

# 1st RCM on Updating and Improving Nuclear Level Densities for Applications

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## The Level Density study in the future Chinese Nuclear Reaction Model-UNF

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This report outlines the future research plans for level density studies in the Chinese nuclear reaction model. First, China Nuclear Data Center (CNDC) aims to implement global phenomenological level density models, including the Constant Temperature Fermi Gas model and the Enhanced Generalized Superfluid model, into the Chinese UNF code for nuclear reaction calculations, particularly for medium-heavy and fission nuclei. Additionally, efforts will be made to incorporate the IAEA-recommended level density parameters into the UNF framework and systematically compare the resulting calculations. Second, CNDC plans to develop a global microscopic level density model based on the Relativistic Hartree-Bogoliubov (RHB) approach and the combinatorial model. These investigations will focus on nuclear reaction systems involving isotopes such as Nb, Sn, and U. The ultimate goal is to enhance the accuracy and applicability of nuclear reaction models, providing a more robust theoretical foundation for both fundamental research and practical applications.

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