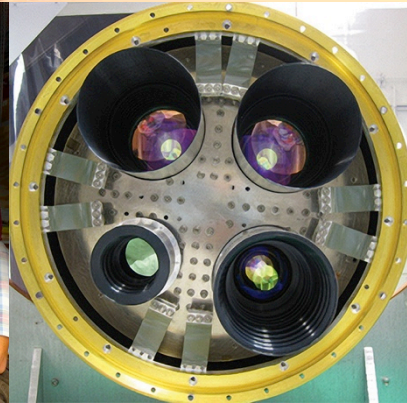
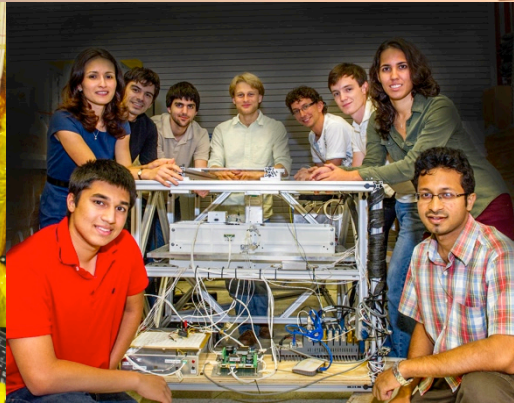
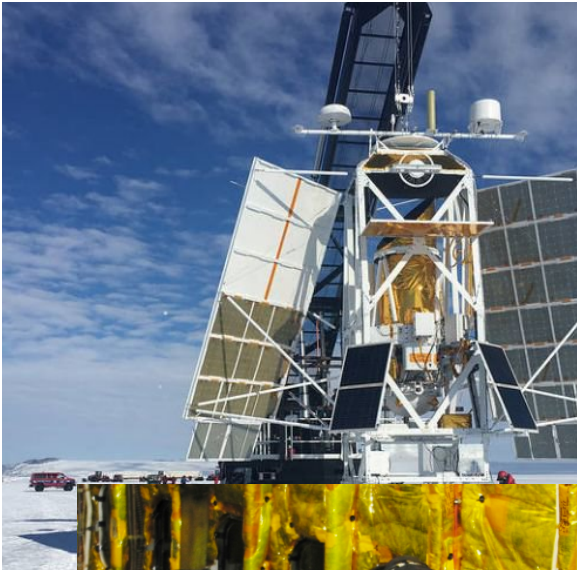
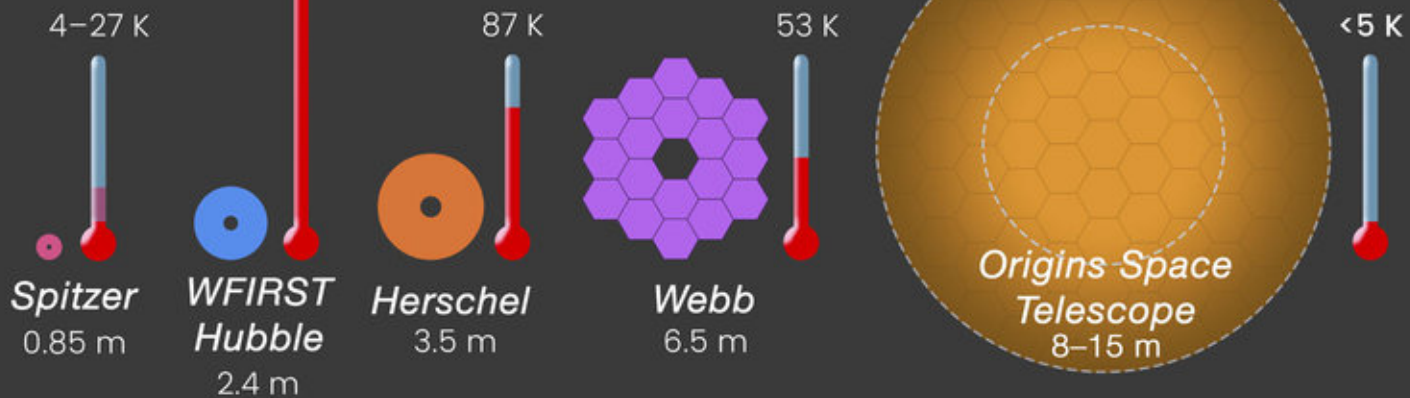


