

MM 24: Invited Talk: Andrea Bachmaier

Time: Wednesday 15:00–15:30

Location: SCH/A251

Invited Talk MM 24.1 Wed 15:00 SCH/A251
Recent advances in processing of rare-earth free MnBi magnets by severe plastic deformation — •ANDREA BACHMAIER¹, LUKAS WEISSITSCH-REINER¹, MARTIN KRAUS¹, MICHAEL MEINDLHUMER², and STEFAN WURSTER¹ — ¹Erich Schmid Institute of Materials Science, Austrian Academy of Sciences — ²Department of Materials Science, Montanuniversität Leoben
Magnetic materials are key materials needed for Green energy technologies. The research on rare-earth free magnetic materials has increased significantly in recent years, driven by supply chain issues, environmental and social concerns.

Severe plastic deformation processing of magnetic materials and its influence on the magnetic properties have attracted increasing research interest in the last years.

In this contribution, the use of high-pressure torsion deformation to synthesize the rare-earth free α -MnBi phase is in focus. Our recent experimental results of the process-structure-property relationships that link chemistry, synthesis and processing parameters with microstructure evolution and magnetic properties are discussed. An emphasis is put on detailed characterization of the microstructure by backscattered electron imaging, electron backscattered diffraction as well as x-ray diffraction utilizing high energy synchrotron radiation since it strongly influences the magnetic properties.