

DETECTION OF UNIVERSALITY OF DARK MATTER PROFILE FROM SUBARU WEAK LENSING MEASUREMENTS OF 50 MASSIVE CLUSTERS

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ABSTRACT

TBD

1. INTRODUCTION

PBH introduction

2. GRAVITATIONAL MICROLENSING OF HYPER SUPRIME-CAM DATA-3

- introduction of MACHO microlensing
- Hyper Suprime-Cam and advantage for microlensing
Hyper Suprime-Cam (HSC) is a wide-field imaging camera attached at the prime focus of Subaru telescope. This camera consists of 116 CCD chips; 104 for science, 4 for auto-guide, and 8 for auto-focus, and each CCD has 2k x 4k pixels, with a pixel scale of 0.168 arcsec. One unique characteristic of this camera is the wide field of view (FoV) as large as 1.5 degree at a single frame, which is three times larger than the size of full Moon in radius. Also high resolution is expected owing to the large primary mirror of 8.2 meters in effective diameter and low humidity of the summit of Mauna Kea. 261 robotic fingers keep the primary mirror in a perfect shape no matter where the telescope is pointing in the sky.
- target mass range

3. FORMULAS-2

3.1. Point-Source Microlensing-2

independent section about microlensing and analytic estimate, numerical estimate-1

3.2. Finite-Source Microlensing-2

3.3. Finite-Source Microlensing with Limb-Darkening-2

3.4. Effect of Limb Darkening on the Numerical Estimate of Expected Number of Events-2(new sec.)

4. DATA ANALYSIS AND EVENT SELECTION-3

- properties of data (PSF flux,sampling...)

- selection criteria of variable candidates (summary in a table)

5. STATISTICS AND SELECTION CRITERIA-3

explain each selection criteria about shape characteristics of light curves (summary in table(s))

5.1. Selection Criteria Statistics

(naive explanation, how many events are rejected by each criteria)

5.2. Background

5.2.1. Foreground Moving Objects in the M31 field-3

events which passed selection criteria:comets

6. EFFICIENCY CALCULATION-3

- microlensing rate
- Milky Way and M31 halo models
- equations of expected number of event detection
- estimation of source distance
- Monte Carlo efficiency calculation

7. LIMITS ON PBH DARK MATTER AND DISCUSSION-3

7.1. Errors in Present Analysis

7.1.1. PBH Halo Fraction and Mass

8. SUMMARY AND CONCLUSION

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REFERENCES