tuple_mat`

```
_sorted_allreacs_tuple_mat [private]
```

6.25.4.25 `_state`

```
_state [private]
```

6.25.4.26 `_xs_child`

```
_xs_child [private]
```

6.25.4.27 `_xs_parent`

```
_xs_parent [private]
```

6.25.4.28 `_xs_seq`

```
_xs_seq [private]
```

6.25.4.29 `_zamid`

```
_zamid = None [static], [private]
```

6.25.4.30 `current_dens`

```
current_dens
```

6.25.4.31 `current_xs`

```
current_xs
```

6.25.4.32 decay_a

decay_a

6.25.4.33 decay_b

decay_b

6.25.4.34 dens_seq

dens_seq

6.25.4.35 get_FAM

get_FAM

6.25.4.36 nuc_id

nuc_id

6.25.4.37 xs_seq

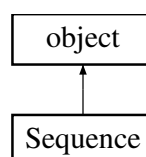
xs_seq

The documentation for this class was generated from the following file:

- /Users/mouginot/work/app/OpenBU/openbu/[passport.py](#)

6.26 Sequence Class Reference

Inheritance diagram for Sequence:



Public Member Functions

Public Attributes

Private Member Functions

Private Attributes

6.26.1 Constructor & Destructor Documentation

6.26.1.1 `__init__()`

```
def __init__ (
    self,
    id_number )
```

6.26.2 Member Function Documentation

6.26.2.1 `_append_bucell_bu_seq()`

```
def _append_bucell_bu_seq (
    self,
    new_bucell_bu ) [private]
```

6.26.2.2 `_append_bucell_bu_subseq_mat()`

```
def _append_bucell_bu_subseq_mat (
    self,
    new_bucell_bu,
    ss ) [private]
```

6.26.2.3 `_append_current_bucell_bu_subseq()`

```
def _append_current_bucell_bu_subseq (
    self,
    new_bucell_bu,
    ss ) [private]
```

6.26.2.4 `_append_current_flux_subseq()`

```
def _append_current_flux_subseq (
    self,
    new_flux,
    ss ) [private]
```

6.26.2.5 `_append_current_pow_dens_subseq()`

```
def _append_current_pow_dens_subseq (
    self,
    new_pow_dens,
    ss ) [private]
```

6.26.2.6 `_append_current_system_bu_subseq()`

```
def _append_current_system_bu_subseq (
    self,
    new_system_bu,
    ss ) [private]
```

6.26.2.7 `_append_current_time_subseq()`

```
def _append_current_time_subseq (
    self,
    new_time,
    ss ) [private]
```

6.26.2.8 `_append_flux_seq()`

```
def _append_flux_seq (
    self,
    new_flux ) [private]
```

6.26.2.9 `_append_flux_spectrum_seq()`

```
def _append_flux_spectrum_seq (
    self,
    new_flux_spectrum ) [private]
```

6.26.2.10 `_append_flux_subseq_mat()`

```
def _append_flux_subseq_mat (
    self,
    flux,
    ss ) [private]
```

6.26.2.11 `_append_isomeric_branching_ratio_seq()`

```
def _append_isomeric_branching_ratio_seq (
    self,
    new_isomeric_branching_ratio_seq ) [private]
```

6.26.2.12 `_append_kinf_seq()`

```
def _append_kinf_seq (
    self,
    new_kinf ) [private]
```

6.26.2.13 `_append_MC_flux_seq()`

```
def _append_MC_flux_seq (
    self,
    new_MC_flux ) [private]
```

6.26.2.14 `_append_pow_dens_seq()`

```
def _append_pow_dens_seq (
    self,
    new_pow_dens ) [private]
```

6.26.2.15 `_append_pow_dens_subseq_mat()`

```
def _append_pow_dens_subseq_mat (
    self,
    pow_dens,
    ss ) [private]
```


6.26.2.16 _append_system_bu_seq()

```
def _append_system_bu_seq (
    self,
    new_system_bu ) [private]
```

6.26.2.17 _append_system_bu_subseq_mat()

```
def _append_system_bu_subseq_mat (
    self,
    new_system_bu,
    ss ) [private]
```

6.26.2.18 _append_time_seq()

```
def _append_time_seq (
    self,
    new_time ) [private]
```

6.26.2.19 _append_time_subseq_mat()

```
def _append_time_subseq_mat (
    self,
    time,
    ss ) [private]
```

6.26.2.20 _append_tot_pow_seq()

```
def _append_tot_pow_seq (
    self,
    new_tot_pow ) [private]
```

6.26.2.21 _cell_conversion()

```
def _cell_conversion (
    self,
    passlist,
    bu_sec_conv_factor,
    mode ) [private]
```

6.26.2.22 _initial_system_conversion()

```
def _initial_system_conversion (
    self,
    system ) [private]
```

6.26.2.23 _set_flux()

```
def _set_flux (
    self,
    new_flux,
    s,
    ss ) [private]
```

6.26.2.24 _set_from_input()

```
def _set_from_input (
    self,
    sequence_dict,
    passlist,
    bu_sec_conv_factor ) [private]
```

6.26.2.25 _set_initial_bucell_bu()

```
def _set_initial_bucell_bu (
    self ) [private]
```

6.26.2.26 _set_initial_flux()

```
def _set_initial_flux (
    self,
    new_flux ) [private]
```

set new new_flux to current flux and append to flux sequence

6.26.2.27 _set_initial_kinf()

```
def _set_initial_kinf (
    self,
    new_kinf ) [private]
```

6.26.2.28 _set_initial_MC_flux()

```
def _set_initial_MC_flux (
    self,
    new_MC_flux ) [private]
```

6.26.2.29 _set_initial_pow_dens()

```
def _set_initial_pow_dens (
    self,
    new_pow_dens ) [private]
```

set new new_pow_dens to current pow_dens and append to pow_dens sequence

6.26.2.30 _set_initial_system_bu()

```
def _set_initial_system_bu (
    self ) [private]
```

6.26.2.31 _set_initial_time()

```
def _set_initial_time (
    self ) [private]
```

Set initial values.

