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LoLX : Studying light in liquid xenon using SiPMs

Tuesday, November 29, 2022 4:40 PM (20 minutes)

The Light-only Liquid Xenon (LoLX) experiment is designed to study the properties of light emission and transport in liquid xenon (LXe) using Hamamatsu VUV4 Silicon Photo Multiplier (SiPM) modules. LoLX is also being used to investigate the timing structures of scintillation and Cherenkov light production in LXe and provide a better understanding of the effects of external cross-talk between neighboring SiPM modules. LoLX is currently being upgraded to investigate the long-term stability and performance of the Hamamatsu VUV4 SiPMs in LXe environment as well as measure the performance of FBK VUV-HD3 SiPMs. Understanding cross-talk in large SiPM arrays and validating photon transport simulations are important for low background LXe experiments such as nEXO that will search for the neutrinoless double beta ($0\nu\beta\beta$) decay of Xe-136. In this talk, I will present the status of LoLX as well as preliminary results and discuss future plans of the collaboration.

Primary author: REBEIRO, Bernadette Maria (McGill University)

Co-authors: BRUNNER, Thomas (McGill University); RETIERE, Fabrice (TRIUMF); VIEL, Simon (Carleton University); TETRAULT, Marc-André (Université de Sherbrooke); AL KHARUSI, Soud (McGill University); CHANA, Bindiya (Carleton University); DE. ST. CROIX, Austin (TRIUMF); EGAN, Eamon (McGill University); FRANCESCONI, Marco (INFN); GALLACHER, David (McGill University); GALLI, Luca (INFN); GIAMPA, Pietro (SNOLAB); MARGETAK, Peter (TRIUMF); MARTIN, Juliette (TRIUMF); NOWICKI, Sarah (McGill University); RUDOLPH, Lisa (McGill University); XIE, Liang (TRIUMF)

Presenter: REBEIRO, Bernadette Maria (McGill University)

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