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**UNIVERSITÄT
HEIDELBERG**
ZUKUNFT
SEIT 1386

STRUCTURES JOUR FIXE

PROF DR. GUIDO KANSCHAT

IWR (Uni Heidelberg)

**“Planetesimals, Dust Bunnies, and
Hybridized Discontinuous Galerkin
Methods”**

17 July 2020 1:30 PM

By ZOOM video webinar system

Website: <https://zoom.us/join>

Meeting-ID: 994 4577 2932 Password: 744991

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ABSTRACT

I will review design decisions and progress made in the exploratory project with Cornelis Dullemond and Andreas Rupp. The goal of the project is the ability to simulate the dynamics of large dust aggregates, beyond the current capabilities. We apply a beam model for the microscopic behavior of such aggregates. For the choice of a discretization scheme, we decided on hybridized discontinuous Galerkin methods, since they provide a high level of abstraction between degrees of freedom in joints of the dust aggregate and the physical properties of the subaggregates between these joints. Thus, it allows for the discretization of the microscopic problem based on physical principles as well as upscaled models based on additional assumptions. I will give an overview over this method and discuss the way it is applied in this project as well as related developments in our team.

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