6.26.2.32 _set_macrostep_bucell_bu()

```
def _set_macrostep_bucell_bu (
    self ) [private]
```

6.26.2.33 _set_macrostep_flux()

```
def _set_macrostep_flux (
    self,
    flux ) [private]
```

6.26.2.34 _set_macrostep_flux_spectrum()

```
def _set_macrostep_flux_spectrum (
    self,
    flux_spectrum ) [private]
```

6.26.2.35 _set_macrostep_isomeric_branching_ratio()

```
def _set_macrostep_isomeric_branching_ratio (
    self,
    isomeric_branching_ratio ) [private]
```

6.26.2.36 _set_macrostep_kinf()

```
def _set_macrostep_kinf (
    self,
    kinf ) [private]
```

6.26.2.37 _set_macrostep_MC_flux()

```
def _set_macrostep_MC_flux (
    self,
    MC_flux ) [private]
```

6.26.2.38 _set_macrostep_pow_dens()

```
def _set_macrostep_pow_dens (
    self,
    pow_dens ) [private]
```

6.26.2.39 `_set_macrostep_time()`

```
def _set_macrostep_time (
    self ) [private]
```

Set Step values.

6.26.2.40 `_set_power()`

```
def _set_power (
    self,
    power,
    s,
    ss ) [private]
```

6.26.2.41 `_set_subflux()`

```
def _set_subflux (
    self,
    new_subflux,
    ss ) [private]
```

6.26.2.42 `_set_subpower()`

```
def _set_subpower (
    self,
    new_subpower,
    ss ) [private]
```

6.26.2.43 `_set_substep_bucell_bu()`

```
def _set_substep_bucell_bu (
    self,
    bu,
    ss ) [private]
```

6.26.2.44 `_set_substep_flux()`

```
def _set_substep_flux (
    self,
    flux,
    s,
    ss ) [private]
```

6.26.2.45 `_set_substep_pow_dens()`

```
def _set_substep_pow_dens (
    self,
    pow_dens,
    s,
    ss ) [private]
```

6.26.2.46 `_set_substep_system_bu()`

```
def _set_substep_system_bu (
    self,
    bu,
    ss ) [private]
```

6.26.2.47 `_set_substep_time()`

```
def _set_substep_time (
    self,
    time,
    ss ) [private]
```

Set Substep values.

6.26.2.48 `av_pow_dens_seq()`

```
def av_pow_dens_seq (
    self )
```

average power density info #####

6.26.2.49 bucell_bu_point()

```
def bucell_bu_point (
    self,
    s )
```

6.26.2.50 bucell_bu_seq() [1/2]

```
def bucell_bu_seq (
    self )
```

6.26.2.51 bucell_bu_seq() [2/2]

```
def bucell_bu_seq (
    self,
    new_buccell_bu_seq )
```

6.26.2.52 bucell_bu_subpoint()

```
def bucell_bu_subpoint (
    self,
    s,
    ss )
```

6.26.2.53 bucell_bu_subseq_mat() [1/2]

```
def bucell_bu_subseq_mat (
    self )
```

6.26.2.54 bucell_bu_subseq_mat() [2/2]

```
def bucell_bu_subseq_mat (
    self,
    bucell_bu_subseq_mat )
```

6.26.2.55 bucell_time_bu_substep_conversion()

```
def bucell_time_bu_substep_conversion (
    self,
    bucell,
    s,
    ss )
```

6.26.2.56 current_bucell_bu() [1/2]

```
def current_bucell_bu (
    self )
```

bucell bu info #####

6.26.2.57 current_bucell_bu() [2/2]

```
def current_bucell_bu (
    self,
    new_bucell_bu )
```

6.26.2.58 current_bucell_bu_subseq()

```
def current_bucell_bu_subseq (
    self )
```

6.26.2.59 current_flux() [1/2]

```
def current_flux (
    self )
```

flux info #####

6.26.2.60 current_flux() [2/2]

```
def current_flux (
    self,
    new_flux )
```


6.26.2.61 `current_flux_spectrum()` [1/2]

```
def current_flux_spectrum (
    self )
```

flux_spectrum info #####

6.26.2.62 `current_flux_spectrum()` [2/2]

```
def current_flux_spectrum (
    self,
    new_flux_spectrum )
```

6.26.2.63 `current_flux_subseq()`

```
def current_flux_subseq (
    self )
```

6.26.2.64 `current_isomeric_branching_ratio()` [1/2]

```
def current_isomeric_branching_ratio (
    self )
```

branching ratio info #####

6.26.2.65 `current_isomeric_branching_ratio()` [2/2]

```
def current_isomeric_branching_ratio (
    self,
    new_isomeric_branching_ratio )
```

6.26.2.66 `current_kinf()` [1/2]

```
def current_kinf (
    self )
```

kinf info #####

6.26.2.67 current_kinf() [2/2]

```
def current_kinf (
    self,
    new_kinf )
```

6.26.2.68 current_MC_flux() [1/2]

```
def current_MC_flux (
    self )
```

MC_flux info #####.

