Author(s):

Steve Hardy, Matt Joyce, Steve Kidner, Szymon Manecki, Raju Raghavan, Bruce Vogelaar
Department of Physics, Virginia Polytechnic Institute & State University, Blacksburg, VA 24061

Henning O. Back
Department of Physics, North Carolina State University, Raleigh, NC, 27695

Organization: Virginia Polytechnic Institute & State University

Email Address: shardy@vt.edu

Poster Title: **Source Insertion & Location Systems for the Borexino Solar Neutrino Detector**

Brief Description:
The Borexino solar neutrino detector is currently performing a real time measurement of the sub-MeV region of the solar neutrino spectrum. In order to obtain the most accurate results, the detector must undergo a careful calibration campaign. Monte Carlo simulations, as well as our recent data, have shown that the main sources of systematic error are: fiducial volume determination, detector energy response as a function of event position, α, β, γ energy scales, and α/β discrimination efficiency. In order to reduce these uncertainties, systems have been developed to insert and locate radioactive and optical sources both into the bulk volume of Borexino and into the buffer region. This poster will describe in detail the internal source insertion and location system as well as the external source insertion system used to meet the aforementioned objectives.