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Type: **Poster**

## Nuclear Analytical Facility at MLZ

*Tuesday, 21 March 2023 16:00 (2 hours)*

The Prompt Gamma Activation Analysis instrument is located at the strongest cold neutron beam at MLZ. The samples can be irradiated in vacuum, using the highest flux, their masses can be less than a milligram. The emitted prompt gamma radiation is detected using high-purity germanium detectors. PGAA is typically used for the determination of light elements, it is unique for H (also in deuterated materials), B, but it is also sensitive for a series of heavy elements like Cd, Hf, rare-earths etc. for which it can be used as a trace-element analytical technique. The method has successfully been used in the analyses of cultural heritage objects, geological and environmental samples, as well as in material science.

Short-lived activation products can be analyzed in beam, too, thus further broadening the circle of high-sensitivity elements. A new setup is planned for short cyclic activation analysis. It will offer unprecedented sensitivity for such important elements as F, Ag, Pd.

The instrument accommodates the Neutron Depth Profiling setup used for the determination of the concentration profiles of Li or B in thin layers. The method has successfully been used in operando investigations of lithium-ion batteries.

The properties of the techniques, sensitivities, possibilities etc. will be presented in the poster.

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**Session Classification:** Poster session TUESDAY

**Track Classification:** Neutron Instrumentation, Optics, Sample Environment, Detectors, and Software