



Physical Chemistry Jozef Lengyel



Aerosols, Clusters, and Environment

Our research interests lie in the field of **environmental physical chemistry** with emphasis on a detailed molecular-level understanding of complex natural processes and solvation chemistry. To unravel the mechanisms of chemical reactions occurring in a solvent, we employ clusters, free subnanometer-sized particles with well-defined compositions.

Our research aims at understanding the **formation and growth of particles in the atmosphere**. Atmospheric particles affect the climate as strongly as greenhouse gases but act to cool the Earth by forming clouds and scattering incoming solar radiation. For this purpose, we are currently developing experimental methods to determine particle nucleation rates and identify the critical cluster sizes (see Figure), which are the essential factors in cloud formation and must be taken into account in climate projection models. Our ambition is to provide size and composition selective kinetic data of the nucleation, which also requires the development of dedicated instrumentation.

