

+

#0228

+

**Infrared spectroscopic investigation of silicon oxides, silicates and their interaction with metal island films**

Wetzel\*, S., Tamanai, A., Dohmen, R., Gail, H.-P., Pucci, A. \*Kirchhoff-Institute for Physics, Im Neuenheimer Feld 227, 69120 Heidelberg [swetzel@kip.uni-heidelberg.de](mailto:swetzel@kip.uni-heidelberg.de)

Silicon oxides and silicates are among the most abundant minerals in space and their IR spectral features depend on chemical composition and formation conditions such as temperature.

We performed IR spectroscopic transmission measurements on thin films to determine the optical properties of SiO, SiO<sub>2</sub> and (Mg,Fe)<sub>2</sub>SiO<sub>4</sub>. In the case of SiO the influence of temperature was studied and a shift of the main vibrational line was observed [1]. Spectra of iron metal island films deposited on the silicon oxide layers showed a peak with a Fano-type line shape due to the interaction of the plasmonic and phonon-like excitations in the two layers. Both effects will be discussed in detail and the specifics of the experimental setup will be presented.

[1] Wetzel, S. et al. (2012) Appl. Spectrosc. 66, 1061-1066.

+

+

Cite abstract as:

Wetzel, S., Tamanai, A., Dohmen, R., Gail, H.-P., et al. (2012) Infrared spectroscopic investigation of silicon oxides, silicates and their interaction with metal island films. Paneth Kolloquium, Nördlingen (Germany), abstract URL: <http://www.paneth.eu/PanethKolloquium/2012/0228.pdf> (abstract #0228).