



# EUROPEAN PLASMA RESEARCH ACCELERATOR WITH EXCELLENCE IN APPLICATIONS

## Data Transfer between Codes for Start-to-End Simulations: **DISCUSSION**

**Maria Weikum**



| Codes             | Users                     | Format                       | Interface to other codes? |
|-------------------|---------------------------|------------------------------|---------------------------|
| OSIRIS            | IST, DESY                 | hdf5                         | Yes                       |
| WARP              | CNRS / LPGP, CEA          | openPMD, hdf5                |                           |
| CALDER-Circ       | LOA                       |                              | No (?)                    |
| SMILEI            | CNRS / LLR                | openPMD                      |                           |
| ALaDyn, Architect | INFN_SparcLab (PISA_ILIL) | ascii file with xml metadata | Yes                       |
| HiPACE            | DESY                      |                              |                           |
| PICongPU          | HZDR, DESY, ELI           | openPMD, hdf5                | Yes                       |

- + particle tracking codes (ASTRA, ELEGANT, ...)
- + FEL codes (Genesis, Puffin,..?)
- + etc.

1. information to add to table?
2. ideas for ensuring more unified approach to start-to-end simulations?
3. common data format? Which one?
4. challenges to consider for data transfer?

- A common format for structuring the content of data and metadata (not a specific file format) to be exchanged is necessary
- Angel Ferran Pousa and Alberto Marocchino will make a proposal for such a common data structuring
- Michael Bussmann has offered assistance based on his extensive experience on the openPMD format
- A simple tool for visualising exchanged data may also be desirable
- Possible challenges for exchanging data between codes, especially between PIC and tracking codes: macroparticle weights, time domain vs. space domain