

Holographic supersolids–non-equilibrium phase transition and topological defects formation

Tuesday, 3 December 2024 17:10 (20)

Since the establishment of holographic superfluid model, extensive researches have been worked about zero or finite temperature systems in various aspects. However, few studies touched the phenomenon about supersolids and the phase transition of superfluid-supersolid, as more and more experiments are confirming the existence of supersolid phase in superfluid systems. To fill the gap, we try to study supersolid related phenomena by using original holographic superfluid model. Instead of finding ground supersolid state, we mainly focus on the supersolid state that emerges from non-equilibrium system. Especially, we will introduce a non-equilibrium phase transition with spacetime supersolids formation and a dynamical process of transient supersolids with topological defects formation.

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Session Classification : Day 4: Parallel session III