Far Infrared Next Generation Instrumentation Community Workshop

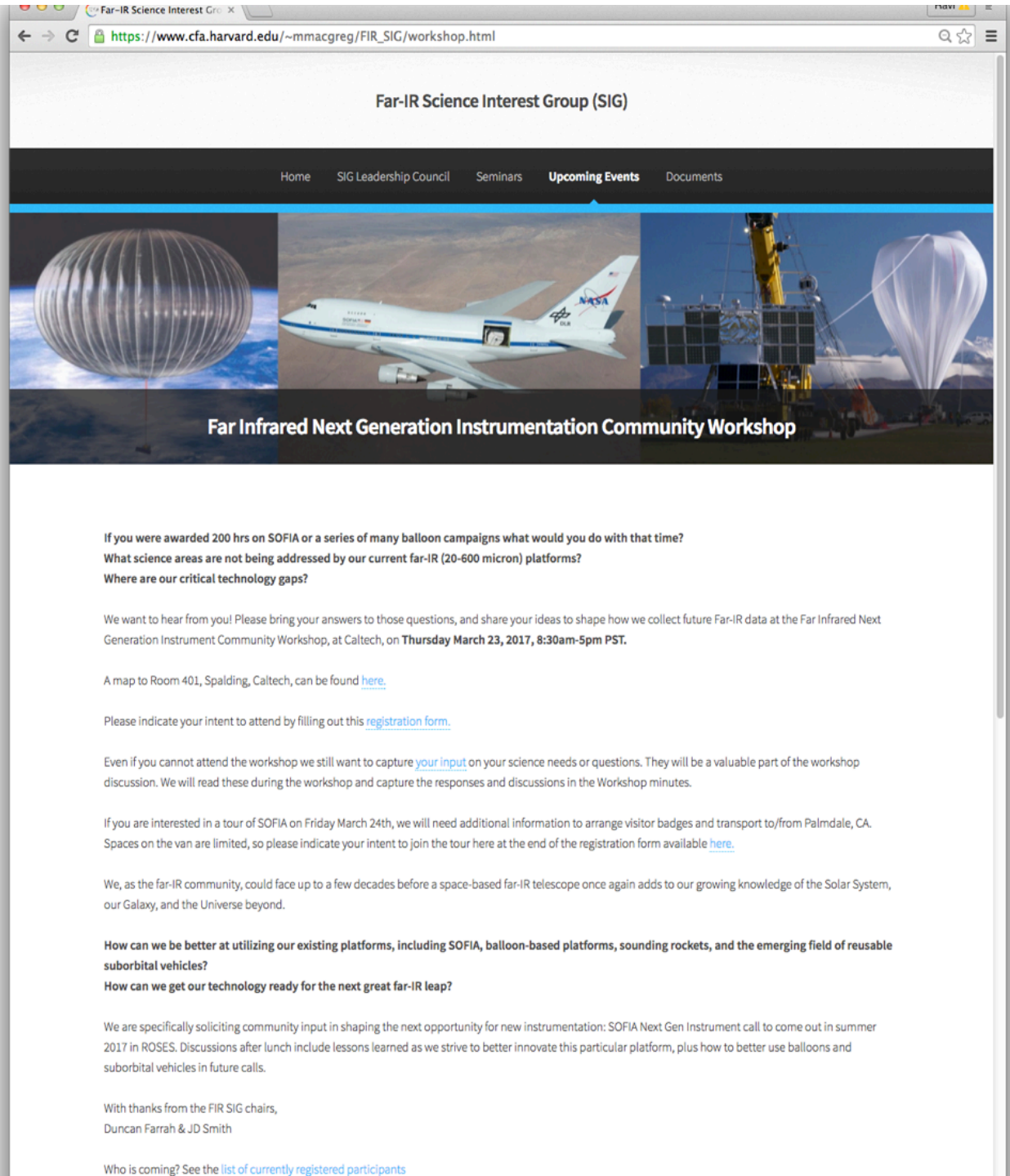


March 23,
2017




Far-IR Science Interest Group

[tinyurl.com/firsig](https://www.cfa.harvard.edu/~mmacgreg/FIR_SIG/workshop.html)



Far-IR Science Interest Group (SIG)

Home SIG Leadership Council Seminars **Upcoming Events** Documents



Far Infrared Next Generation Instrumentation Community Workshop

**If you were awarded 200 hrs on SOFIA or a series of many balloon campaigns what would you do with that time?
What science areas are not being addressed by our current far-IR (20-600 micron) platforms?
Where are our critical technology gaps?**

We want to hear from you! Please bring your answers to those questions, and share your ideas to shape how we collect future Far-IR data at the Far Infrared Next Generation Instrument Community Workshop, at Caltech, on **Thursday March 23, 2017, 8:30am-5pm PST**.

