

MPIDS Colloquium



MAX-PLANCK-GESELLSCHAFT

Escape from the chip: flowing and clogging in confined suspensions

Prof. Alvaro Marin

*Physics of Fluids,
University of Twente
The Netherlands*



People leaving a room in panic, sand in an hourglass, particles in a fluid through a porous medium, blood through a narrowed vessel. These are all examples of "things" of different nature being forced through constrictions. In all these cases it is important to make sure that the system keeps continuously flowing, sometimes even lives are at risk. The usual scenario changes completely when such objects are flowing in a liquid medium. However, I will show you results that confirm that, at least statistically speaking, such differences are actually irrelevant.

When such constriction is removed, particles flow without trouble. Nonetheless, I will show you results showing that their dynamics are far from trivial even in diluted conditions. At critical interparticle distances, particles tend to interlace their trajectories, only bonded by some mysterious force. The experimental results are compared with particle dynamics simulations and analysed to elucidate the nature of the interactions entering into play. I hope to convince you that such forces, which are typically ignored in most of the numerical studies, can drive very complex dynamics in the system.

Wednesday, May 09th, 2018 at 2:15 pm

**MPIDS, Prandtl lecture hall, building AI,
Am Faßberg 11, Göttingen**

**Max Planck Institute for Dynamics and Self-Organization
MPRG Theory of turbulent flows
Dr. Michael Wilczek**

Email: michael.wilczek@ds.mpg.de, Phone: +49-(0)551/5176-643
Am Faßberg 17, 37077 Göttingen, Germany