Pyrocko - A Versatile Software Framework for Seismology

Sebastian Heimann¹, Marius Kriegerowski¹,², Marius Isken¹,³, Hannes Vasyura-Bathke², Simone Cesca¹, Nima Nooshiri⁴, Gesa Petersen¹, Malte Metz¹,², Andreas Steinberg³, Henriette Sudhaus³, and Torsten Dahm¹

¹GFZ Potsdam, Section 2.1: Physics of Earthquakes and Volcanoes, Potsdam, Germany (sebastian.heimann@gfz-potsdam.de)
²University of Potsdam, Potsdam, Germany
³University of Kiel, Kiel, Germany
⁴Dublin Institute of Advanced Studies (DIAS), Dublin, Ireland

Pyrocko is an open source seismology toolbox and library, written in the Python programming language. It can be utilized flexibly for a variety of geophysical tasks, like seismological data processing and analysis, modelling of waveforms, InSAR or GPS displacement data, or for seismic source characterization. At its core, Pyrocko is a library and framework providing building blocks for researchers and students wishing to develop their own applications. Pyrocko contains a few standalone applications for everyday seismological practice. These include the Snuffler program, an extensible seismogram browser and workbench, the Cake tool, providing travel-time and ray-path computations for 1D layered earthmodels, Fomosto, a tool to manage pre-calculated Green's function stores, Jackseis, a command-line tool for common waveform archive data manipulations, Colosseo, a tool to create synthetic earthquake scenarios, serving waveforms and static displacements, and new, Sparrow, a 3D geophysical data visualization tool. This poster gives a glimpse of Pyrocko's features, for more examples and tutorials visit https://pyrocko.org/.