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Cryogenic Semiconductor Detectors in Search of Dark Matter

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Dark Matter dominates the matter content in the Universe and is believed to be made up of Weakly Interacting Massive Particles (WIMP) that rarely interact with ordinary matter. Cryogenic Dark Matter Search (CDMS) has been a leader among more than 30 experiments worldwide, which are attempting to detect tiny vibrations from the recoil of WIMPs in terrestrial detectors. It uses sophisticated photo-lithographically patterned cryogenically cooled large mass Germanium and Silicon. Help from the semiconductor industry has been crucial in reducing the cost 20 fold from half-million/kg, while simultaneously improving the quality and throughput of fabrication, essential for large ton-scale experiments capable of making such a discovery possible.