

Nuclear Structure of neutron-rich nuclei around $N=40$

Silvia M. Lenzi¹

¹ *Dipartimento di Fisica e Astronomia, Università di Padova and INFN, Sezione di Padova, Padova, Italy*

Contact email: lenzi@pd.infn.it

Far from the valley of beta stability, the nuclear shell structure undergoes important and substantial modifications. In medium-light nuclei, interesting changes have been observed such as the appearance of new magic numbers, and the development of new regions of deformation around nucleon numbers that are magic near stability. The observed changes help to shed light on specific terms of the effective nucleon-nucleon interaction and to improve our knowledge of the nuclear structure evolution towards the drip lines.

In the last few years, particular effort has been put on studying light and medium-mass neutron-rich nuclei where these effects manifest more dramatically. Detailed nuclear structure information is becoming available both with stable and radioactive beams in Cr, Mn, Fe and Co isotopes in the mass region around $N=40$, where rapid changes of the nuclear shape occur along isotopic and isotonic chains.

A review of the recent experimental findings in this mass region will be presented together with their interpretation in terms of the interacting shell model in a wide valence space.