6.26.2.69 current_MC_flux() [2/2]

```
def current_MC_flux (
    self,
    new_MC_flux )
```

6.26.2.70 current_pow_dens() [1/2]

```
def current_pow_dens (
    self )
```

pow_dens info #####

6.26.2.71 current_pow_dens() [2/2]

```
def current_pow_dens (
    self,
    new_pow_dens )
```

6.26.2.72 current_pow_dens_subseq()

```
def current_pow_dens_subseq (
    self )
```

6.26.2.73 `current_system_bu()` [1/2]

```
def current_system_bu (  
    self )
```

system bu info #####

6.26.2.74 `current_system_bu()` [2/2]

```
def current_system_bu (  
    self,  
    new_system_bu )
```

6.26.2.75 `current_system_bu_subseq()`

```
def current_system_bu_subseq (  
    self )
```

6.26.2.76 `current_time()` [1/2]

```
def current_time (  
    self )
```

time info #####

6.26.2.77 `current_time()` [2/2]

```
def current_time (  
    self,  
    new_time )
```

6.26.2.78 `current_time_subseq()`

```
def current_time_subseq (  
    self )
```

6.26.2.79 current_tot_pow() [1/2]

```
def current_tot_pow (
    self )
```

total power info #####

6.26.2.80 current_tot_pow() [2/2]

```
def current_tot_pow (
    self,
    new_tot_pow )
```

6.26.2.81 dynamic_system_time_bu_conversion()

```
def dynamic_system_time_bu_conversion (
    self,
    system,
    s )
```

6.26.2.82 flux_approximation() [1/2]

```
def flux_approximation (
    self )
```

6.26.2.83 flux_approximation() [2/2]

```
def flux_approximation (
    self,
    flux_approximation )
```

6.26.2.84 flux_point()

```
def flux_point (
    self,
    s )
```

6.26.2.85 flux_seq() [1/2]

```
def flux_seq (
    self )
```

6.26.2.86 flux_seq() [2/2]

```
def flux_seq (
    self,
    new_flux_seq )
```

6.26.2.87 flux_spectrum_seq() [1/2]

```
def flux_spectrum_seq (
    self )
```

6.26.2.88 flux_spectrum_seq() [2/2]

```
def flux_spectrum_seq (
    self,
    new_flux_spectrum_seq )
```

6.26.2.89 flux_subpoint()

```
def flux_subpoint (
    self,
    s,
    i )
```

6.26.2.90 flux_subseq_mat()

```
def flux_subseq_mat (
    self )
```

6.26.2.91 gen_initial_step_folder()

```
def gen_initial_step_folder (  
    self )
```

6.26.2.92 gen_step_folder()

```
def gen_step_folder (  
    self,  
    s )
```

6.26.2.93 get_bucell_bu_intvl()

```
def get_bucell_bu_intvl (  
    self,  
    s )
```

6.26.2.94 get_bucell_bu_subintvl()

```
def get_bucell_bu_subintvl (  
    self,  
    s,  
    ss )
```

6.26.2.95 get_FMF1()

```
def get_FMF1 (  
    self,  
    system,  
    s )
```

6.26.2.96 get_system_bu_intvl()

```
def get_system_bu_intvl (  
    self,  
    s )
```

6.26.2.97 get_system_bu_subintvl()

```
def get_system_bu_subintvl (
    self,
    s,
    ss )
```

6.26.2.98 get_time_intvl()

```
def get_time_intvl (
    self,
    s )
```

6.26.2.99 get_time_subintvl()

```
def get_time_subintvl (
    self,
    s,
    ss )
```

6.26.2.100 initial_system_bu_time_conversion()

```
def initial_system_bu_time_conversion (
    self,
    system )
```

6.26.2.101 initial_system_time_bu_conversion()

```
def initial_system_time_bu_conversion (
    self,
    system )
```

6.26.2.102 isomeric_branching_ratio_seq() [1/2]

```
def isomeric_branching_ratio_seq (
    self )
```

6.26.2.103 isomeric_branching_ratio_seq() [2/2]

```
def isomeric_branching_ratio_seq (
    self,
    new_isomeric_branching_ratio_seq )
```

6.26.2.104 kinf_point()

```
def kinf_point (
    self,
    s )
```

6.26.2.105 kinf_seq() [1/2]

```
def kinf_seq (
    self )
```

6.26.2.106 kinf_seq() [2/2]

```
def kinf_seq (
    self,
    new_kinf_seq )
```

6.26.2.107 kinf_subpoint()

```
def kinf_subpoint (
    self,
    s,
    i )
```

6.26.2.108 macrostep_unit() [1/2]

```
def macrostep_unit (
    self )
```


6.26.2.109 macrostep_unit() [2/2]

```
def macrostep_unit (
    self,
    macrostep_unit )
```

6.26.2.110 macrostep_vector() [1/2]

```
def macrostep_vector (
    self )
```

steps and norma info #####

6.26.2.111 macrostep_vector() [2/2]

```
def macrostep_vector (
    self,
    macrostep_vector )
```

6.26.2.112 macrosteps_number() [1/2]

```
def macrosteps_number (
    self )
```

6.26.2.113 macrosteps_number() [2/2]

```
def macrosteps_number (
    self,
    macrosteps_number )
```

