NCNR SEMINAR AUGUST 4, 2023. 10:45 AM (EST)

Detecting Nanometer-Scale New Forces with Coherent Neutron Scattering

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I will present a new approach to searching for 0.1-100 nm range new forces using neutron scattering from targets with nanoscopic structures. This proposal acts as a cross of experiments searching for shorter-range forces using neutron scattering from individual atomic nuclei with experiments that look for longer-range interactions by measuring forces between macroscopic test masses. I will discuss the backgrounds due to Standard Model interactions and suggest a variety of potential target structures that could be used, estimating the resulting sensitivities. Using only one day of beam time at a modern neutron scattering facility, this technique has the potential to detect new forces as much as four orders of magnitude weaker than current laboratory constraints at the appropriate length scales.

Friday, August 4, 2023

10:45 AM (UTC-05:00) Eastern Time (US & Canada) | Hybrid format

Attend in person (room K04B, NCNR) if you have access to the NIST campus, or remotely using the link below.

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