



## Research Position, PhD Student Experimental Astrophysics

### Planet Formation: Photophoretic Motion of Small Particles in Protoplanetary Disks

In this project, a mechanism for particle transport in protoplanetary disks will be studied by means of laboratory experiments, microgravity experiments (drop tower Bremen) and numerical simulations. This project focuses on photophoresis (particle motion induced by light), which was only recently been found to be important in protoplanetary disks, i.e. in different early stages of planet formation. This work is a combination of direct measurements of the photophoretic force (microgravity, laboratory), high spatially resolved temperature measurements of illuminated particles with a thermographic system and numerical simulations of heat transfer through small (mm-size) particles using commercial software. Particle samples consist of meteoritic particles (chondrules, CAIs) and dust aggregates. The chondrules are supposed to be analyzed complementary by x-ray tomography and mineralogical in collaboration with groups in Münster and New York. The results will be applied to simple transport models in protoplanetary disks.

The project is embedded in a DFG Schwerpunktprogramm (focused program) to study the first 10 million years of the solar system. The whole program is scheduled for 6 years. The position funded is initially for 2 years with a salary according to E 13/2. An extension of the term is intended. The project is embedded in a highly interdisciplinary research field reaching from Astrophysics to mineralogy. The aspects here require a sound background in physics. In Duisburg you can join a young group active in various parts of experimental astrophysics and space research.

Your profile: A master degree or equivalent in physics with good grades. Interest in astrophysics / astronomy but also an affinity to experimental work.

The formal advertisement (in German) can be found at:

<http://www.uni-due.de/stellen/interne.shtml>

For applications (until 18. March 2010) with the usual documents please contact:

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