6.26.2.114 MC_flux_point()

```
def MC_flux_point (
    self,
    s )
```

6.26.2.115 MC_flux_seq() [1/2]

```
def MC_flux_seq (
    self )
```

6.26.2.116 MC_flux_seq() [2/2]

```
def MC_flux_seq (
    self,
    new_MC_flux_seq )
```

6.26.2.117 MC_flux_subpoint()

```
def MC_flux_subpoint (
    self,
    s,
    i )
```

6.26.2.118 microstep_vector() [1/2]

```
def microstep_vector (
    self )
```

6.26.2.119 microstep_vector() [2/2]

```
def microstep_vector (
    self,
    microstep_vector )
```

6.26.2.120 microsteps_number()

```
def microsteps_number (
    self,
    s )
```

6.26.2.121 `norma_unit()` [1/2]

```
def norma_unit (  
    self )
```

6.26.2.122 `norma_unit()` [2/2]

```
def norma_unit (  
    self,  
    norma_unit )
```

6.26.2.123 `norma_vector()` [1/2]

```
def norma_vector (  
    self )
```

6.26.2.124 `norma_vector()` [2/2]

```
def norma_vector (  
    self,  
    norma_vector )
```

6.26.2.125 `pow_dens_point()`

```
def pow_dens_point (  
    self,  
    s )
```

6.26.2.126 `pow_dens_seq()` [1/2]

```
def pow_dens_seq (  
    self )
```

6.26.2.127 pow_dens_seq() [2/2]

```
def pow_dens_seq (
    self,
    new_pow_dens_seq )
```

6.26.2.128 pow_dens_subpoint()

```
def pow_dens_subpoint (
    self,
    s,
    i )
```

6.26.2.129 pow_dens_subseq_mat()

```
def pow_dens_subseq_mat (
    self )
```

6.26.2.130 set_macrostep()

```
def set_macrostep (
    self,
    macrostep_vector,
    macrostep_unit )
```

6.26.2.131 set_norma()

```
def set_norma (
    self,
    norma_vector,
    norma_unit )
```

6.26.2.132 system_bu_point()

```
def system_bu_point (
    self,
    s )
```

6.26.2.133 `system_bu_seq()` [1/2]

```
def system_bu_seq (
    self )
```

6.26.2.134 `system_bu_seq()` [2/2]

```
def system_bu_seq (
    self,
    new_system_bu_seq )
```

6.26.2.135 `system_bu_subpoint()`

```
def system_bu_subpoint (
    self,
    s,
    ss )
```

6.26.2.136 `system_bu_subseq_mat()` [1/2]

```
def system_bu_subseq_mat (
    self )
```

6.26.2.137 `system_bu_subseq_mat()` [2/2]

```
def system_bu_subseq_mat (
    self,
    system_bu_subseq_mat )
```

6.26.2.138 `time_point()`

```
def time_point (
    self,
    s )
```

6.26.2.139 `time_seq()` [1/2]

```
def time_seq (
    self )
```

6.26.2.140 `time_seq()` [2/2]

```
def time_seq (
    self,
    new_time_seq )
```

6.26.2.141 `time_subpoint()`

```
def time_subpoint (
    self,
    s,
    ss )
```

6.26.2.142 `time_subseq_mat()` [1/2]

```
def time_subseq_mat (
    self )
```

6.26.2.143 `time_subseq_mat()` [2/2]

```
def time_subseq_mat (
    self,
    time_subseq_mat )
```

6.26.2.144 `tot_pow_point()`

```
def tot_pow_point (
    self,
    s )
```

6.26.2.145 tot_pow_seq() [1/2]

```
def tot_pow_seq (
    self )
```

6.26.2.146 tot_pow_seq() [2/2]

```
def tot_pow_seq (
    self,
    new_tot_pow_seq )
```

6.26.3 Member Data Documentation**6.26.3.1 __bu_intvl_seq**

```
__bu_intvl_seq [private]
```

6.26.3.2 __time_intvl_seq

```
__time_intvl_seq [private]
```

6.26.3.3 _av_flux_seq

```
_av_flux_seq [private]
```

6.26.3.4 _av_pow_dens_seq

```
_av_pow_dens_seq [private]
```

6.26.3.5 _av_pow_dens_subseq_mat

```
_av_pow_dens_subseq_mat [private]
```

6.26.3.6 `_bu_intvl_subseq_mat`

`_bu_intvl_subseq_mat` [private]

6.26.3.7 `_bu_sec_conv_factor`

`_bu_sec_conv_factor` [private]

6.26.3.8 `_bu_seq`

`_bu_seq` [private]

6.26.3.9 `_bu_subseq_mat`

`_bu_subseq_mat` [private]

6.26.3.10 `_bucell_bu_seq`

`_bucell_bu_seq` [private]

6.26.3.11 `_bucell_bu_subseq_mat`

`_bucell_bu_subseq_mat` [private]

6.26.3.12 `_current_av_pow_dens`

`_current_av_pow_dens` [private]

6.26.3.13 `_current_av_pow_dens_subseq`

`_current_av_pow_dens_subseq` [private]

