ecx

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NAME

ecx - library for electrochemistry

SYNOPSIS

use *ecx*

DESCRIPTION

ecx a Fortran library for providing a collection of routines for electrochemistry. A C API allows usage from C, or can be used as a basis for other wrappers. A Python wrapper allows easy usage from Python.

It covers:

> **o kinetics**
>> Nernst, Butler-Volmer

> **o electrochemical**
>> Impedance, Admittance, Circuit Elements, Equivalent Circuits

> **o photoelectrochemistry**
>> Photocurrent, Band-gap, space charge.

The C API is defined by adding a prefix to the functions from the Fortran API due to the lack of module/namespace feature in the C language. The functions are therefore following this template: (c_prefix)fortran_func.

- (ecx_)get_version
- (ecx_core_)kTe
- (ecx_eis_)z
- mm
- (ecx_kinetics_)nernst
- (ecx_kinetics_)sbv
- (ecx_kinetics_)bv
- (ecx_eis_)z

EXAMPLE

Minimal example in Fortran:

```
use ecx
```

Minimal example in C:

```
include "ecx.h"
```

Minimal example in Python:

```
import pyecx
```

SEE ALSO

complex(7), **gsl**(3), **catanh**(3), **gnuplot**(1)

NAME

      ecxcli(1) - Command line for ecx

SYNOPSIS

      ecxcli *SUBCOMMAND* [*OPTIONS ...*] *ARGS ...*

DESCRIPTION

      ecxcli is command line interface for computing electro- chemical properties:

            o EIS   Electrochemical Impedance $\mathbf{Z=f}(w)$

            o Kinetics

                    $\mathbf{j=f}(U)$

            o PEC $\mathbf{Iph=f}(hv, U)$

      It can also provide the molar masses, isotope compositions and nuclide compositions.

SUBCOMMANDS

      o all   Get the whole periodic table.

      o saw   Get the standard atomic weight.

      Enter **ecxcli** *SUBCOMMAND* **--help** for detailed descriptions.

OPTIONS

      o --abridged, -a

            Use the abridged value.

      o --uncertainty, -u

            Use the uncertainty.

      o --pprint

            Nice formatting.

      o --mass, -z

            Get the mass number.

VALID FOR ALL SUBCOMMANDS

      o --help

            Show help text and exit

      o --verbose

            Display additional information when available.

      o --version

            Show version information and exit.

NAME

get_version - version getter for the library

LIBRARY

Electrochemistry library - (**-libecx**, **-lecx**)

SYNOPSIS

```
get_version()
```

DESCRIPTION

This function returns the version of the ecx library.

RETURN VALUE

character(len=:), pointer :: fptr

NAME
kTe - thermal voltage

SYNOPSIS
`kTe`(*T*)

DESCRIPTION
Compute the thermal voltage.

Parameters:

o *T*   Temperature in Â°C

RETURN VALUE
real(dp) :: r
Thermal voltage in Volts.