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Alpha-transfer Reaction in Combination with Transient Field Technique and DSAM to Measure Magnetic Moments and Life-Times in ^{110}Sn and ^{106}Cd

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Studies on magnetic moments and life-times of exotic nuclei have unveil properties which have leaded to the deeper understanding of the nature and behavior of the nuclear potential. During last years, the alpha-transfer technique has been useful for the study of properties of nuclear species which cannot be created with the current radioactive beam facilities. One of these characteristics, the magnetic moment of short life-time spin-states, had always been a huge challenge because several difficulties such as the alignment of the nuclear spin along a quantum axis. The Transient Field technique allows the measurement of nuclear magnetic moments using the variations of the angular distribution of the emitted gamma-ray radiation, from the state of interest, with a resolution around mrad. In addition to the latter, the Doppler Shift Attenuation Method allows to establish the life-time of excited nuclear states. In this work the measurement of the 2^+ and 4^+ spin-states of the deficient-neutron ^{110}Sn and the life-time of the ^{106}Cd excited spin-sates will be presented, the experimental technique makes use of the alpha-transfer reaction in combination with Transient-field technique and DSAM.

Keywords: Alpha transfer, Transient Field, Coulomb excitation, DSMA, life-time, magnetic moments.

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