## Abstract Submitted for the DFD19 Meeting of The American Physical Society

Stabilization of viscous fingering in a partially miscible system RYUTA SUZUKI, SHOJI SEYA, Tokyo University of Agriculture and Technology, TAKAHIKO BAN, Osaka University, MANORANJAN MISHRA, Indian Institute of Technology, Ropar, YUICHIRO NAGATSU, Tokyo University of Agriculture and Technology — Viscous fingering (VF) or Saffman-Taylor instability occurs when a less viscous fluid displaces a more viscous one in porous media or in Hele-Shaw cells. The classical VF can be divided into two; miscible and immiscible systems depending on whether two fluids are miscible or immiscible. In addition, it has been recently reported that a partially miscible VF has experimentally shown to change to multiple droplets pattern. However, in the present study, we have experimentally shown a partially miscible VF can have the potential to stabilize the interface more effectively, namely, leading to circular-like pattern in a radial geometry. This is considered to be caused by the two factors; a convection induced by spinodal decomposition directed from the more viscous fluid to the less viscous one and a high rate of the spinodal decomposition.

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