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## Investigating the candidate 5-alpha cluster state in $^{20}\text{Ne}$ at $E_x = 22.5$ MeV with the $^{22}\text{Ne}(p, t)^{20}\text{Ne}$ reaction.

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The study of alpha-cluster in light nuclei have been well documented with experimental evidences. Meanwhile, in the recent experiments performed at iThemba LABS using (p,t) reaction on  $^{22}\text{Ne}$  with the K600 magnetic spectrometer, a 22.5 MeV state was found, which accounts for 5-alpha cluster situated at 3.3 MeV above the 5-alpha break-up threshold. However, this state could not be accounted for by theoretical shell-model calculations and angular distribution data taken at forward angles including zero degrees. In the present project, (p, t) reaction on  $^{22}\text{Ne}$  will be carried out at zero degrees, to ascertain whether this state exist or not. A proton beam with an energy of  $E_{\text{lab}} = 80$  MeV from the Separated Sector Cyclotron (SSC) facility impinged on a  $^{22}\text{Ne}$  gas target at lab angles of  $\theta_{\text{lab}} = 0^\circ$  was considered. Preliminary results of these experiments will be discussed.

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