Isospin Conservation in Neutron-Rich Heavy Nuclei

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Isospin is a fundamental entity in particle physics and plays an important role in the occurance of various reaction channels / decay processes involving the fundamental particles. In a composite system like a nucleus, where many protons and neutrons are present, its validity and usefulness has remained limited to the light mass regions [1, 2]. The idea of isospin conservation in heavy nuclei was resurrected in an important theoretical paper of Lane and Soper in 1962 [3]. However, no direct experimental proof could be obtained. The neutron-rich heavy nuclei carry very large isospin and have now become a reality. These ideas can be, therefore, tested and used in the neutron-rich nuclei in several ways. We discuss in this talk the physics of large isospin systems, direct evidence of the conservation of isospin in such nuclei and the future possibilities [4].

References

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