

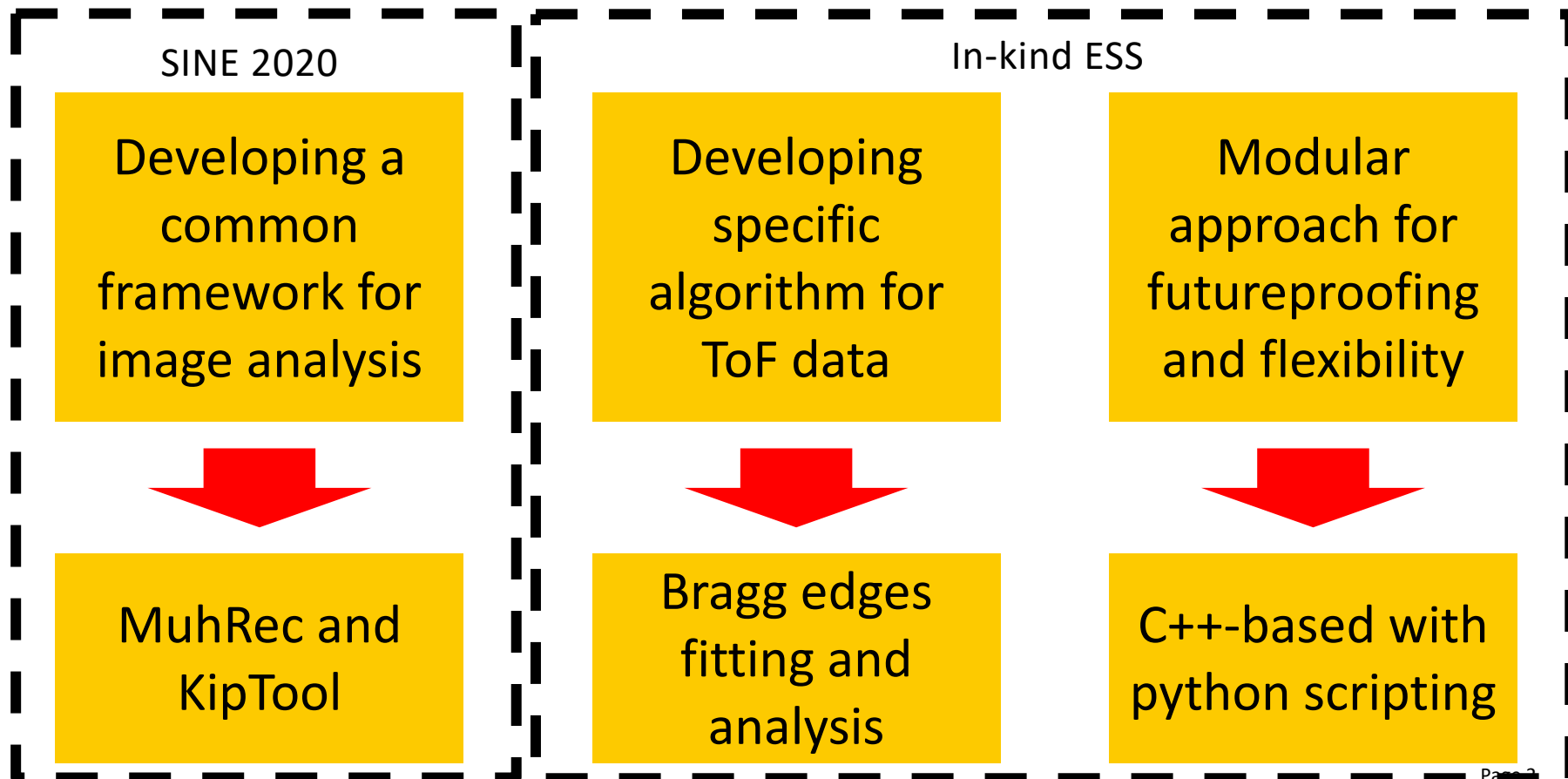
PAUL SCHERRER INSTITUT



A. Kaestner, C. Carminati, M. Morgano :: Paul Scherrer Institut

Progress report: Analysis tools for NI

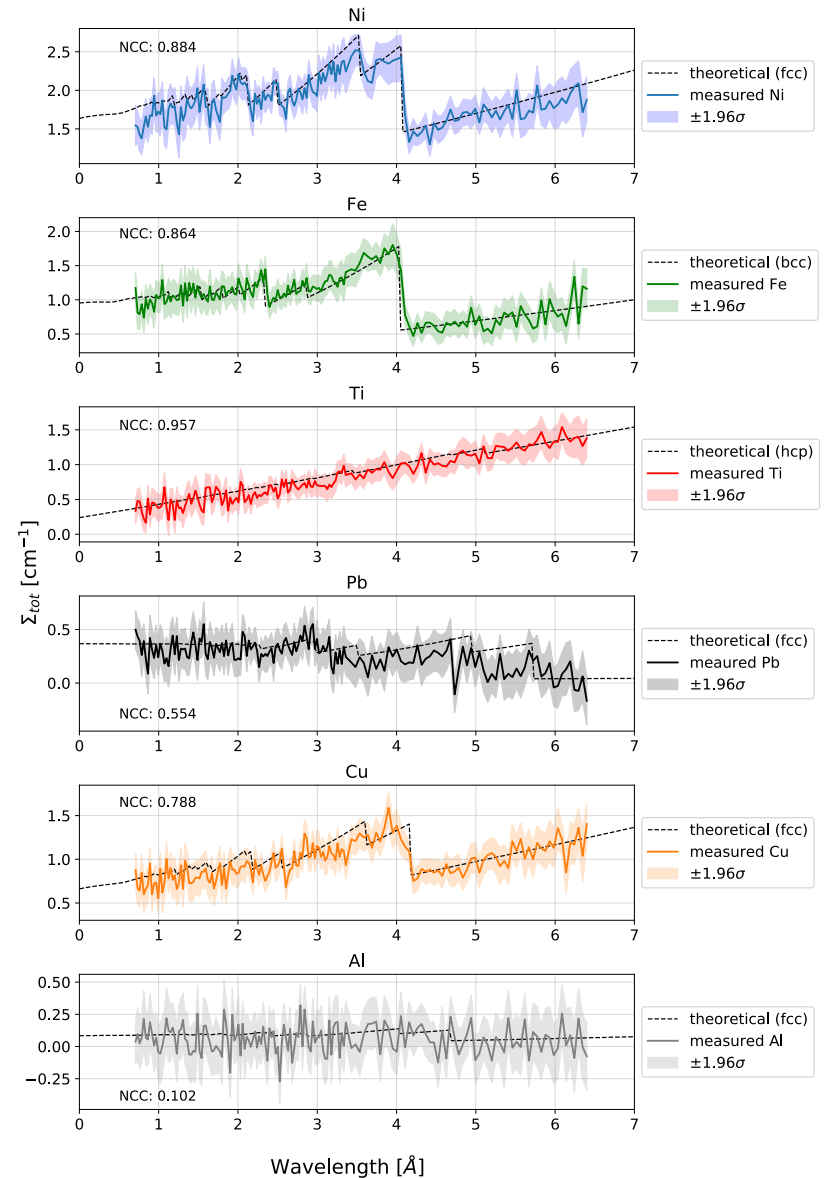
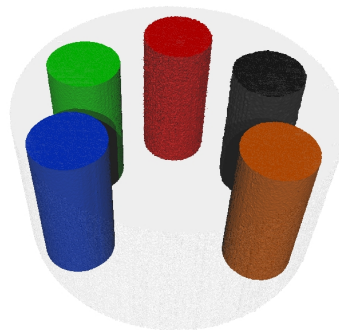
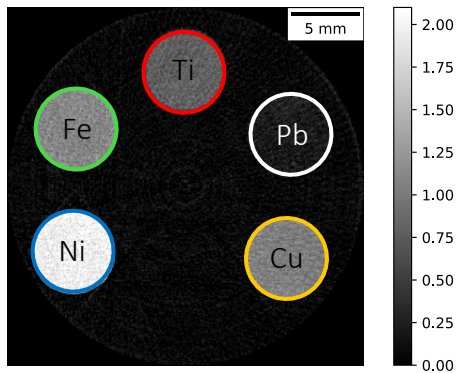
