

# FAST Proposal Coverpage

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## **Project Name:**

The Tully-Fisher Relation of Polar Ring Galaxies

## **Project Summary:**

*(A 1 paragraph summary of your project, including its scientific goals and how you will address them. This information will be potentially public.)*

The dynamical mass, which probes the dark matter content of the halo, of early-type galaxies is difficult to measure because they lack easily accessible kinematic tracers at large radii. The unique configuration of a polar ring galaxy (PRG) --- a central early-type galaxy encircled by a ring of young stars and gas --- provides an important dynamic tracer of the system through the rotation velocity of the gaseous ring, which is detectable in H I. Very few PRGs have been studied to date. The existing data suggest that PRGs deviate from the Tully-Fisher relation of normal spiral galaxies. We propose to obtain deep H I observations of 23 PRGs, the largest and most comprehensive sample to date, to study their Tully-Fisher relation and dark matter halos. These observations are scientifically exciting and provide an important test of the capabilities of FAST.