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DCMIX EXPERIMENT: Soret AND DIFFUSION COEFFICIENTS IN A TERNARY MIXTURE IN
CONVECTION-FREE ENVIRONMENT**Abstract**

Ternary mixtures play an important role as model systems for the understanding of non-isothermal transport phenomena in liquids. The multinational DCMIX project of ESA and Roscosmos aims to establish reliable reference data for the Soret effect in ternary liquids and serves as a nucleus for ground based work. In the framework of the DCMIX project, scientists expect to obtain reliable benchmark results on the ISS for the validation and calibration of present and future ground based measurements. The DCMIX project is divided into four campaigns that focus on different ternary mixtures. The SODI instrument is kept on the ISS and for each campaign only a new cell array is delivered. The cell array consists of five primary cells filled with ternary mixture and one companion cell with binary mixture. The three first campaigns, DCMIX1, DCMIX2 and DCMIX3 had been completed. The amount of data is significant, some results are published, and others are still being processed. The last campaign, DCMIX4, is currently running and it includes liquid systems of different origins: three cells with the same system as DCMIX2 one cell with a nanofluid (tetralin, toluene, fullerene) and two cells with mixtures containing a polymer ternary (polystyrene, toluene, n-hexane) and binary (polystyrene, toluene). The short analysis of the available microgravity results from the last campaign will be presented and compared with ground experiments and molecular dynamic simulations.