

Splinter Group Discussion Topics

Group	Splinter Group Discussion Topic/Assignment	Chair
1	<p>Consider extragalactic science and astrophysical processes on a galactic or cosmological scale and return with a “killer app” (or two). Discuss the rationale for this choice. Discuss the critical measurement requirements that would enable the science to be accomplished, as well as “stretch goals” for a far-IR mission. For example, consider the spatial resolution vs. sensitivity trade space, and whether and how high spectral resolution might substitute for high spatial resolution. Also discuss the scientific impact of mothballing SOFIA, and the potential role of SOFIA in future space far-IR mission planning, particularly for extragalactic science. Last, but not least, discuss the potential scientific impact of SPICA in this science domain, assuming that the mission will proceed with or without US involvement.</p>	Jackie Fischer
2	<p>Consider “Galactic” science and astrophysical processes in the local universe (e.g., star and planet formation, exoplanets, and phenomena seen in the Solar System) and return with a “killer app” (or two). Discuss the rationale for this choice. Discuss the critical measurement requirements that would enable the science to be accomplished, as well as “stretch goals” for a far-IR mission. For example, consider the spatial resolution vs. sensitivity trade space, and whether and how high spectral resolution might substitute for high spatial resolution. Also discuss the scientific impact of mothballing SOFIA, and the potential role of SOFIA in future space far-IR mission planning, particularly for Galactic science. Last, but not least, discuss the potential scientific impact of SPICA in this science domain, assuming that the mission will proceed with or without US involvement.</p>	Alycia Weinberger
3	<p>Discuss the synergy and complementarity in science-enabling capability between potential future far-IR space missions and existing and upcoming facilities, such as ALMA, JWST, and CCAT, as well as observatories that operate across the electromagnetic spectrum on the ground, on balloons, or in space. Discuss the scientific impact of mothballing SOFIA. Discuss the potential scientific impact of possible alternative future far-IR space missions, including SPICA or a larger cryogenic single-aperture telescope, a direct detection interferometer, and a heterodyne interferometer. What are the science questions that can only be answered with measurements from a future far-IR space mission?</p>	Al Wootten
4	<p>Discuss programmatic issues, such as key decision points, schedule/timing, mission affordability, the shape of NASA’s budget, US community readiness for a future far-IR space mission, and possibilities for international partnership on a far-IR</p>	Stephen Rinehart

	<p>mission in the coming decade. What are the key decision points and possible future scenarios for the next ~15 years, as we prepare for and then implement a new set of Decadal Survey recommendations? What options exist for US participation in SPICA, and what role should we play in SPICA if US involvement is possible? What should NASA do if US participation in SPICA is not possible? How will the NASA portfolio evolve, and what is the projected funding landscape for the coming decade?</p>	
5	<p>What far-IR space mission-enabling or capability-augmenting technology development can be expected in the remainder of this decade? What are the technology needs and priorities? What are the technical high-hurdles, projected solutions? What are the potential scientific impacts of developing or foreseeable technology developments? Assess the state of the art in key technology areas, recommend particular technologies for more investment, and refine or derive a new technology roadmap for the far-IR.</p>	Phil Mauskopf
6	<p>Discuss the pros and cons of alternative types of far-IR space missions (large cryogenic single-aperture telescopes, interferometers, direct detection vs. heterodyne interferometry). What is plausibly feasible in the next decade, in terms of technical readiness and affordability? Discuss the mission concept trade space and suggest related topics that require further study to prepare for the next Decadal Survey.</p>	Matt Griffin