

Notre Dame **Science**
Department of Physics

THE HUNT FOR DARK MATTER WITH SUPERHEATED LIQUIDS

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Indiana University South Bend
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4:00 p.m. NSH 415

We know from various astronomical observations that atoms form only a small portion of the matter in the Universe. About 85% of the mass is in some exotic invisible form ('dark matter') which has never been directly observed in our laboratories. We also know that our understanding of particles and their interactions is incomplete. Leading attempts to extend this understanding predict the existence of various kinds of Weakly Interacting Massive Particles (WIMPs) which could serve as this dark matter.

The COUPP and PICASSO experiments are attempting to directly detect WIMPs by presenting superheated liquid targets for them to hit. A WIMP collision with a nucleus in the liquid would cause the superheated fluid to transform explosively into a gas, dramatically amplifying the rare and feeble interactions between dark matter and ordinary matter. The experimental techniques, recent physics results and the R&D in support of future detectors will be discussed.

Particle
Physics
Seminar

**All interested
persons are
cordially
invited to
attend.**