VILMA - Virtual laboratory for molecular level atmospheric transformations

Understanding the formation of atmospheric aerosol is vital, as they help to cool the climate but also causes increased mortality through bad air quality. A fundamental problem in predicting aerosol formation is the huge number of compounds, reactions and processes involved and the complexity of the participating compounds.

The Virtual Laboratory for Molecular Level Atmospheric Transformations is a Centre of Excellence that will combine atmospheric and computer science to construct a virtual laboratory for atmospheric aerosol formation, interactively integrating experimental and theoretical state-of-the-art methods from chemistry, physics and artificial intelligence. This will allow the researchers to tackle many unsolved problems in atmospheric science, for example, the reactions responsible for the formation and growth of organic nanoparticles. Outreach-tailored versions of the virtual laboratory will also provide schoolchildren and the general public with insights not only into atmospheric science but also into the scientific process generally.

Virtual Laboratory for Molecular Level Atmospheric Transformations (VILMA) is a Centre of Excellence in Research funded by the Academy of Finland from 2022 to 2029. The project is carried out by the University of Helsinki, University of Eastern Finland, Tampere University and Aalto University.

We are currently in the process of starting our activities - and hiring talented people! To learn more about the job opportunities in VILMA, please see our Job opportunities page or contact the participating principal investigators for more information:

- Hanna Vehkamäki (director - UH - TM - molecular level modelling of clustering)
- Theo Kurtén (vice director- UH - TM - computational atmospheric chemistry)
- Arkke Eskola (UH - E - radical reaction kinetics)
- Juha Kangasluoma (UH - E - experimental aerosol science)
- Kari Lehtinen (UEF - TM - aerosol dynamics and inverse modelling)
- Kai Puolamäki (UEF - AI - artificial intelligence) - jobs available!
- Patrick Rinke (Aalto - AI - machine learning in materials science) - post-doc position available
- Matti Rissanen (TU - E - free radical oxidation chemistry)
- Siegfried Schobesberger (UEF - E - chemical ionization mass spectrometry)
- Mikko Sipilä (UH - E - mass spectrometry instrumentation development)

University codes: UH = University of Helsinki, UEF = University of Eastern Finland, TU = Tampere University, Aalto = Aalto University.

Topic codes: TM = theory and modelling of atmospheric transformations, E = experiments, AI = artificial intelligence and machine learning.

VILMA home page (this page): https://wiki.helsinki.fi/display/VILMA

For VILMANauts only: Intra