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Faraday instability of a spherical drop A. EBO ADOU, PMMH-CNRS-ESPCI, UPMC, France, LAURETTE TUCKERMAN, PMMH-CNRS-ESPCI, France, SEUNGWON SHIN, Hongik Univ., Seoul, Korea, JALEL CHERGUI, DAMIR JURIC, LIMSI-CNRS, France — A liquid drop subjected to an oscillatory radial force comprises a spherical version of the Faraday instability, with a subharmonic response which is half of the forcing frequency. The time-dependent shape of the drop and the velocity field in and around it are calculated using BLUE, a code based on a hybrid Front Tracking/Level-set algorithm for Lagrangian tracking of arbitrarily deformable phase interfaces. We compare this shape with the spherical harmonic selected at onset, calculated by adapting the Floquet stability analysis of Kumar and Tuckerman to a spherical geometry. We interpret the shape in light of theoretical results by Busse, Matthews and others concerning pattern formation in the presence of O(3) symmetry.

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