Contribution ID: **423** Type: **Contributed Poster Presentation**

Investigation of residual neutron-proton interactions in even-even, odd-odd and odd- A nuclei

In present work, we have taken the expansion of this two variable (Z,N) Taylor series upto fourth order of its derivative and have obtained an elaborate as well as a concise-averaged expression for the estimation of these residual n-p interactions. The parameters of fitting seem to differ by an appreciable amount for different species of the nuclei, thus, separate parameters for even-even, odd- A and odd-odd nuclei are proposed. In order to eliminate the influence of deformations in the nuclei, the mass region we have worked on is $50 \leq A \leq 253$. The semi-empirical data hence obtained has been used to fit the parameters for theoretical expressions proposed already. The recently updated AME-2020 has been used for binding energies of the relevant nuclei. Furthermore, this study proposes a dependence of these interactions on neutron excess and evaluates it in comparison with earlier models.

Primary author: Ms KAUR, Harjaganjot (Dipartimento di Fisica e Astronomia, Universit'a degli studi di Padova, ITALIA)

Co-authors: Prof. JAIN, AK (Amity University Noida); Ms KAUR, Manpreet (Akal University Talwandi Sabo); Prof. SINGH, Sukhjeet (Akal University Talwandi Sabo); KUMAR, Sushil (Akal University Talwandi Sabo)

Presenter: Ms KAUR, Harjaganjot (Dipartimento di Fisica e Astronomia, Universit'a degli studi di Padova, ITALIA)

Session Classification: Poster Session

Track Classification: Nuclear Structure