# MM 59: Invited talk Sprengel

Time: Thursday 15:00–15:30 Location: TC 006

**Invited Talk** MM 59.1 Thu 15:00 TC 006

**Dilatometric Techniques for Atomic Scale Analysis of Defects and Processes in Solids** — •Wolfgang Sprengel — Institute of Materials Physics, Graz University of Technology, Graz, Austria

Basic material parameters such as the relaxation volume of a lattice vacancy [1] or the grain boundary expansion [2] are related to volumetric changes of the solid. The same holds for processes governing changes in the microstructure such as recrystallization, the formation, transformation and dissolution of precipitates [3, 4] or, e.g., the glass transition in an amorphous alloy [5]. It will be demonstrated that all the above mentioned parameters and processes are experimentally accessible with high-precision on an absolute atomic scale by applying novel developments of specific dilatometric techniques. Financial support by the Austrian Science Fund (FWF) is appreciated (P21009-N20, P22645-N20, P25628-N20).

[1] J.A. Kotzurek, et al., Appl. Phys. Lett. **109** (2016) 021906.
[2] E.-M. Steyskal et al., Phys. Rev. Lett., **108** (2012) 055504.
[3] M. Luckabauer et al., Magnesium Technology, TMS Series Springer, Cham (2017), 669-674.
[4] M. Luckabauer et al., Rev. Sci. Instrum. **87** (2016) 075116.
[5] M. Luckabauer et al., Phys. Rev. B **89** (2014) 174113.