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Abstract for an Invited Paper
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Observation of superfluidity in solid helium and solid hydrogen

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A torsional oscillator technique is used to search for non-classical rotational inertia of solid helium¹ and solid hydrogen. Several important experimental details already observed will be reviewed for both systems. Some of these include the transition temperature, supersolid fraction, and dependencies on oscillation speed and impurities. Comparisons will be made in order to demonstrate the similarities and/or differences between helium and hydrogen. With further work currently underway, we will also report on recent experimental progress. This work is done in collaboration with Eunseong Kim, Xi Lin and Moses Chan and is supported by the NSF under grant 0207071. [1] E. Kim and M. H. W. Chan, *Nature* **427**, 225 (2004); *Science* **305**, 1941(2004); *J. Low Temp. Phys.* **138**, 859 (2005).