## deRSE25 and SE25 Timetables



Contribution ID: 30

Type: Talk (15min + 5min)

## Conserving Legacy Code: From handwritten Makefile to modern build system and activatable archivation

Thursday 27 February 2025 11:00 (20 minutes)

With the retirement of a colleague we were handed the Fortran source code for a computational software.

At that stage the software was feature complete, offering a large variety of options for simulation of semiconductors. Along with the implementation of advances physical models for semiconductors and optoelectronic devices,

key features at the time of development where a custom scripting language to steer simulations and built-in plotting capabilities through X11.

While not having any tests, it was validated against various real world experiments and is therefore trusted by many scientists both at our institute and by collaborators.

Recently, there was renewed interest in researching related and extended problems not supported by the software. Due to the infeasibility of extending the old codebase, the plan is to replace it with a new implementation in Julia based on our package ecosystem WIAS-PDELib.

However, due to the high trust in its results, an executable running on modern operating systems was needed to perform validation of the new codebase against in silico experiments.

In this talk we want to describe the steps we took to modernize the build system such that the code can be built from source on modern computers. In addition, we discuss the concept of archiving this type of legacy code such that it can be activated upon need.

## I want to participate in the youngRSE prize

no

Primary authors: THIELE, Jan Philipp (Weierstrass Institute Berlin); FUHRMANN, Jürgen (WIAS Berlin)

**Presenter:** THIELE, Jan Philipp (Weierstrass Institute Berlin)

Session Classification: Legacy Research Software

Track Classification: Policies and Community Building: open source research software