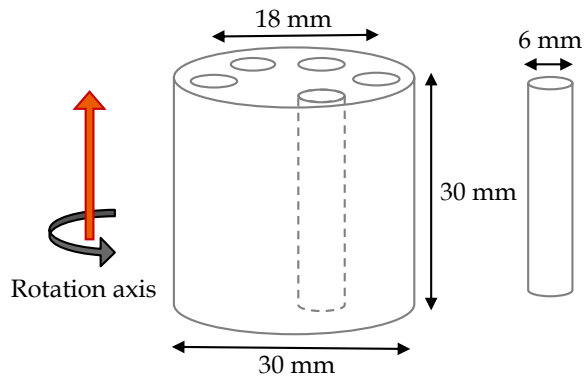
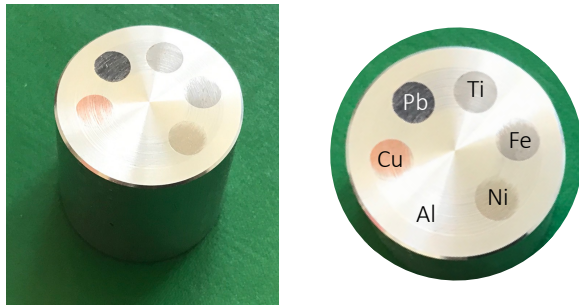
- PSI in-kind project with DMSC (not in instrument budget)
- 1.5+2 years project with two persons: Anders Kaestner (~50%) and Chiara Carminati (100%)
- Main stakeholder ODIN, but general for all imaging at ESS



