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Systematic study of Alpha decay process

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Abstract

Alpha decay is the process in which heavy nucleus disintegrates into a parent nucleus and an alpha particle . Alpha decay is mainly observed in heavy mass region from $A > 105$. Systematics of Q_α and half-life of alpha decaying nuclei are examined. A linear relationship between the Q_α and the alpha decay half-life has been observed in alpha decay systematics . In the present work, three phenomenological models which relates Q_α and the alpha decay half-life are studied in detail and compared with the experimentally observed half-lives. An attempt is made to modify the parameters in one of the model to reduce the deviation from the experimentally observed values.