

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

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**1. Abstract**

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

**2. Description of the Proposed Program**

*A) 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

*B) Immediate Objective:*

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

**3. Scientific Justification of Requested Observing Time, Feasibility, and Visibility**

**4. Technical Justification of Duplication**

**5. Report on Previous Swift and Related Programs**

**6. References**

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

**7. Budget Narrative**

Figure 1: *Left panel:* here you see... *Right panel:* here you see...