6.26.3.14 `_current_bu`

```
_current_bu [private]
```

6.26.3.15 `_current_bu_intvl`

```
_current_bu_intvl [private]
```

6.26.3.16 `_current_bu_intvl_subseq`

```
_current_bu_intvl_subseq [private]
```

6.26.3.17 `_current_bu_subseq`

```
_current_bu_subseq [private]
```

6.26.3.18 `_current_bucell_bu`

```
_current_bucell_bu [private]
```

6.26.3.19 `_current_bucell_bu_subseq`

```
_current_bucell_bu_subseq [private]
```

6.26.3.20 `_current_flux`

```
_current_flux [private]
```

6.26.3.21 `_current_flux_spectrum`

```
_current_flux_spectrum [private]
```

6.26.3.22 _current_flux_subseq

_current_flux_subseq [private]

6.26.3.23 _current_isomeric_branching_ratio

_current_isomeric_branching_ratio [private]

6.26.3.24 _current_kinf

_current_kinf [private]

6.26.3.25 _current_MC_flux

_current_MC_flux [private]

6.26.3.26 _current_pow_dens

_current_pow_dens [private]

6.26.3.27 _current_pow_dens_subseq

_current_pow_dens_subseq [private]

6.26.3.28 _current_system_bu

_current_system_bu [private]

6.26.3.29 _current_system_bu_subseq

_current_system_bu_subseq [private]

6.26.3.30 `_current_time`

```
_current_time [private]
```

6.26.3.31 `_current_time_intvl`

```
_current_time_intvl [private]
```

6.26.3.32 `_current_time_intvl_subseq`

```
_current_time_intvl_subseq [private]
```

6.26.3.33 `_current_time_subseq`

```
_current_time_subseq [private]
```

6.26.3.34 `_current_tot_pow`

```
_current_tot_pow [private]
```

6.26.3.35 `_current_tot_pow_subseq`

```
_current_tot_pow_subseq [private]
```

6.26.3.36 `_flux_approximation`

```
_flux_approximation [private]
```

6.26.3.37 `_flux_seq`

```
_flux_seq [private]
```

6.26.3.38 _flux_spectrum

_flux_spectrum [private]

6.26.3.39 _flux_spectrum_seq

_flux_spectrum_seq [private]

6.26.3.40 _flux_subseq_mat

_flux_subseq_mat [private]

6.26.3.41 _id

_id [private]

6.26.3.42 _isomeric_branching_ratio_seq

_isomeric_branching_ratio_seq [private]

6.26.3.43 _kinf_seq

_kinf_seq [private]

6.26.3.44 _macrostep_unit

_macrostep_unit [private]

6.26.3.45 _macrostep_vector

_macrostep_vector [private]

6.26.3.46 `_macrosteps_number``_macrosteps_number` [private]**6.26.3.47** `_MC_flux_seq``_MC_flux_seq` [private]**6.26.3.48** `_MC_flux_subseq_mat``_MC_flux_subseq_mat` [private]**6.26.3.49** `_microstep_vector``_microstep_vector` [private]**6.26.3.50** `_microsteps_number``_microsteps_number` [private]**6.26.3.51** `_norma_unit``_norma_unit` [private]**6.26.3.52** `_norma_vector``_norma_vector` [private]**6.26.3.53** `_pow_dens_seq``_pow_dens_seq` [private]

6.26.3.54 `_pow_dens_subseq_mat`

```
_pow_dens_subseq_mat [private]
```

6.26.3.55 `_system_bu_seq`

```
_system_bu_seq [private]
```

6.26.3.56 `_system_bu_subseq_mat`

```
_system_bu_subseq_mat [private]
```

6.26.3.57 `_time_intvl_subseq_mat`

```
_time_intvl_subseq_mat [private]
```

6.26.3.58 `_time_seq`

```
_time_seq [private]
```

6.26.3.59 `_time_subseq_mat`

```
_time_subseq_mat [private]
```

6.26.3.60 `_tot_pow_seq`

```
_tot_pow_seq [private]
```

6.26.3.61 `_tot_pow_subseq_mat`

```
_tot_pow_subseq_mat [private]
```

6.26.3.62 bucell_bu_seq

bucell_bu_seq

6.26.3.63 current_bucell_bu

current_bucell_bu

6.26.3.64 current_flux

current_flux

6.26.3.65 current_flux_spectrum

current_flux_spectrum

6.26.3.66 current_isomeric_branching_ratio

current_isomeric_branching_ratio

6.26.3.67 current_kinf

current_kinf

6.26.3.68 current_MC_flux

current_MC_flux

6.26.3.69 current_pow_dens

current_pow_dens

6.26.3.70 current_system_bu

current_system_bu

6.26.3.71 current_time

current_time

6.26.3.72 current_tot_pow

current_tot_pow

6.26.3.73 flux

flux

6.26.3.74 flux_approximation

flux_approximation

6.26.3.75 flux_seq

flux_seq

6.26.3.76 flux_spectrum_seq

flux_spectrum_seq

6.26.3.77 isomeric_branching_ratio_seq

isomeric_branching_ratio_seq

6.26.3.78 kinf_seq

kinf_seq

6.26.3.79 macrostep_unit

macrostep_unit

6.26.3.80 macrostep_vector

macrostep_vector

6.26.3.81 macrosteps_number

macrosteps_number

6.26.3.82 MC_flux_seq

MC_flux_seq

6.26.3.83 microstep_vector

microstep_vector

6.26.3.84 pow_dens

pow_dens

6.26.3.85 pow_dens_seq

pow_dens_seq

6.26.3.86 system_bu_seq

system_bu_seq

6.26.3.87 time_seq

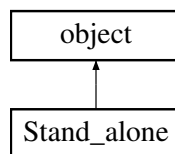
time_seq

The documentation for this class was generated from the following file:

