

Supersolid or disorder dynamics?

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The low temperature anomalies in He-4 -- the "supersolid" phenomena -- has arouse much attention since discovered by Kim and Chan. I will review such anomalous behavior with particular attention to the role of structural defects present in solid. The discussion centers around the possible role of two level systems and structural disorder components for inducing the observed anomalies. We propose that the origin of the anomalies is due to the dynamics of defects like dislocations formed in He-4. Within the developed framework of disorder components in a solid, we give a summary of the results and predictions for the effects that cover the mechanical, thermodynamic, viscoelastic, and electro-elastic contributions of the disorder dynamics of solid He-4.