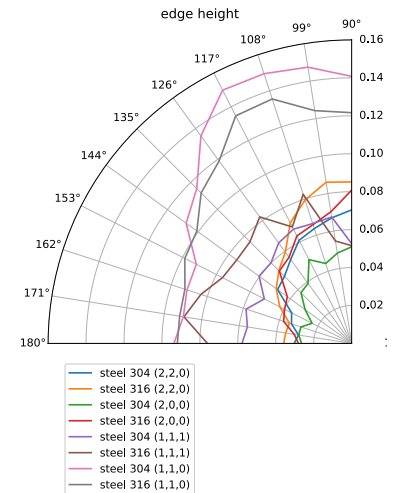
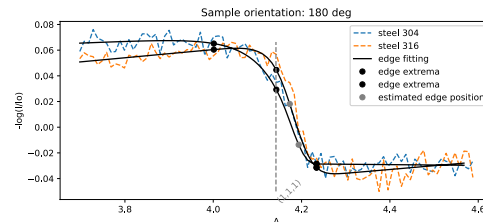
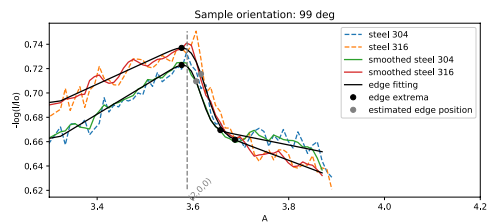
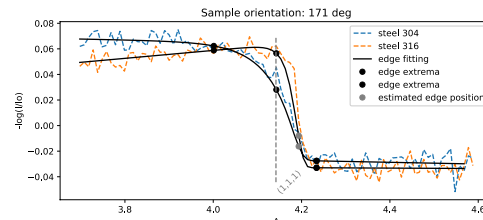
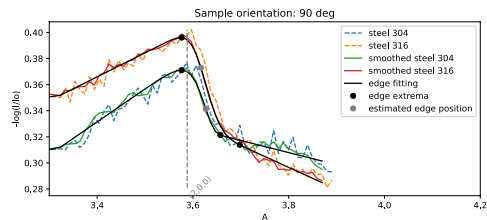
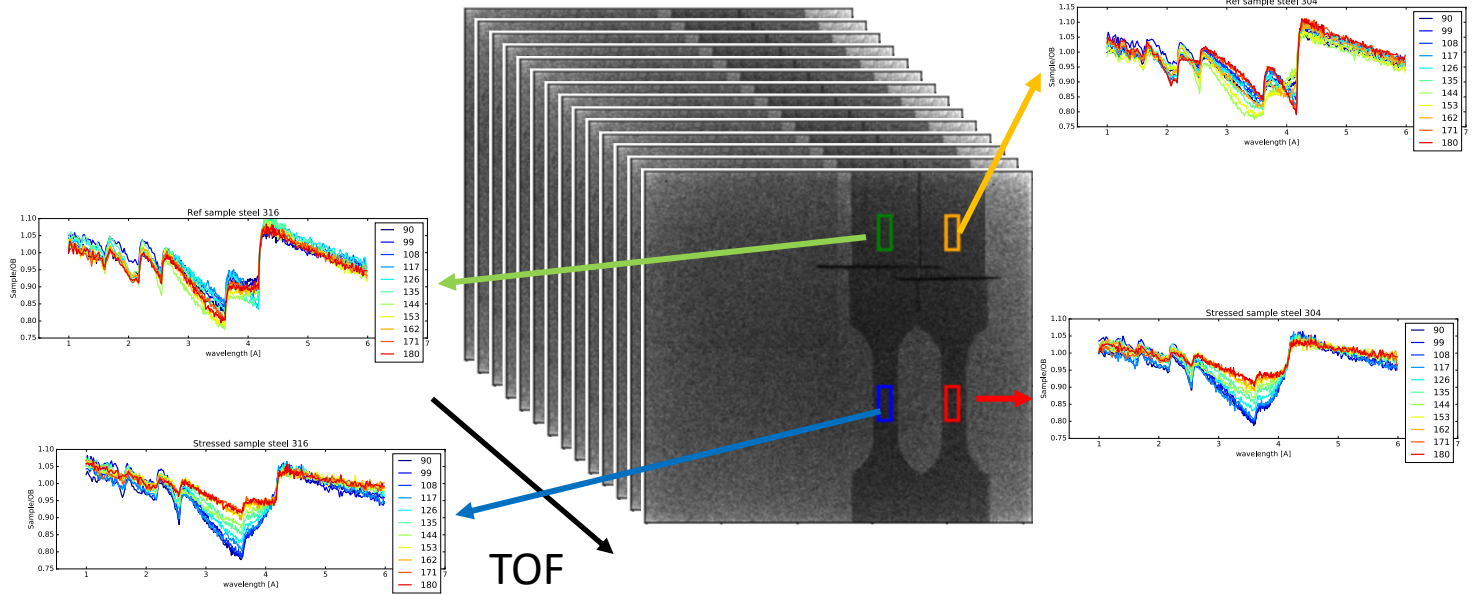
Status update

