

## Ellen Backus

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**Tuesday, 9<sup>th</sup> April 2019, 16:00 s.t.**

TU Wien, Institut für Angewandte Physik, E134  
1040 Wien, Wiedner Hauptstraße 8-10  
Yellow Tower „B“, 5<sup>th</sup> floor, SEM.R. DB gelb 05 B



### **A molecular view of water at the SiO<sub>2</sub> and TiO<sub>2</sub> interface disturbed by flow and photons**

In this talk we will discuss non-equilibrium phenomena at two solid-liquid interfaces. In the first part of the talk we study the silica interface in contact with water under flowing conditions. We present a direct way to measure the dissolution rate of silica, a mineral of geological significance, in contact with water. We find that on a surprisingly short timescale of tens of hours, the interfacial concentration of dissolution products saturates at a level close to the solubility of silica (~ millimolar). In the second part we will look into light induced processes at the TiO<sub>2</sub> water interface. Although it is very well known that hydrogen can be produced at the TiO<sub>2</sub>-water interface under influence of sunlight, the fundamentals of the process remain ill-understood. Here, we use sum frequency generation spectroscopy (SFG), an inherently surface sensitive tool, to study this interface. We discuss time-resolved SFG data after excitation of TiO<sub>2</sub> with a femtosecond UV pump pulse, which mimics the sunlight.

All interested colleagues are welcome to this seminar lecture (45 min. presentation followed by discussion).

Friedrich Aumayr  
(LVA-Leiter)

Markus Valtiner  
(Seminar Chair)