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## Neutron capture reactions for the astrophysical i process

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The astrophysical i process has been proposed to explain astronomical observations that could not be explained by the traditional s and r processes. It involves nuclei that are a few steps from stability where the main missing piece of information from the nuclear physics side is neutron-capture reaction rates. In this talk I will present an experimental program that aims at constraining important neutron-capture reactions for the astrophysical i process. I will focus on the mass 90 and 140 regions, where stellar observations show sensitivity to model parameters and nuclear physics inputs. The measurements of the relevant reactions took place at the CARIBU facility at Argonne National Lab using the SuN detector. The  $\beta$ -Oslo method was used to extract the nuclear level density and the  $\gamma$  ray strength function, which were used to constrain the relevant neutron capture reaction rates. The impact of the experimental results on the astrophysical i process will be discussed.

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