



Kinetic dust formation and turbulence modeling in substellar atmospheres

Christiane Helling

SUPA, University St Andrews, UK (ch80@st-andrews.ac.uk)

Substellar objects, i.e. Brown Dwarfs and planets, are the only objects where dust formations takes place inside the atmospheres. Therefore, the resulting formation of clouds does effect the atmospheric (T, p)-structure as well as it has a strong impact on the local gas-phase chemistry by element depletion. The modeling of the (dust) cloud formation is therefore a key issue in understanding spectral observations of Brown Dwarfs and planets. I will present a kinetic dust cloud model which is used in 1D PHOENIX atmospheres simulations (see PS 7.1.) in it's stationary version. In this talk, I will use the full time-dependent model to demonstrate the interaction between turbulence and dust formation, and I will address the challenges this might pose for 3D large-scale simulations.