

# Service de Physique Nucléaire



## Séminaire

le vendredi 6 Avril 2012 à 11h  
CEA Saclay, Orme des Merisiers, Bât. 703, Salle 135

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### Active target time projection chamber project at Michigan State University

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Nuclear reactions using radioactive beams are growing in importance as a probe of structures or reaction dynamics of unstable nuclei. To widely open a path to nuclei away from the line of stability or reaction processes with small cross sections, the critical bottle neck to be addressed is a reaction target thickness usually limited by energy losses of reacted ions. A time projection chamber, AT-TPC, currently under development at the National Superconducting Cyclotron Laboratory (NSCL), Michigan State University, is meant to provide an "active target" for high resolution and efficient reaction studies at the future re-accelerated radioactive beam facility of the NSCL. The defining feature of this time projection chamber is its tracking gas medium simultaneously acting as a reaction target, which enables us to measure trajectories as well as energy losses inside the reaction target, thus making it possible to increase the target thickness with retaining the quality of ion detection. To study feasibility of envisioned detector technologies as well as to produce scientific results at early stages of the project, a half scale prototype was completed and commissioned in 2011. A couple of radioactive beam experiments were performed at the Twinsol facility at the University of Notre Dame. In this talk, the current status of the AT-TPC project will be presented with a focus on the prototype and the experiments at Notre Dame.

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*Le café sera servi 10 minutes avant*