OSCARS
Open Science Clusters' Action for Research & Society

Funded Project

AI-SCOPE

AI-Driven Enhancement of Surface Scatting Data for Open Science Platforms Across Europe

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Implemented by
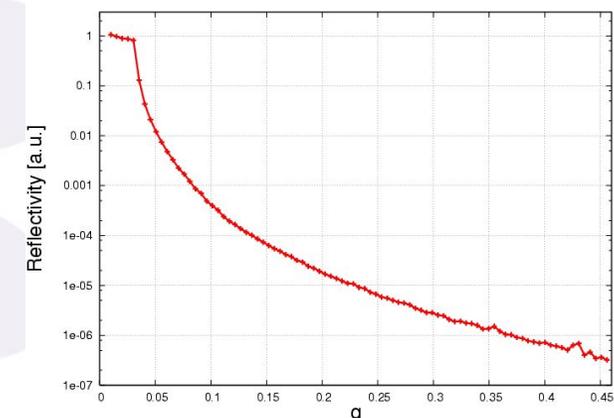
UNIVERSITÄT GRAZ

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SLOVAK ACADEMY OF SCIENCES

What problem(s) did you plan to solve?

- X-ray data overwhelms users (XRR & GID)
  → experimental mistakes, sub-optimal planning, selective data analysis
- Limited metadata (electronic lab book, sample description)
- Low submission rates to FAIR and open databases


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What have you done to solve the problem?

- AI-driven AI workflows for XRR & GID
- Real-time structural analysis
- Automated FAIR metadata
- EOSC & repository integration

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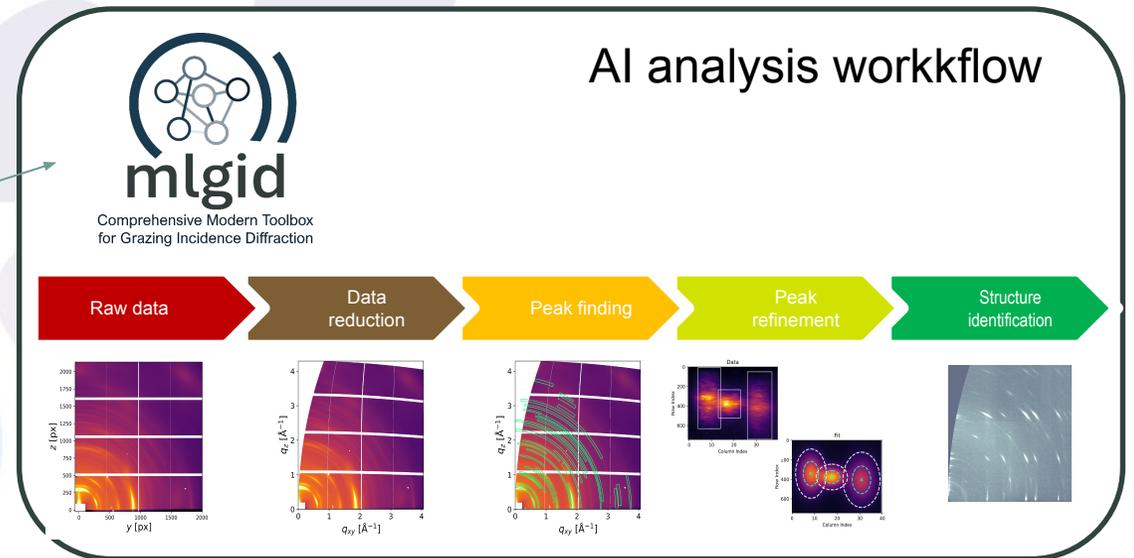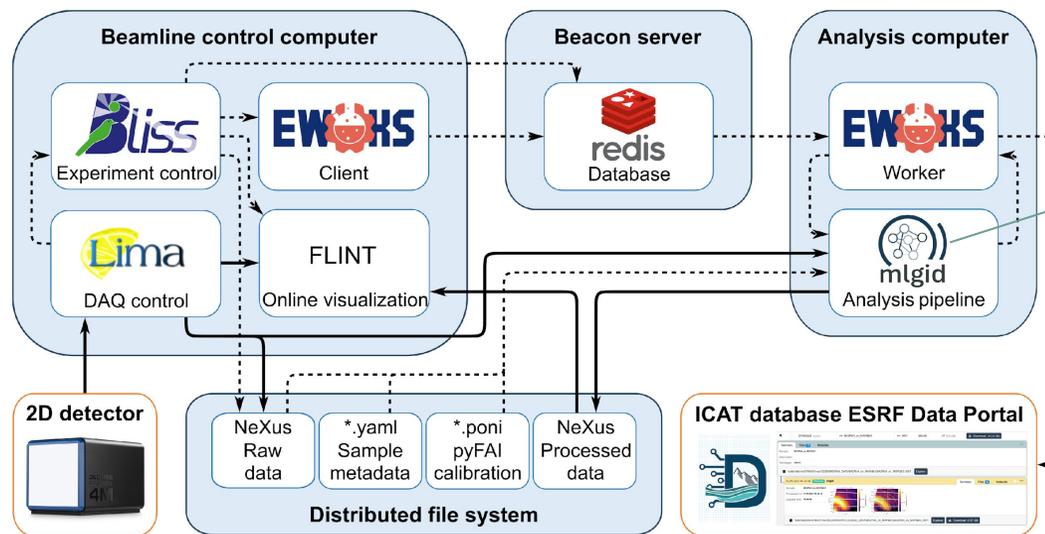
What are the key results achieved to date and how have you made them available to the broader community?