- /Users/mouginot/work/app/OpenBU/openbu/[sequence.py](#)

6.27 Stand_alone Class Reference

Inheritance diagram for Stand_alone:



Public Member Functions

Public Attributes

Private Attributes

6.27.1 Constructor & Destructor Documentation

6.27.1.1 __init__()

```
def __init__ (
    self )
```

6.27.2 Member Function Documentation

6.27.2.1 add_bucell()

```
def add_bucell (
    self,
    bucell )
```

6.27.2.2 burn()

```
def burn (
    self )
```

6.27.2.3 set_decay_from_object()

```
def set_decay_from_object (
    self,
    bucell,
    object )
```

6.27.2.4 set_decay_lib()

```
def set_decay_lib (
    self,
    decay_lib_path )
```

6.27.2.5 set_default_decay_lib()

```
def set_default_decay_lib (
    self )
```

6.27.2.6 set_default_fy_lib()

```
def set_default_fy_lib (
    self )
```

6.27.2.7 set_default_xs_lib()

```
def set_default_xs_lib (
    self )
```

6.27.2.8 set_fy_from_object()

```
def set_fy_from_object (
    self,
    bucell,
    object )
```

6.27.2.9 set_fy_lib()

```
def set_fy_lib (
    self,
    fy_lib_path )
```

6.27.2.10 set_sequence()

```
def set_sequence (
    self,
    sequence )
```

6.27.2.11 set_vol()

```
def set_vol (
    self,
    vol_dict )
```

6.27.2.12 set_xs_from_object()

```
def set_xs_from_object (
    self,
    bucell,
    object )
```

6.27.2.13 set_xs_lib()

```
def set_xs_lib (
    self,
    xs_lib_path )
```

6.27.2.14 step_normalization()

```
def step_normalization (
    self,
    s )
```

6.27.2.15 system() [1/2]

```
def system (
    self )
```

6.27.2.16 system() [2/2]

```
def system (
    self,
    system )
```

6.27.2.17 total_vol() [1/2]

```
def total_vol (
    self )
```

6.27.2.18 total_vol() [2/2]

```
def total_vol (
    self,
    total_vol )
```

6.27.3 Member Data Documentation

6.27.3.1 _decay_lib_path

_decay_lib_path [private]

6.27.3.2 _decay_lib_set

_decay_lib_set [private]

6.27.3.3 _fy_lib_path

_fy_lib_path [private]

6.27.3.4 _fy_lib_set

_fy_lib_set [private]

6.27.3.5 _system

_system [private]

6.27.3.6 _total_vol

_total_vol [private]

6.27.3.7 _volume_set

_volume_set [private]

6.27.3.8 _xs_lib_path

_xs_lib_path [private]

6.27.3.9 `_xs_lib_set`

`_xs_lib_set` [private]

6.27.3.10 `sequence`

`sequence`

6.27.3.11 `system`

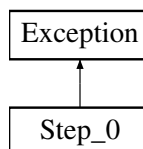
`system`

The documentation for this class was generated from the following file:

- [/Users/mouginot/work/app/OpenBU/openbu/standalone.py](#)

6.28 Step_0 Class Reference

Inheritance diagram for Step_0:



6.28.1 Detailed Description

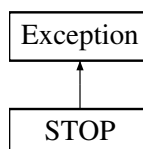
Raise when the user try to access subinterval for the first step

The documentation for this class was generated from the following file:

- [/Users/mouginot/work/app/OpenBU/openbu/sequence.py](#)

6.29 STOP Class Reference

Inheritance diagram for STOP:



6.29.1 Detailed Description

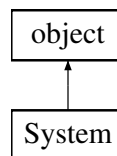
Just a way to stop the code

The documentation for this class was generated from the following file:

- [/Users/mouginot/work/app/OpenBU/openbu/couple/couple_openmc.py](#)

6.30 System Class Reference

Inheritance diagram for System:



Public Member Functions

Public Attributes

Private Member Functions

Private Attributes

6.30.1 Constructor & Destructor Documentation

6.30.1.1 __init__()

```
def __init__ (
    self,
    system_id )
```

6.30.2 Member Function Documentation

6.30.2.1 _gen_output_summary_folder()

```
def _gen_output_summary_folder (
    self ) [private]
```

6.30.2.2 _print_current_allreacs_rank()

```
def _print_current_allreacs_rank (
    self ) [private]
```

6.30.2.3 _print_summary_allreacs_rank()

```
def _print_summary_allreacs_rank (
    self ) [private]
```

6.30.2.4 _print_summary_dens()

```
def _print_summary_dens (
    self ) [private]
```

6.30.2.5 _print_summary_flux_spectrum()

```
def _print_summary_flux_spectrum (
    self,
    mg_energy_bin ) [private]
```

6.30.2.6 _print_summary_isomeric_branching_ratio()

```
def _print_summary_isomeric_branching_ratio (
    self ) [private]
```

6.30.2.7 _print_summary_kinf()

```
def _print_summary_kinf (
    self ) [private]
```

6.30.2.8 _print_summary_param()

```
def _print_summary_param (
    self ) [private]
```

6.30.2.9 _print_summary_subdens()

```
def _print_summary_subdens (
    self ) [private]
```

6.30.2.10 _print_summary_xs()

```
def _print_summary_xs (
    self ) [private]
```

