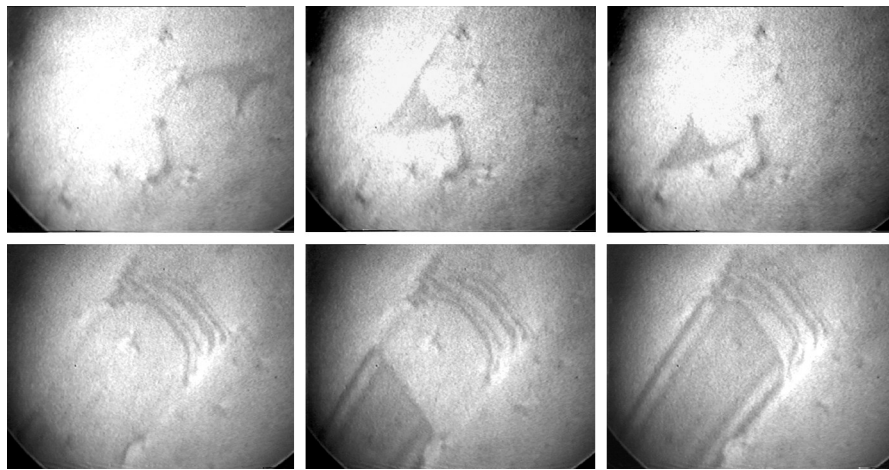


DISLOCATIONS IN MOTION

Tomáš Kruml

Ústav fyziky materiálů, Akademie věd ČR, Brno

**Přednáška v rámci semináře katedry mechaniky
v pondělí 22. září 2008 od 14:00 hodin v C 202**



Spiral source of partial dislocations

Twenty short video sequences of moving dislocations are used to document and to recall basic mechanisms of plastic deformation. The movies were filmed during in-situ TEM tensile experiments performed on Ge single crystalline specimens at elevated temperatures, on Si bicrystals at elevated temperature and on ultrafine grained Ni_3Al .

The following topics will be discussed: plasticity by slip of dislocations; dislocations as sources of stress field; dislocation multiplication; annihilation; diffusion; interaction of dislocations with point obstacles; dipole formations; cross-slip; annealing mechanisms; Peierls-Nabarro friction stress; viscous vs. jerky motion of dislocations; partial dislocations and twinning; Hall-Petch formula; deformation of ultrafine grained materials: grain boundary sliding and rotation vs. dislocation glide; TEM issues (in-situ experimental procedure, image vs. diffraction, diffraction contrast, artifacts).

This pedagogical lecture is primarily conceived for students with some basic knowledge of the theory of dislocations. Since such real movies showing dislocation mechanisms are rather rare, the lecture might be interesting even for experienced researchers.

*Přednáška v **angličtině** se koná v pondělí 22.9.2008 od 14 hodin v posluchárně C 202 v budově Stavební fakulty ČVUT v Praze, Thákurova 7, Dejvice. **Všichni zájemci jsou srdečně zváni.***

Podrobnější informace poskytne Prof. Milan Jirásek, tel. 224 354 481, Milan.Jirasek@fsv.cvut.cz.