

**W0399**

**Phase Transformations in Rare Earth Titanates.** K. Jurkschat, W.M. Kriven, Dept. of Materials Science and Engineering, Univ. of Illinois at Urbana-Champaign, Urbana, IL, 61801, USA.

Rare earth titanates (with Dy or Y as the rare earth element) show an interesting low temperature and high temperature crystallographic structure, which combines five and sevenfold coordination of the rare earth element as well as a disordered substitution of the rare earth element by Ti. During heating in our Qadrupole Furnace the phase transformations of these materials can be studied *in-situ*, using synchrotron radiation (APS, NSLS) and subsequent Rietveld refinement of the data. Of special interest are the transformations orthorhombic -> hexagonal -> high temperature cubic due to their negative volume change.