6.30.2.11 _set_bu_sec_conv_factor()

```
def _set_bu_sec_conv_factor (
    self ) [private]
```

6.30.2.12 add_bucell()

```
def add_bucell (
    self,
    new_bucell )
```

6.30.2.13 add_bucell_dict()

```
def add_bucell_dict (
    self,
    new_bucell_dict )
```

6.30.2.14 bounding_box() [1/2]

```
def bounding_box (
    self )
```

6.30.2.15 `bounding_box()` [2/2]

```
def bounding_box (
    self,
    bounding_box )
```

6.30.2.16 `bu_sec_conv_factor()`

```
def bu_sec_conv_factor (
    self )
```

6.30.2.17 `bucell_dict()` [1/2]

```
def bucell_dict (
    self )
```

6.30.2.18 `bucell_dict()` [2/2]

```
def bucell_dict (
    self,
    bucell_dict )
```

6.30.2.19 `burn()`

```
def burn (
    self )
```

6.30.2.20 `copy_cell_folders_to_step_folder()`

```
def copy_cell_folders_to_step_folder (
    self,
    s )
```

6.30.2.21 get_bucell()

```
def get_bucell (
    self,
    name )
```

6.30.2.22 get_bucell_list()

```
def get_bucell_list (
    self )
```

6.30.2.23 get_tot_hm()

```
def get_tot_hm (
    self )
```

6.30.2.24 get_tot_ihm()

```
def get_tot_ihm (
    self )
```

6.30.2.25 id()

```
def id (
    self )
```

6.30.2.26 print_bucell_nuclides()

```
def print_bucell_nuclides (
    self,
    bucell,
    step,
    nuclide_list )
```

6.30.2.27 sequence() [1/2]

```
def sequence (  
    self )
```

6.30.2.28 sequence() [2/2]

```
def sequence (  
    self,  
    sequence )
```

6.30.2.29 set_decay_for_all()

```
def set_decay_for_all (  
    self,  
    decay_lib_path )
```

6.30.2.30 set_default_decay_for_all()

```
def set_default_decay_for_all (  
    self )
```

6.30.2.31 set_default_decay_for_all_no_add()

```
def set_default_decay_for_all_no_add (  
    self )
```

6.30.2.32 set_default_fy_for_all()

```
def set_default_fy_for_all (  
    self )
```

6.30.2.33 set_default_fy_for_all_no_add()

```
def set_default_fy_for_all_no_add (  
    self )
```

6.30.2.34 set_default_xs_for_all()

```
def set_default_xs_for_all (
    self )
```

6.30.2.35 set_fy_for_all()

```
def set_fy_for_all (
    self,
    fy_lib_path )
```

6.30.2.36 set_sequence()

```
def set_sequence (
    self,
    sequence,
    mode = 'stand alone' )
```

6.30.2.37 set_xs_for_all()

```
def set_xs_for_all (
    self,
    xs_lib_path )
```

6.30.2.38 total_vol() [1/2]

```
def total_vol (
    self )
```

6.30.2.39 total_vol() [2/2]

```
def total_vol (
    self,
    total_vol )
```

6.30.2.40 `zam_order_passlist()`

```
def zam_order_passlist (
    self )
```

6.30.3 Member Data Documentation

6.30.3.1 `_bounding_box`

```
_bounding_box [private]
```

6.30.3.2 `_bu_sec_conv_factor`

```
_bu_sec_conv_factor [private]
```

6.30.3.3 `_bucell_dict`

```
_bucell_dict [private]
```

6.30.3.4 `_id`

```
_id [private]
```

6.30.3.5 `_output_summary_path`

```
_output_summary_path [private]
```

6.30.3.6 `_sequence`

```
_sequence [private]
```

6.30.3.7 `_total_vol`

```
_total_vol [private]
```

6.30.3.8 `bucell_dict`

```
bucell_dict
```

6.30.3.9 `sequence`

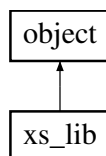
```
sequence
```

The documentation for this class was generated from the following file:

- `/Users/mouginot/work/app/OpenBU/openbu/system.py`

6.31 `xs_lib` Class Reference

Inheritance diagram for `xs_lib`:



Public Member Functions

Private Attributes

6.31.1 Constructor & Destructor Documentation

6.31.1.1 `__init__()`

```
def __init__ (  
        self,  
        name )
```


6.31.2 Member Function Documentation

6.31.2.1 add_data()

```
def add_data (
    self,
    zamid,
    kwargs )
```

6.31.2.2 add_xs_dict()

```
def add_xs_dict (
    self,
    zamid,
    xs_dict )
```

6.31.2.3 isomeric_branching_weighting()

```
def isomeric_branching_weighting (
    self,
    isomeric_branching_ratio )
```

6.31.2.4 xs()

```
def xs (
    self )
```

6.31.3 Member Data Documentation

6.31.3.1 _dict

```
_dict [private]
```

6.31.3.2 `_name`

`_name` [private]

6.31.3.3 `_xs`

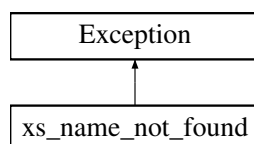
`_xs` [private]

The documentation for this class was generated from the following file:

- [/Users/mouginot/work/app/OpenBU/openbu/utis/reactions_class.py](#)

6.32 `xs_name_not_found` Class Reference

Inheritance diagram for `xs_name_not_found`:



