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## **Materials Science Diffractometer STRESS-SPEC – current status and developments**

*Tuesday, 5 December 2023 14:00 (3 hours)*

STRESS-SPEC is the dedicated diffractometer for materials science applications at MLZ. It offers high thermal neutron flux and is mainly used for fast residual strain and texture (bulk, local or gradient) measurements [1, 2]. Recent upgrades include a new detector system developed in-house, a new fully automatic slit system for gauge volume definition of the monochromatic beam, and a quenching / deformation neutron dilatometer. As a further development and in line with the new slit system we developed a new radial collimator to shape the gauge dimensions of the monochromatic beam impinging on the sample.

STRESS-SPEC has pioneered the use of robotic sample manipulation [2, 3] and improvements of the position accuracy of this device through a new adaptive control system will be shown as well.

### References

- [1] M. Hofmann et al, Mater. Sci. Forum. 524-525, 211-216 (2006)
- [2] H.-G. Brokmeier et al, Nucl. Inst. & Meth. in Phy. Res. A 642, 87-92 (2011)
- [3] C.R. Randau et al, Nucl. Inst. & Meth. in Phy. Res. A 794, 67-75 (2015)

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