Contribution ID: **102** Type: **Poster**

Standardized Metadata Provision in the Communication Protocol SECoP

The Sample Environment Communication Protocol (SECoP) provides a generalized way for controlling measurement equipment –with a special focus on sample environment (SE) equipment [1,2]. In addition, SECoP holds the possibility to transport SE metadata in a well-defined way.

SECoP is designed to be
- simple to use,
- inclusive concerning different control systems and control philosophies and
- self-explaining providing a machine readable description of all available data and metadata.

The recently completed HMC project SECoP@HMC [3] focused on the standardized provision of metadata for typical SE equipment at large scale facilities (photons, neutrons, high magnetic fields) and on standardized metadata storage. The fact that SECoP is self-explaining and machine-readable favours the automated interpretation of data and metadata. With the latest definition of SECoP, we were able to integrate the use of vocabularies or glossaries.

With the ongoing development of SECoP and the provision of several tools for its easy implementation, a complete standardized system for controlling SE equipment and collecting and saving SE metadata is available and usable for experimental control systems. This approach can be applied to other research areas as well.

[1] K. Kiefer, et al. (2020). An introduction to SECoP –the sample environment communication protocol. Journal of Neutron Research, 21(3-4), pp.181–195
[2] https://github.com/sampleenvironment/secop
[3] https://helmholtz-metadaten.de/de/inf-projects/secopathmc

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Session Classification: Poster