Abstract Submitted
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Inertia versus gravity VALENTINA SHEVTSOVA, MRC, University of Brussels (ULB) — Einstein postulated the equivalence of gravitational and inertial mass. As such it deserves the most extensive testing possible. In the absence of buoyancy inertia exists, as the tendency of a body to resist acceleration. A good approach is to test action of inertia on board the International Space Station where gravitational effects are absent. When a container filled with liquid is subjected to high frequency vibrations and density gradients are present, inertia will not be uniform, resulting in convective motion. This convective motion is similar to the gravity-induced convection. In the frame of ESA program the experiment SODI / IVIDIL (Influence of Vibration on Diffusion in Liquids) has been performed in October 2009-January 2010 on ISS. Two liquid mixtures with positive and negative Soret effect were studied. The closed cells filled with different binary mixtures were vibrated with different frequency and amplitude. The liquids were density stratified due to temperature and concentration gradient. The applied experimental technique (digital optical interferometry) allowed to IVIDIL science team to obtain a clear evidence of different convective patterns created by vibrations.

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