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Sumanta Kumar Sahoo - On a mode geometry in a sample of subdwarf B stars observed by TESS

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Hot subdwarf B (sdB) are the extreme horizontal branch stars, which had lost most of their hydrogen envelope and will go directly to the white dwarf cooling track. A complete evolution process of such stars is still a puzzle. Pulsating sdB stars (sdBV) may support our effort. A detailed asteroseismic study and modelling along with spectroscopic analysis over a large sample of these stars will surely help us to understand the internal structure and their evolution. In this project, we are using the relatively precise short and long cadence data obtained during TESS mission, in order to collect a large sample of pulsating sdB stars. Thus far, we have detected more than 15 rich g-mode sdB pulsators from nine months of data. By using fourier transform technique, we detect pulsation frequencies in these stars. Then, we have to identify the pulsation modes, which would describe pulsation geometry, to better constrain theoretical pulsation models of sdB stars. For this purpose, we use a selection of features such as rotationally split multiplets and/or asymptotic period spacing along with some statistical analysis.

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