

# Oberseminar Numerik

**Herr Prof. Piotr Gwiazda**  
**(Polish Academy of Science, Warsaw)**

06.11.15  
09:15 Uhr  
Hilbertraum (05-432)  
Staudingerweg 9, 55128 Mainz

*„From structured populations models to  
polymeric flows”*

## Abstract:

I will discuss analytical and numerical results for structured population models strongly exploiting the particle method, which does not rely on discretization of a state space, what often leads to numerical errors, but on tracking individuals moving along the flow.

Disadvantage of a standard particle method is the limitation to the first order rate of convergence, however I will briefly discuss extending this framework for higher order methods in the direction of methods arising mostly from mathematical physics. We mean here e.g. smooth/pseudo particle method together with higher order splitting providing higher order convergence of numerical schemes.

Finally, I will show how this approach may be used for systems arising from fluid mechanics, namely polymeric fluids. Our attention is directed to concentrated regime.

Hierzu sind alle herzlich eingeladen.

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