

Notre Dame **Science**
Department of Physics

PROTON-PROTON CORRELATION FUNCTIONS AS A PROBE TO REACTION DYNAMICS

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4:00 p.m. NSH 124

Proton-proton correlations are studied in central $40\text{Ca}+40\text{Ca}$ and $48\text{Ca}+48\text{Ca}$ nuclear reactions at $E = 80 \text{ MeV/A}$. Measurements were performed with the HiRA detector complemented by the 4pi Array at NSCL. A striking angular dependence is found within pp correlation functions, reflecting the different space-time extent of the source selected. Sources selected at backward angles, in the laboratory frame, reflect the participant zone of the reaction, while much larger sources are selected at forward angles which reflect the evaporating projectile-like residue. I will discuss the dependence on momentum, both angle and magnitude, on the source size. In addition, source sizes from BUU transport theory are compared to those from data for a variety of parameterizations within the theory. Specifically, I will address the sensitivity of the source size to nucleon-nucleon cross sections and the formation of clusters within the transport model.

Nuclear
Seminar

All interested
persons are
cordially
invited to
attend.