A map to Room 401, Spalding, Caltech, can be found [here](#).

Please indicate your intent to attend by filling out this [registration form](#).

Even if you cannot attend the workshop we still want to capture [your input](#) on your science needs or questions. They will be a valuable part of the workshop discussion. We will read these during the workshop and capture the responses and discussions in the Workshop minutes.

If you are interested in a tour of SOFIA on Friday March 24th, we will need additional information to arrange visitor badges and transport to/from Palmdale, CA. Spaces on the van are limited, so please indicate your intent to join the tour here at the end of the registration form available [here](#).

We, as the far-IR community, could face up to a few decades before a space-based far-IR telescope once again adds to our growing knowledge of the Solar System, our Galaxy, and the Universe beyond.

**How can we be better at utilizing our existing platforms, including SOFIA, balloon-based platforms, sounding rockets, and the emerging field of reusable suborbital vehicles?
How can we get our technology ready for the next great far-IR leap?**

We are specifically soliciting community input in shaping the next opportunity for new instrumentation: SOFIA Next Gen Instrument call to come out in summer 2017 in ROSES. Discussions after lunch include lessons learned as we strive to better innovate this particular platform, plus how to better use balloons and suborbital vehicles in future calls.

With thanks from the FIR SIG chairs,
Duncan Farrah & JD Smith

Who is coming? See the [list of currently registered participants](#)

Thank you

Thank you to FIR SIG for arranging this workshop.

Ravi Sankrit

Duncan Farrah

JD Smith

Meredith MacGregor

Thank you to Sean Carey here at IPAC as local host.

Thank you to Nick Veronico (USRA) and Mike Toberman & Tim Krall (NASA Armstrong) for arranging Friday's SOFIA Tour.

-Kimberly Ennico Smith (wrangler)

Workshop Introduction & Scope

Far Infrared Next Generation Instrumentation Community Workshop
Thu, Mar 23, 8:30 am – 5 pm Pacific Daylight Time, GMT-07:00

When it's time, join the meeting from here:

<https://meetings.webex.com/collabs/meetings/join?uuid=M67H8PVFVOZRD22GYQH0DTX5C0-2NHP>

Access Information

Where: WebEx Online

Meeting number: 198 726 166

Meeting password: This meeting does not require a password.

Audio Connection

+1-855-749-4750 US TOLL FREE

+1-415-655-0001 US TOLL

Access code: 198 726 166

Workshop Introduction & Scope

Please sign the sign-up sheets.

For those on the phone, please mute yourself if you are not speaking.

For input from phone-land, please announce your name before speaking.

Agenda (1/2)

Times (PDT)		
8:30 am	Coffee & Pastries	
9:00 am	Workshop Introduction & Scope	Kimberly Ennico / NASA Ames
9:30 am	What you don't know about SOFIA!	Hal Yorke / SOFIA Science Mission Ops Director
10:00 am	What may balloons be doing next?	Chris Walker / U of Arizona
10:30 am	Coffee Break	
11:00 am	Using multiple platforms for Far-IR technology development	Carl Ferkinhoff / Winona State University
11:30 am	Discussion Introduction & sharing some Lessons Learned	Kimberly Ennico / SOFIA PS
11:45 am	Part 1 – The Future of FIR Instrumentation “What is Needed and What can NASA do?”	Moderator: Paul Goldsmith / JPL
12:15 pm – 1:30 pm	Lunch break	

Agenda (2/2)

Times (PDT)		
12:15 pm – 1:30 pm	Lunch break	
1:30 pm	Part 2 – The Future of FIR Instrumentation What do you want your SOFIA Observatory to achieve next? Upcoming ROSES opportunity Summer 2017	Moderator: Paul Goldsmith / JPL
3:15 pm	Coffee Break	
3:45 pm	Part 3 – The Future of FIR Instrumentation How to shape the future of access above 80,000 ft?	Moderator: Paul Goldsmith / JPL
4:45 pm	Wrap-Up – Take-aways	Kimberly Ennico / NASA Ames /
5:00 pm	Adjourn	