- Releases
 - MuhRec: 3.14 (Dec 2017), 4.0 (July 2018), 4.0.1 (Sep 2018), 4.1 (May 2019)
 - KipTool 2.7 (Feb 2019) first official release including major update on wiki documentation).
- Modelling
 - Bragg edge fitting, validation on experiment data from ISIS. Publication in progress (target Applied Crystallography).
- Python bindings
 - A central selection of algorithms (including CT recon engine call).
 - Collaboration with D. Tasev (ISIS)
- Papers
 - KipTool, *SoftwareX* <https://doi.org/10.1016/j.softx.2019.100279>
 - BB method, *Optics Express* <https://doi.org/10.1364/OE.26.015769>
 - PloSONE* <https://doi.org/10.1371/journal.pone.0210300>
 - BB application *WCNR*

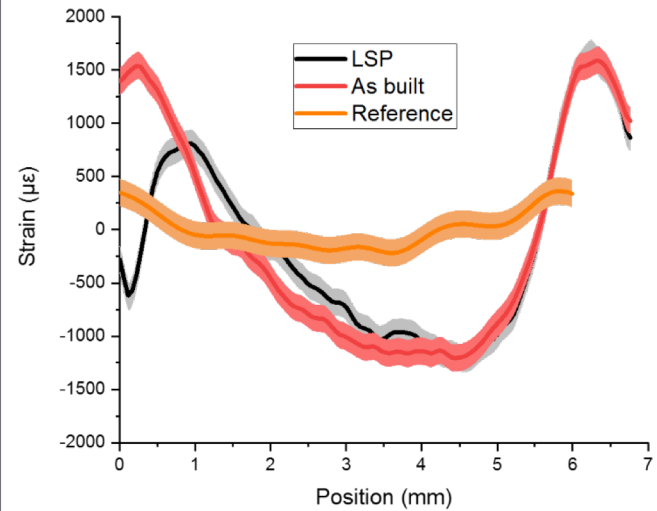
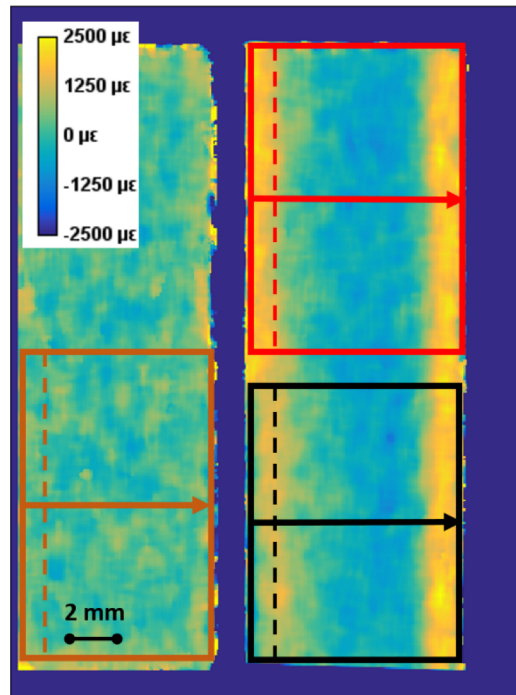
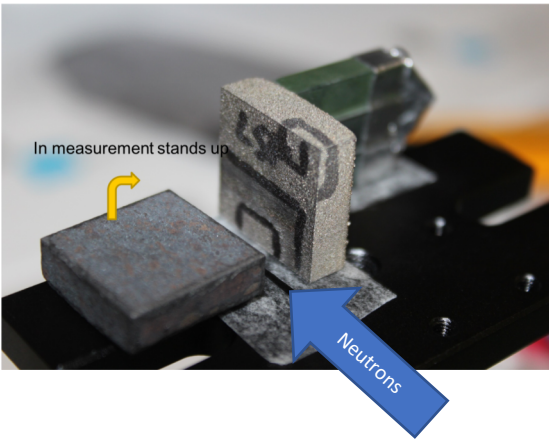
