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## Two-Phonon Octupole excitation in $^{96}\text{Zr}$

We present the preliminary analysis of an experiment performed at INFN LNL in November 2023 aimed at studying the two-phonon phonon collectivity in  $^{96}\text{Zr}$ . The goal of the experiment was to perform a  $\gamma$ -decay branching ratio measurement from the  $6^+$  to the  $3^-$  state, so as to extract the  $B(E3; 6^+ \rightarrow 3^-)$  value. If large, this parameter would indicate for the  $6^+$  level to be a member of the  $3^- \otimes 3^-$  multiplet. The  $6^+$  state was populated via the  $^{96}\text{Zr}(p,p')^{96}\text{Zr}$  proton inelastic scattering and the scattered protons were measured in the SAURON Double-Sided Silicon Strip detector. These were used to select the reaction channel of interest, in coincidence with the  $\gamma$  rays in the AGATA array.

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