

Colloquium Thermo- and Fluid Dynamics

The CloudKite: a 2 km high tower reaching into the atmosphere with an autonomous laboratory

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Imagine a 2 km-high structure supported by a kite-balloon hybrid, tethered to the ground and carrying autonomous instruments. The CloudKite project, once a bold concept, is now fully operational, deployed over the Atlantic and northern Finland. In this talk, I will introduce the platform and present recent findings, including measurements of the turbulent energy dissipation rate in shallow cumulus clouds combined with droplet sizing/3D-position obtained from in-line holography. Our high-resolution measurements show for the first time that the clustering of inertial particles does not exist in most regions of the clouds, but only in extremely localized regions.

Dr. Gholamhossein (Mohsen) Bagheri earned both his Bachelor's and Master's degrees in Mechanical Engineering in Iran. He later pursued his PhD at the University of Geneva in Switzerland, where he focused on experimental and numerical investigations of the dynamics of irregular particles in fluids, completing his PhD in 2015. For his work, he was awarded a Swiss National Science Foundation grant, enabling him to join the Max Planck Institute for Dynamics and Self-Organization (MPI-DS) as a visiting scientist. Currently a group leader at MPI-DS, Dr. Bagheri's research spans various interdisciplinary topics, including the experimental study of cloud microphysics and atmospheric turbulence using the Max Planck CloudKites, the characterization of respiratory particle emissions and airborne disease transmission, and the dynamics of non-spherical particles in both numerical and experimental contexts.



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Time: 16:15 - 17:15 h

Place: ETH Zurich, ML F 36

Host: Prof. Filippo Coletti