Lynx Microcalorimeter Group Objectives and Plans

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1. Work with the Science and Technology Definition Team (STDT) to establish baseline and goal requirements for a microcalorimeter instrument for Lynx. Discuss and evolve trade-offs of potential microcalorimeter focal plane designs, taking into account the desire for the greatest scientific capability and the level of difficulty to develop. Consider also the TRL, efficiency of resources used, and scale of cost.

2. Develop time-table and process for evolving design.

3. Clarify the driving science requirements for instrument.

4. Discuss trade-off of pixel size versus FOV, energy resolution versus FoV, count rate capability, focal plane layout and potential hybrid designs.

5. Work with STDT to evolve an XRS microcalorimeter simulator, for investigating potential science targets, including effects of dithering.

6. Establish baseline and goal instrument requirements.

7. Develop TRL definitions and timetable for evolving to TRL-6 by PDR, with guidance on the most appropriate resource levels needed.

8. Provide inputs to NASA announcements of opportunity for ROSES/SAT. Evolve technology gap descriptions with NASA's Physics of the Cosmos Program Office. Encourage further research development on larger arrays, smaller pixels and wiring, and more capable read-out electronics.

9. Analyze new microcalorimeter read-out techniques, and their potential impact on what might be achievable. Carry out study of what development is necessary for envisaged read-out electronics for space flight.

10. Conduct a study on the most appropriate size, mass, power and cost of a U.S. microcalorimeter cryostat for Lynx.

11. Participate in NASA/MSFC Advanced Concepts Office costing/mission design exercises, and NASA center instrument design exercises.

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