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Modelling isotopic signatures in precipitation using particle-based cloud microphysics

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The project aims at development of software for mathematical modelling of physicochemical processes governing the evolution of clouds.

The goal of the project is to develop novel tools for simulating isotopic effects occurring in atmospheric clouds and leading to such measurable outcomes as different isotopic composition of rain depending on the origin of air mass in which a cloud formed. Such tools are important for validating with measurements the computational models behind weather prediction or climate change simulations.

The developed software will be released as open-source along with complete set of data required to reproduce results discussed in papers documenting the performed research. In order to significantly facilitate operation of such tools, from the perspectives of both researchers and students alike, the modern concept of "cloud computing" will be leveraged by enabling to control simulations from an ordinary laptop or tablet.