

**MM 30: HV Banhart**

Time: Wednesday 14:00–14:30

Location: IFW A

**Invited Talk** MM 30.1 Wed 14:00 IFW A  
**Precipitation-hardening of aluminium alloys - challenges and recent developments** — •JOHN BANHART — Helmholtz-Zentrum Berlin für Materialien und Energie

Age-hardening of aluminium alloys is an established technology applied on the scale of millions of tonnes annually. Notwithstanding, some fundamental problems associated with the precipitation sequence and kinetics of ageing, even in mass-market alloys, are still awaiting clarification. For example, in many common Al-Mg-Si alloys (6000 series), intermediate storage at or near room temperature after solutionising leads to drastic changes of the precipitation kinetics during the en-

suing artificial ageing carried out at much higher temperatures, e.g. 180°C, a result that is not only an annoyance in production, but also counterintuitive and therefore a challenge for researchers. Moreover, the exact precipitation sequence is found to be increasingly more complex than assumed a decade ago. The wealth of structures occurring has only been revealed recently. Recent developments, e.g. in both atom probe microscopy, highest-resolution TEM, small-angle scattering, X-ray absorption spectroscopy etc. have allowed to answer some fundamental questions, but further work is required to provide sufficient understanding that allows for a more target-oriented alloy and process design.