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Superfluidity of grain boundaries and supersolid behavior

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We have found that, at the liquid-solid equilibrium pressure P_m, supersolid behavior is due to the superfluidity of grain boundaries in solid helium [1]. After describing this experiment and reviewing some of the related theoretical work [2], we discuss the possibility that , at larger pressure ($P > P_m$), grain boundaries could also explain the supersolid behavior which was observed with torsional oscillators [3-6].

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