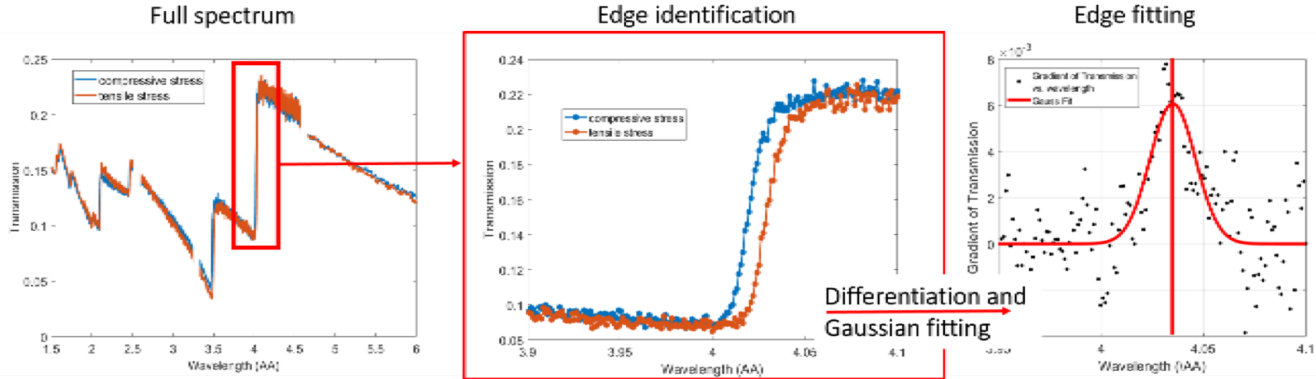
Scientific applications: material identification in 3D



Scientific applications: phase/texture analysis



Scientific applications: strain analysis



- Work in progress:
 - Transfer Grating interferometry reduction tool to GitHub.
 - Bragg edge fitting in C++
 - Core library revision → Speed-up to be expected.
 - Next releases of the software planned for the end of the year
 - Further experiments planned: V20 - BB (next week), SNAP – Bragg Edge fitting (January)
- **Risk:** The project ends in February → gap until the instrument comes online in 2023. Due to reduced and uncertain budget within DMSC, no decision for a continuation of this project is currently foreseen → risk of losing the acquired know-how (and Chiara) from February!