6.32.1 Detailed Description

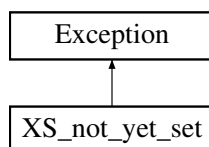
Raise when the user tries to access fission XS for a nuclide which fission XS have not been set yet

The documentation for this class was generated from the following file:

- [/Users/mouginot/work/app/OpenBU/openbu/utis/data_processor.py](#)

6.33 `XS_not_yet_set` Class Reference

Inheritance diagram for `XS_not_yet_set`:



6.33.1 Detailed Description

Raise when the user tries to access XS for a nuclide which XS have not been set yet

The documentation for this class was generated from the following file:

- [/Users/mouginot/work/app/OpenBU/openbu/passport.py](#)

Chapter 7

File Documentation

7.1 [/Users/mouginot/work/app/OpenBU/openbu/__init__.py](#) File Reference

7.2 [/Users/mouginot/work/app/OpenBU/openbu/couple/__init__.py](#) File Reference

7.3 [/Users/mouginot/work/app/OpenBU/openbu/data/__init__.py](#) File Reference

7.4 [/Users/mouginot/work/app/OpenBU/openbu/nax/__init__.py](#) File Reference

7.5 [/Users/mouginot/work/app/OpenBU/openbu/salameche/__init__.py](#) File Reference

7.6 [/Users/mouginot/work/app/OpenBU/openbu/utils/__init__.py](#) File Reference

7.7 [/Users/mouginot/work/app/OpenBU/openbu/cell.py](#) File Reference

Classes

- class [Cell](#)
- class [Initial_nucl_not_set](#)
- class [Nucl_set_not_in_Lib_nucl](#)
- class [Initial_nucl_not_in_Nucl_set](#)
- class [Nuclide_list_redundant](#)
- class [Passlist_not_defined](#)

7.8 [/Users/mouginot/work/app/OpenBU/openbu/couple/couple_openmc.py](#) File Reference

Classes

- class [Couple_openmc](#)
- class [Initial_nuclides_not_in_nuclide_list](#)
- class [STOP](#)

- 7.9 `/Users/mouginot/work/app/OpenBU/openbu/couple/openmc_fix.py` File Reference
- 7.10 `/Users/mouginot/work/app/OpenBU/openbu/data/isomeric_data/read_energ_grid.py` File Reference
- 7.11 `/Users/mouginot/work/app/OpenBU/openbu/data/list_and_dict.py` File Reference
- 7.12 `/Users/mouginot/work/app/OpenBU/openbu/data/other_libs/ENDFVIII/read_fy.py` File Reference
- 7.13 `/Users/mouginot/work/app/OpenBU/openbu/data/read_lib_functions.py` File Reference
- 7.14 `/Users/mouginot/work/app/OpenBU/openbu/data/script/build_text_mat.py` File Reference
- 7.15 `/Users/mouginot/work/app/OpenBU/openbu/data/script/compare_fy.py` File Reference
- 7.16 `/Users/mouginot/work/app/OpenBU/openbu/data/script/conv_decaylib.py` File Reference
- 7.17 `/Users/mouginot/work/app/OpenBU/openbu/data/script/conv_fylib.py` File Reference
- 7.18 `/Users/mouginot/work/app/OpenBU/openbu/data/script/conv_fylib_janis-csv.py` File Reference
- 7.19 `/Users/mouginot/work/app/OpenBU/openbu/data/script/conv_nndc_decaylib.py` File Reference
- 7.20 `/Users/mouginot/work/app/OpenBU/openbu/data/script/conv_xslib.py` File Reference
- 7.21 `/Users/mouginot/work/app/OpenBU/openbu/data/script/convert_decay-old-format↔_to-new-format.py` File Reference

7.22 /Users/mouginot/work/app/OpenBU/openbu/data/script/find_isomeric_branching.py File Reference

7.23 /Users/mouginot/work/app/OpenBU/openbu/data/script/nuclide_chart_compare_↵
fy.py File Reference

7.24 /Users/mouginot/work/app/OpenBU/openbu/data/script/nuclide_chart_jeff33-32.py File Reference

7.25 /Users/mouginot/work/app/OpenBU/openbu/data/script/plot_full_reduced_lib_↵
chart.py File Reference

7.26 /Users/mouginot/work/app/OpenBU/openbu/data/script/xs_flux_folder.py File Reference

7.27 /Users/mouginot/work/app/OpenBU/openbu/input.py File Reference

Classes

- class [Input](#)

7.28 /Users/mouginot/work/app/OpenBU/openbu/nax/functions.py File Reference

Classes

- class [Batch](#)

7.29 /Users/mouginot/work/app/OpenBU/openbu/utils/functions.py File Reference

Classes

- class [MidpointNormalize](#)
- class [Empty_argument](#)

7.30 /Users/mouginot/work/app/OpenBU/openbu/passlist.py File Reference

Classes

- class [Passlist](#)
- class [Nuc_xs_not_found](#)
- class [Neg_decay](#)
- class [Neg_xs](#)

7.31 /Users/mouginot/work/app/OpenBU/openbu/passport.py File Reference

Classes

- class [Passport](#)
- class [Incorrect_nuc_id](#)
- class [Nuc_xs_not_found](#)
- class [Not_a_Fission_Product](#)
- class [XS_not_yet_set](#)
- class [No_fission_XS](#)

7.32 /Users/mouginot/work/app/OpenBU/openbu/salameche/burn.py File Reference

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