

STUDY OF NEUTRON-RICH OSMIUM, IRIDIUM AND CADMIUM ISOTOPES USING INCOMPLETE FUSION REACTIONS

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In recent years it has been shown that the incomplete fusion mechanism is a valuable tool to obtain spectroscopic information on high-spin states for relatively neutron-rich isotopes which cannot be populated in conventional fusion-evaporation reactions using stable ion beams [1,2]. In this contribution we present results obtained in two incomplete fusion experiments performed at the LNL Legnaro (Italy) using the GASP γ -ray spectrometer in conjunction with the ISIS Si ball for the efficient detection of charged particles which is crucial in this type of experiment. In the first measurement, neutron-rich Osmium and Iridium isotopes have been studied up to high spin. In the present contribution the focus will be put on the new information obtained for ^{188}Os , which provides the basis for the extension of the systematics obtained so far concerning the breakdown of K isomerism within the Os isotopic chain to the $N > 110$ region. As a byproduct of this experiment, new information at high spin has been deduced also for the pure neutron channels $^{187,188}\text{Ir}$.

In the second experiment the midshell Cadmium isotope ^{114}Cd and its odd neighbor ^{113}Cd have been studied and their known level schemes considerably extended. In ^{114}Cd , about 50 new states were observed (partly arranged into band like structures) and for many of them, spin and parity could be firmly assigned. Also in ^{113}Cd new bands have been observed and all this new information will be discussed in this contribution.

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[1] G.D. Dracoulis et al., J. Phys. G23, 1191 (1997).

[2] A. Jungclauss et al., Phys. Rev. C66, 014312 (2002); Phys. Rev. C67, 034302 (2003).