



# EINLADUNG

zum  
virtuellen Vortrag  
von

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## Atmospheric ice nucleation: basics, instrument development and application

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Einladung und Zugangsdaten zum Online-Vortrag wurden an die CPG-Mitglieder versandt. Für weitere Interessierte sind die Zugangsdaten auf Anfrage erhältlich, bitte E-Mail an [franz.sachslehner@univie.ac.at](mailto:franz.sachslehner@univie.ac.at)

### Abstract

Atmospheric ice nucleation is essential for cloud glaciation and precipitation, thereby influencing the hydrological cycle and climate. Ice particles in the atmosphere are formed either by homogeneous nucleation at temperatures below  $-38\text{ °C}$  or by heterogeneous nucleation catalyzed by particles or macromolecules serving as ice nuclei (IN) at warmer temperatures. Biological particles in particular are expected to play an important role as IN in the temperature range from  $-15$  to  $0\text{ °C}$ , but the impact of biological particles on cloud glaciation and the formation of precipitation is still poorly understood.

For efficient analysis and characterization of biological ice nuclei in laboratory and field samples, I developed the fully-automated Twin-plate Ice Nucleation Assay (TINA) for high-throughput droplet freezing experiments. The instrument was applied in several IN studies, in which I investigated bacterial, fungal, and chemically modified IN as well as air particulate matter. The results provide new insights and help to unravel the molecular mechanisms of biological ice nucleation.

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