Inputs

Device.fsp

n Sweep variables $\{l_1, \dots, l_n\}$

Params file: Misc. info

Data desired to extract

Outputs (deprecated)

$|E| : x_i \times y_i \times h_i$

$|S| : x_i \times y_i \times h_i$

$T : h_i$

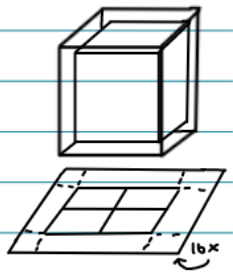
} × Size $l_1 \times \cdots \times l_n$

Step 1

Monitor Setup (some are unnecessary during optimization)

- check if monitors already exist
  - ↳ if not, create

Other environs setup: Repeat



Step 2

Import sweep params

Check layout mode

Adjust simulation accordingly

Add to job queue

* Run, save .fsp files

backup and loading code →

Step 3

Access each finished simulation

Extract data: what is needed?

- $|E|$, $|S|$, T across each monitor
- can customise accordingly

Save data: what is needed?

- can customise accordingly

Use a JSON:

```
{ "Monitors" : [
    { "name" : 'side_monitor_0',
      "monitor type" : "2D X-normal"
      "enabled" : True, "getFromFDTD" : True,
      "save" : True }
  ]}
```

Step 3.5 – Plot Gathering

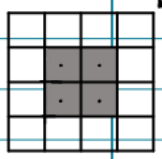
Create array to hold data for each finished simulation

- length = # plot types

For each finished simulation:

Determined by JSON settings:

- Sorting spectrum
- E-norm images at each spot
- Gather data for sweep plots
  - → Sorting efficiency
  - → Functions of:
    - duplicate: Transmission (6 sides)
    - |S| (6 sides + spill_plane)
    - |E| (6 sides + spill_plane)



→ Cross-reference x,y,z arrays from getResult to identify quadrants and focal spots.

- These are either 1×1 or $h_i \times 1$ vectors.

Step 4

Plot remaining functions

Export as per format above

Output

Export out

```
{"r":[{"var_name": "x_pos", "var_values": [arr r1]}
      {"var_name": "y_pos", "var_values": [arr r2]}],
 "f":[{"var_name": "Red eff.", "var_values": [arr f1]},
      {"var_name": "G1 eff.", "var_values": [arr f2]}],
 "const_params" : {dictionary},
 "title" : "blah"}
```

Datafiles for each plot

- JSONs in the format given above.
- [Future]: HDF5??

```
{ "Plots" : [
    { "name" : "sorting_efficiency"
      "enabled" : true
      "generate_plot_per_job" : true → outputs peak value for sweep, AND spectrum plot
                                false → ONLY outputs peak value for sweep
    },
    ... ]
}
```