

## **Mode coupling in cold 2D Yukawa liquid**

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Microscopically, around melting, a cold liquid can be viewed as a strongly coupled many-body system under weak stochastic thermal agitation, which excite collective motion over a broad range of scales. Nevertheless, whether multi-scale modes can be decomposed from particle micro-motion information and how modes are coupled remain open issues. In this work, these issues for the cold 2D Yukawa liquids are numerically addressed for the first time through empirical mode decomposition method. Spatiotemporal mode-mode cascading is observed. Their correlation to the large scale structural rearrangement is presented and discussed.