

**UNIVERSITY OF HAWAII • INSTITUTE FOR ASTRONOMY**  
**RESEARCH PROPOSAL OBSERVING TIME REQUEST**

**Author<sub>1</sub> : Daichi Hiramatsu**

**Author<sub>2</sub> : Corey Mutnik**

**E-mail<sub>1</sub> : dhiramat@hawaii.edu**

**E-mail<sub>2</sub> : cmutnik@hawaii.edu**

**Institution/Dept : UH**

**Abstract**

The size and shape from distribution of variable stars  
age from the number distribution of variable stars

**TELESCOPE TIME REQUESTED**

**COLLABORATORS**

Name	Institution	E-mail	Program(s)

# **1 SCIENTIFIC JUSTIFICATION**

## **1.1 Immediate Objective**

Measure the size, shape, and age of Milky Way spiral arms.

## **1.2 Scientific Rationale**

- Use gri data to identify variable stars
- Use Period-Luminosity relationship to get distance
- Map 3D spatial distribution
- Determine deviation of variable stars from model
- Variations arise from non-gravitational effects
- Figure out dark matter distribution

## **References**

Author1 A. et al., YYYY, Journal, Vol., page

# **TECHNICAL JUSTIFICATION**