- GID workflow operational at ESRF beamtime (ID10, Sept. 2025)
- GID reciprocal-space & unit-cell analysis
- Automated layer parameter extraction for XRR workflow
- FAIR, database-ready datasets

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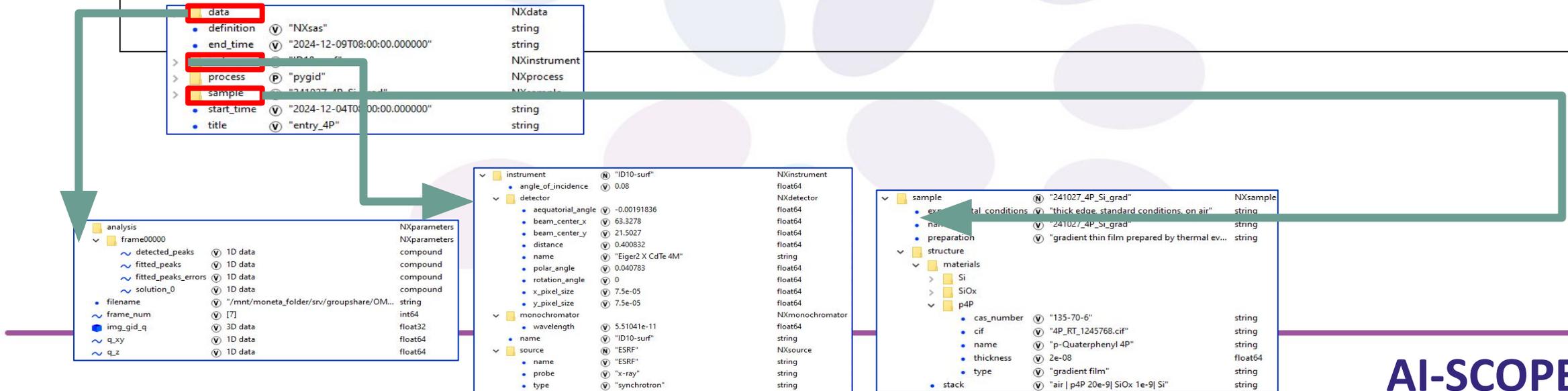
How will make your results sustainable over time - How will the scientific community/-ies further exploit them?

- Open-source tools & workflows
- Facility integration (e.g. ESRF EWOKS)
- Community reuse & dataset growth
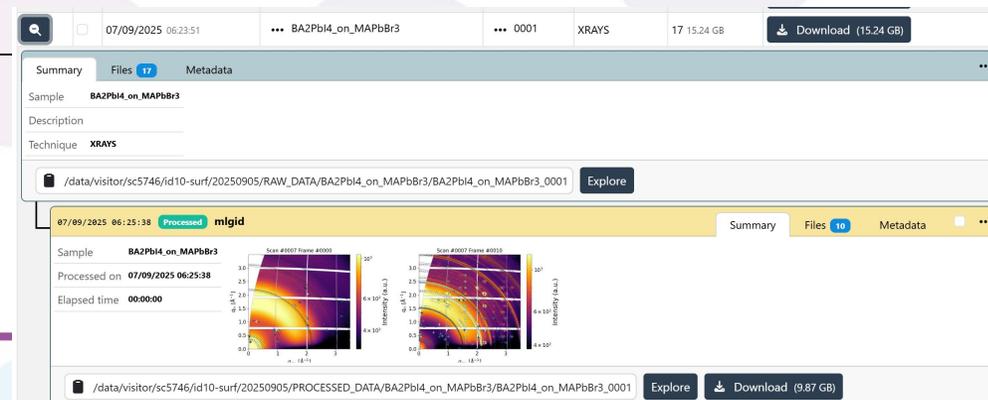- Working on surface scattering database for future AI benchmarking

reflectorch

github.com/schreiber-lab/reflectorch
github.com/mlgid-project

mlgid

Comprehensive Modern Toolbox
for Grazing Incidence Diffraction

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Who has been doing it?

Nada Mrkyvkova

Alexander Hinderhofer

Stefan Kowarik

Frank Schreiber