Contribution ID: **154** Type: **Poster**

Search for new internucleon short-range interaction in neutron scattering

Tuesday 22 October 2019 17:52 (1 minute)

There are 4 known types of interaction in nature, but nowadays the existence of a new force mediated by new unknown bosons is widely discussed in the literature [1], [2]. This work deals with the application of neutron scattering technique for the search for a new short-range interaction and for setting constraints on the coupling constant of such interaction.
The main idea is to perform an experiment of neutron scattering on the powder of silicon (powder diffraction) and to get the information on scattering amplitude dependence on scattering angle. Within this work the calculations showing the possibility of the idea were made. The coupling constant constraints were obtained using the data of silicon powder diffraction from the FRM II reactor, Munich, Germany. It is shown that the new constraints are competitive with the existing ones.
[1] V.V. Nesvizhevsky, G. Pignol, K.V. Protasov, Phys.Rev. D 77, 034020 (2008)
[2] Y. Kamiya, K. Itagaki, M. Tani, G. N. Kim, and S. Komamiya, Phys. Rev. Lett. 114, 161101 (2015)

Authors: SHAPIRO, Dmitrii; VORONIN, Vladimir (Petersburg Nuclear Physics Institute)

Presenter: SHAPIRO, Dmitrii

Session Classification: BBQ - Drinks & Posters