

Eugene Wigner Colloquium

joint event of GRK 1558 and SFB 910



Dr. Sebastian Heidenreich

PTB Berlin

“Mathematical modelling: From active fluids to uncertainty quantification”

A mathematical model is a representation of the behavior of real devices and objects in mathematical terms. Mathematical modeling of phenomena is essential for engineering and science to understand why observations are as they did and to predict future behaviors. The first part of my talk deals with self-sustained mesoscale turbulence found in bacterial suspensions. I will present a systematic derivation of an effective fourth-order field theory from a generic microswimmer model that allows for the prediction of typical vortex sizes. In the second part I introduce scatterometry, an indirect optical method to determine grating parameters of photo masks by using inverse methods. To estimate reliable uncertainties of obtained grating parameters I used the Bayesian approach and a stochastic collocation based surrogate model. Finally, I will present reconstruction results for an extreme ultraviolet line grating.

Thursday, 21.01.16 · 16:15h · EW 202

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The logo for GRK 1558, featuring a blue square with rounded corners. Inside the square, the text "GRK1558" is written in white, with "research training group" written in a smaller font below it.