

Abstract Submitted  
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**Interfacial instability of a miscible ferrodroplet immersed in a thin layer of solvent**<sup>1</sup> CHING-YAO CHEN, National Chiao Tung University, W.-K. TSAI, National Yunlin University of Science and Technology — We experimentally study the interfacial instability of a ferrodroplet immersed in a thin layer of solvent and subjected a perpendicular uniform field. Affected by the magnetic field, an interesting interfacial instability, which is a new mixed type of Rosensweig instability and miscible labyrinthine instability, is observed. Initially, the droplet is lifted by the perpendicular field and forms a typical Rosensweig peak along the field direction. On the other hand, confined by the thin layer of solvent, labyrinthine fingers are triggered by magnetization on the plane of substrate. Because of diffusion, the height of Rosensweig peak decays and serves as an injecting source to enhance the labyrinthine fingers. Consequently, very vigorous fingering is resulted.

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