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## **Poster Session - Submission of Abstract**

Submitter: Andrei Puiu, Dipartimento di Fisica, Università Bicocca, INFN sezione Milano-Bicocca  
andrei.puiu@mib.infn.it

Author: Andrei Puiu on behalf of the HOLMES collaboration

Title of the Poster: HOLMES, an experiment for a direct measurement of neutrino mass

Abstract: Measuring the neutrino mass is one of the most compelling challenges of modern physics. HOLMES is a new experiment recently funded by the European Research Council to directly measure the neutrino mass. HOLMES will perform a calorimetric measurement of the energy released in the electron capture decay of  $^{163}\text{Ho}$  in order to reach a sensitivity as low as 0.4 eV on the neutrino mass. HOLMES will deploy a large array of low temperature microcalorimeters with implanted  $^{163}\text{Ho}$  nuclei in a Bismuth-Gold absorber coupled to a Transition Edge Sensor. The R&D activities necessary to optimize the  $^{163}\text{Ho}$  isotope production, the source embedding, the detector optimization and the multiplexed readout, are already in progress. We outline here the project with its technical challenges and perspectives.

Summary: HOLMES is a new experiment aiming to measure the electron neutrino mass from the electron capture decay spectrum of  $^{163}\text{Ho}$  with sub-eV sensitivity. In order to reach a sensitivity of 0.4 eV a large array of 1000 low temperature microcalorimeters will be operated starting from 2016 for three years time. Keywords: HOLMES, neutrino mass direct measurement,  $^{163}\text{Ho}$  electron capture.