Contribution ID: **63** Type: **Oral Presentation**

Probing the pi-axiverse with astrophysics

With the WIMP parameter space slowly being ruled out by experiments on all fronts, axions have become a highly studied alternative dark matter candidate. In this talk we present a particle physics model where the pion states of a dark copy of QCD have both axion and dilaton phenomenologies. This model allows for the formation of dilute axion stars over a far larger parameter space than allowed in typical axion models. We explore whether such a model could be detected via FRB-like emissions associated with stable axion star mergers, these have unique broad spectra (rather than axion lines). We demonstrate that strong detection prospects exist for these events with both MeerKAT and upcoming experiments like the SKA and ngVLA.

Apply for student award at which level:

Consent on use of personal information: Abstract Submission

Yes, I ACCEPT

Primary author: BECK, Geoff (University of the Witwatersrand)

Co-authors: Mr LOANE, Santiago (University of Illinois Urbana-Champaign); Prof. ALEXANDER, Stephon (Brown University); Dr MANTON, Tucker (University of Chinese Academy of Sciences)

Presenter: BECK, Geoff (University of the Witwatersrand)

Session Classification: Astrophysics & Space Science

Track Classification: Track D1 - Astrophysics