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Evolution of the N = 32 shell closure in neutron-rich Ti & V isotopes at TRIUMF. (G)*

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A striking example of quantum behaviour in the nucleus are the nuclear shells, analogous to the electron shell system in atomic physics, at well-known magic numbers of protons/neutrons. Nuclear shells can evolve with changing proton and neutron count as shown in the emergence of the N = 32 shell closure. This changing nuclear structure can directly affect nuclear properties like masses (separation energies) and half-lives. Investigations of neutron-rich 51-55V and 51-55Ti isotopes were performed at TRIUMF. Half-lives were measured with the ISAC Yield Station and high precision mass measurements were performed with TRIUMF's Ion Trap for Atomic and Nuclear science (TITAN), employing for the first time the TITAN Multiple-Reflection Time-Of-Flight Mass Spectrometer (MR-TOF-MS). In the results, weak shell effects were observed in Ti isotopes. In this talk, these observed shell effects will be discussed in context of the evolution the N = 32 shell closure.

Author: Ms DUNLING, Eleanor (University of York/TRIUMF)
Presenter: Ms DUNLING, Eleanor (University of York/TRIUMF)
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