**An algorithm for the removal of spurious states and calculations of nuclear level densities** JAGJEET KAUR, MIHAI HOROI, ROMAN SENKOV, Central Michigan University — An algorithm was developed for the calculation of nuclear level densities in proton-neutron formalism using the moments method. This method was further improved to discard the contributions of spurious states related to the center-of-mass excitations. We present nuclear level densities for some nuclei in comparison with the shell model calculations and experimental data. Applications of this algorithm such as calculations of the reaction rates for the nuclei in the $rp$-process will be also presented.

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