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# Sowgata Chowdhury - Studying Massive star Variability with the TESS Mission

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BCEP stars are unique pulsators among all well-known variables, that end up in massive type-II supernovae. To study the connection between the progenitors and the supernovae remnants, it is crucial to do asteroseismic modelling of the progenitors and study its rotational activities. Rotational activities in hot stars also challenges the convection theory apart from deepening our understanding of how hot star rotation affect the pulsations and its asteroseismology. We are using highly precise space photometry obtained with NASA's TESS mission for this purpose. Analysis of HN Aqr (Handler et al. 2019), already showed the prospectives for massive star asteroseismology based on such data, along with realizing the importance of runaway BCEP pulsators. BCEP stars as runaway pulsators or in EB systems, both provide additional constraints to improve our understanding of their past, present and future evolutionary states. In this project, we are systematically searching for interesting BCEP targets in the TESS fields, and following them through ground-based spectroscopy. Along with thorough studies of the known pulsators, we expect many new variables, especially in the galactic disc fields. Having attained a good understanding about the structure of these stars through detailed mode identification and efficient seismic modelling among others, we shall search for the missing pieces that are hindering our deeper understanding of massive star evolution and their end states - violent Type II Supernovae.

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