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Isomer data and its implications

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Isomeric studies are crucial for understanding the fundamental nuclear structure as well as for practical applications. Because nuclear isomers are known to exist throughout the nuclear landscape, it is interesting to depict their global features and, if any, systematics. This resulted in the first compilation of (more than) 2400 isomers in 2015, with a lower limit on the half-life of 10 nanoseconds, known as the 'Atlas of Nuclear Isomers,' [Nucl. Data Sheets 128, 1 (2015)] presenting isomeric spectroscopic properties such as excitation energies, half-lives, and so on, as well as the original references. We have recently updated the atlas with a literature cut-off date of October 31, 2022. Along with the addition of 200 new isomers, numerous isomers' spectroscopic observables are changed in the second version [At. Data Nucl. Data Tables 150, 101546 (2023)]. In comparison to the 2015 edition, the Atlas(2023) now comprises a substantially bigger set of evaluated data. In this presentation, the isomer data and their implications on nuclear structure will be discussed.

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