

^9C breakup measurement through NP1412-SAMURAI29R1 experiment

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The ^9C breakup reaction was investigated in order to obtain information about the inverse reaction: $^8\text{B}(p,\gamma)^9\text{C}$ at astrophysical energies within the NP1412SAMURAI29R1 experiment. The $^8\text{B}(p,\gamma)^9\text{C}$ reaction gives a possible path to the hot pp chain pp-IV at high temperatures and away from it toward a rapid alpha-process rap I at high temperatures and densities and therefore is important in understanding nucleosynthesis in super-massive hot stars in the early universe, including possible bypass of the 3-process. During NP1412SAMURAI29R1 experiment, the ^9C breakup was studied through two indirect methods: Nuclear breakup and Coulomb dissociation method (on a light target natural C and on a heavy target Pb, respectively) at energy of 170 A MeV to extract structure information, which will allow to evaluate the radiative proton capture cross section at low energies and from there the reaction rate. The SAMURAI29R1 experiment was carried out during the SAMURAI 18Oxygen 2018 Spring campaign and it is part of the HI-p collaboration together with another three experiments. Performances of the setup used and results of the analysis are presented.