



ID de Contribution: 51

Type: Non spécifié

## Search for Toroidal Nuclear Resonances in the Cluster Disassembly of $^{28}\text{Si}$

*mardi 5 novembre 2024 14:35 (25 minutes)*

Wheeler and Wong predicted the possibility of toroidally-deformed nuclear configurations in the 1960s and 1970s. In the last decade, renewed interest has spurred further calculations exploring the possible structure, energetics, and disassembly of these nuclear configurations. Analysis of experimental data obtained with NIMROD at Texas A&M University showed hints that such structures may exist and may be observable in the 7-alpha decay channel from an excited  $^{28}\text{Si}$ , though that data set was not obtained with this study in mind. Using the same beam, energy, and target ( $^{28}\text{Si} + ^{12}\text{C}$  at 35 MeV/u), we conducted a subsequent experiment with FAUST at Texas A&M University to search for these possible toroidal states. The good angular resolution and energy resolution of FAUST, as well as the large number of measured events, allow for stronger statements to be made regarding the existence and properties of these possible states. Our analysis of the FAUST data indicated no statistically significant peaks in the 7-alpha relative energy distribution, and we set upper limits for the cross section as a function of the intrinsic width of the candidate state. These upper limits exclude the candidate states suggested by the previous NIMROD measurement.

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