



Contribution ID: 12

Type: **not specified**

Pushing the limits of γ -ray spectroscopy of neutron rich fission fragments with AGATA+PRISMA coupling

Tuesday, 14 May 2024 12:40 (20 minutes)

In the present Letter of Intent, we aim to study the structure of neutron-rich nuclei in the vicinity of ^{78}Ni . The main focus is to study the states resulting from the coupling of the inert-core excited states and the valence protons in the $N = 50$ ^{80}Zn and ^{79}Cu nuclei. In addition, the proposed experiment will provide a systematic and pertinent dataset on excited states in this region of the nuclear chart, allowing to push the neutron exoticism up by two neutrons for each atomic number produced, compared to what has been achieved in previous similar studies. The nuclei of interest will be produced in transfer- and fusion-induced fission reactions in inverse kinematics. The PRISMA spectrometer will be used to isotopically identify fission fragments and the AGATA gamma tracking array will be used to measure prompt γ -rays.

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Session Classification: Perspectives with uranium beams