



## ICAMS Special Seminar

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### Wetting, roughness and hydrodynamic slip

The hydrodynamic slippage at a solid-liquid interface is currently at the center of our understanding of fluid mechanics. For hundreds of years this science has relied upon no-slip boundary conditions at the solid-liquid interface that has been applied successfully to model many macroscopic experiments, and the state of this interface has played a minor role in determining the flow. However, the problem is not that simple. Due to the change in the properties of the interface this classical boundary condition could be violated, leading to a hydrodynamic slip. In this talk, I highlight the impact of hydrophobicity, roughness, and especially their combination on the flow properties. In particular, I show that hydrophobic slippage can be dramatically affected by the presence of roughness, by inducing novel hydrodynamic phenomena, such as giant interfacial slip, superfluidity, mixing, low hydrodynamic drag, and more.