

## MM 57: Invited talk Greiner

Time: Thursday 15:00–15:30

Location: BAR 205

**Invited Talk**

MM 57.1 Thu 15:00 BAR 205

**Deformation mechanisms in metals under a tribological load**— ●CHRISTIAN GREINER — Karlsruhe Institute of Technology (KIT),  
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About twenty percent of the world's primary energy consumption is spent to overcome friction and wear. In 1950, Bowden and Tabor pointed out that in metallic tribological contacts, the majority of the dissipated energy is dissipated to change the contacting materials' microstructures. This - in part - explains why most metals show a highly dynamic subsurface microstructure under the shear load imposed by a

sliding contact. In order to understand these processes, the elementary mechanisms accommodating the shear strain and acting in the material need to be revealed and understood. In this presentation, three examples of research avenues following this hypothesis will be given. During the very early stages of sliding, dislocations show an interesting self-organization phenomenon. The evolution of such structures will be presented as well as similarities and difference between copper and the high entropy alloy (HEA) CoCrFeMnNi be pointed out. Finally, we will focus our attention on tribo-chemically activated oxidation processes and what role crystal defects have to play in this context.