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Marangoni-Bénard instability in microgravity: PTV-analysis of the velocimetry data generated during the BAMBI - FOTON-M2 experiment[1] SAM DEHAECK, SAMUEL TALVY, ALEXEY REDNIKOV, Universite Libre de Bruxelles, TIPs laboratory, PATRICK QUEECKERS, Universite Libre de Bruxelles, MRC laboratory, PIERRE COLINET, Universite Libre de Bruxelles, TIPs laboratory — The BAMBI (Bifurcation Anomalies in Marangoni-Bénard Instabilities) experiment has been successfully flown onboard the FOTON-M2 satellite in June 2005. During the 4 days available for the experiment, a 5mm-thick 200 cSt silicone oil layer in a 10x10cm^2 wide container, and in contact with a similarly-sized helium gas layer was heated from "below" and cooled from "above." By varying the heating power applied at each experimental step, a range of temperature differences across the liquid and gas layers was scanned and the onset and evolution of the Marangoni-Bénard instability typical for this type of configuration was examined. The used optical diagnostics were Infrared Thermography of the liquid/gas interface, PTV (multiple views and heights in the liquid layer), Wollaston Interferometry and Electronic Speckle Pattern Interferometry. The present contribution focuses on the velocity results obtained by PTV in the interface plane, and discusses them in relation both with infrared images, and with theory/numerics.

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