



EUROPEAN SOUTHERN OBSERVATORY

Organisation Européenne pour des Recherches Astronomiques dans l'Hémisphère Austral
Europäische Organisation für astronomische Forschung in der südlichen Hemisphäre

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APPLICATION FOR OBSERVING TIME

PERIOD: **77A**

To be submitted only to: proposal@eso.org

Important Notice:

By submitting this proposal, the PI takes full responsibility for the content of the proposal, in particular with regard to the names of COIs and the agreement to act according to the ESO policy and regulations, should observing time be granted

| | | | | | | | | |
|--|--------|----------------------|--------|----------------|------|--------------|------------|----------|
| 1. Title | | Category: A-8 | | | | | | |
| Testing the High-z Mass-Metallicity Relation in Gamma-Ray Burst Host Galaxies | | | | | | | | |
| 2. Abstract | | | | | | | | |
| We propose ISAAC and FORS2 imaging and spectroscopy to derive stellar masses and metallicities in two $z \sim 0.8$ gamma-ray burst (GRB) host galaxies. The acquired information would be used to test the newly derived $z \sim 0.7$ mass-metallicity relation for the low-mass/low-metallicity regime. GRB hosts are perfect candidates for this goal, as they are generally metal poor and low-mass star-forming galaxies. Although faint, the redshift and position of GRB hosts are accurately measured from the optical afterglows. ISAAC NIR and existing optical photometry will reliably provide stellar masses. FORS2 optical and ISAAC NIR spectroscopy will reveal [OII], H β , [OIII], H α and [NII] emission lines, from which metallicity, SFR and dust extinction will be measured. This pilot program is part of a larger public study aiming at investigating the global properties of GRB hosts and their relation with "normal" high-z star-forming galaxies. | | | | | | | | |
| 3. Run | Period | Instrument | Time | Month | Moon | Seeing | Sky Trans. | Obs.Mode |
| A | 77 | FORS2 | 7h | sep | d | $\leq 1.0''$ | CLR | s |
| A/alt | 77 | FORS2 | 0.5n | sep | d | $\leq 1.0''$ | CLR | v |
| B | 77 | ISAAC | 9h | sep | g | $\leq 0.8''$ | CLR | s |
| B/alt | 77 | ISAAC | 1n=2H2 | sep | g | $\leq 0.8''$ | CLR | v |
| C | 77 | ISAAC | 9h | sep | g | $\leq 0.8''$ | THN | s |
| C/alt | 77 | ISAAC | 1n=2H2 | sep | g | $\leq 0.8''$ | THN | v |
| 4. Number of nights/hours | | Telescope(s) | | Amount of time | | | | |
| a) already awarded to this project: | | | | | | | | |
| b) still required to complete this project: | | | | | | | | |
| 5. Special remarks: | | | | | | | | |
| Take advantage of this box to provide any special remark using up to three lines (e.g., for ToO proposals indicate the number of RRM triggers and normal ToO triggers). | | | | | | | | |
| 6. Principal Investigator: S. Savaglio (Johns Hopkins University, USA, savaglio@pha.jhu.edu) | | | | | | | | |
| Col(s): K. Glazebrook (Johns Hopkins University, USA), J. Greiner (MPE Garching, D), D. Le Borgne (CEA/Saclay, F) | | | | | | | | |
| 7. Is this proposal linked to a PhD thesis preparation? State role of PhD student in this project | | | | | | | | |