



SOFIA Stratospheric Observatory for Infrared Astronomy

A New SOFIA Science Vision - Status -

Tom Roellig



Why the Need for New Science Vision?



- It has been a long time since the original science case for SOFIA was articulated
 - ◆ *Science in general has progressed*
 - ◆ *Spitzer has flown and the SOFIA science projects will build on the Spitzer results*
 - ◆ *Herschel will be launched at about the same time that SOFIA begins taking science data – the science goals of these missions need to be coordinated.*

- Need to develop a small set of potential SOFIA projects:
 - ◆ *Immediately recognizable as answering, or instrumental in answering, very important outstanding astrophysics questions*
 - ◆ *Not a list of everything SOFIA could do, but instead a short list of compelling science investigations*
 - ◆ *The SOFIA data are essential – not just supplementary*



Products



- A concise, clearly written, well documented and peer reviewed Science Vision publication that conveys the compelling scientific contributions of SOFIA, and its complementary and extending role for existing and planned space and ground-based IR observations.
 - ◆ *Written for a general astronomy audience.*
 - ◆ *Science enabled by future yet-to-be-developed instruments < 25% of the Science Vision.*
- Executive summary of the above paper
- A synopsis of the Science Vision in PowerPoint slide format for use by the Decadal Survey committee, as well as by the astronomy community in general.



New Science Vision Working Group



SOFIA Stratospheric Observatory for Infrared Astronomy

- Co-chaired by Eric Becklin and Tom Roellig
- Meet weekly at ARC with USRA and NASA scientists to coordinate efforts
- Identified four organizational science themes and selected chairs for each of these themes
- Panel chairs were responsible for identifying the rest of their panel
- In all there was an international team of over 40 scientists that contributed to the New Science Vision document



Recent New Science Vision Activities



SOFIA Stratospheric Observatory for Infrared Astronomy

- Reviewed by internal red team in August
- Almost complete draft (missing only the executive summary) of the New Science Vision document was generated and submitted to a Blue Ribbon review board on Oct. 19
- Blue Ribbon board met at ARC on Oct. 24
- Blue Ribbon board report received on Dec. 4



Blue Ribbon Board Charter



SOFIA Stratospheric Observatory for Infrared Astronomy

- Does the New Science Vision document successfully :
 - ◆ *Reflect important science investigations that command wide interest within the astronomical community?*
 - ◆ *Articulate a unique role for SOFIA in attacking these investigations?*
 - ◆ *Show that the SOFIA observations are feasible with present and anticipated SOFIA instrumentation?*
 - ◆ *Indicate how the SOFIA results will complement and enhance the discoveries from other observatories and missions?*



Blue Ribbon Board Members, Science Areas



SOFIA Stratospheric Observatory for Infrared Astronomy

- John Mather, Chair
- Michael Brown, solar system
- Steve Kahn, galactic center
- Gillian Knapp, star formation
- William Mathews, galactic center
- Gary Melnick, ISM
- Marcia Rieke, nearby galaxies
- Hans-Peter Röser, star formation
- Michael Werner, ISM



Blue Ribbon Board Report Summary



SOFIA Stratospheric Observatory for Infrared Astronomy

- Covered in John Mather's presentation later in this session



The Future of the Document



- Will revise document along the lines of the BRP recommendations
- Have enlisted the help of Margaret Meixner to work with Xander Tielens on the ISM theme revision
- Brought on a professional science writer, Eric Roston, to ensure a smooth integrated document pitched at the right level for a general astronomical audience
- Plan to have a revised version for review by the BRP by the end of January
- The final document will be available for discussion at the next AAS SOFIA splinter meeting



Today's Presentations



SOFIA Stratospheric Observatory for Infrared Astronomy

- A summary presentation of each of the four New Science Vision themes
- A summary of the Blue Ribbon Panel report from the panel chair