SOFIA Tour, March 24, 2017

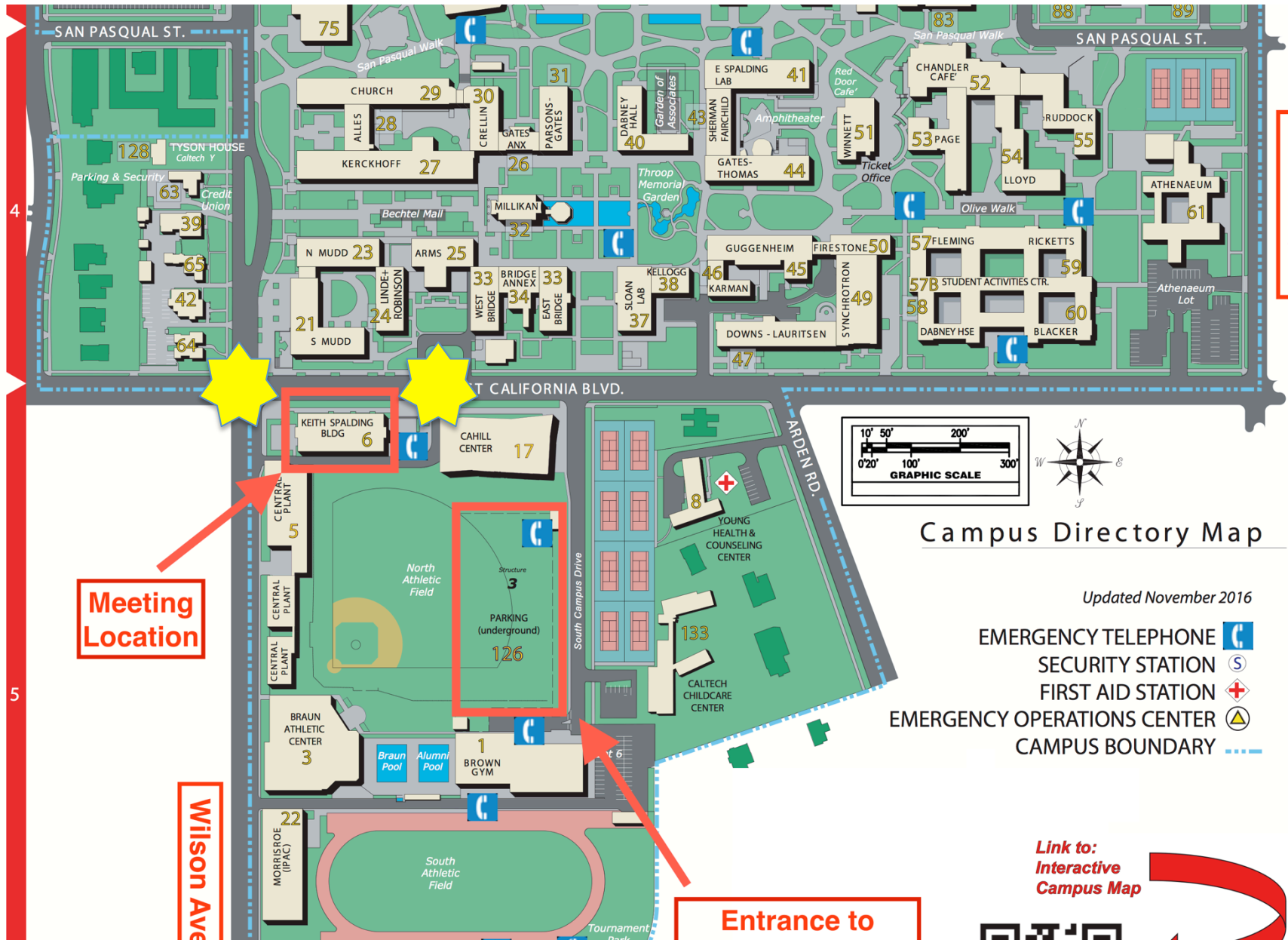
- Depart Caltech 9:15am
 - Bus pick up in front of the Keith Spalding Building on corner of E. California Blvd. and Wilson Ave.
- Depart NASA Bld 703, Palmdale, 12:30pm
 - Water and something salty to snack on for the return trip
- Arrive Caltech, by 2pm

If you still want to go, and are a US citizen, email Nick Veronico
nveronico@sofia.usra.edu

Last Name, First Name, Middle Initial

Date of Birth, City of Birth,
Driver's license state, number,
expiration
by 3pm today!





The bus may park in the 15-minute parking zone between the Spalding Building

Link to:
Interactive
Campus Map

Workshop Introduction & Scope

Please convey your needs, concerns, ideas
on FIR instrumentation

- Continue to use online form
tinyurl.com/FIRNextGen-2017
 - Names and affiliations are not required anymore
- Inputs on sheets
 - Collected before lunch & 3:15pm coffee break to use during afternoon discussion
- Email
 - Ravi Sankrit (FIRSIG) - rsankrit@sofia.usra.edu
 - Kimberly Ennico (OST STDT) - kimberly.ennico@nasa.gov
- Chat window on Webex

Workshop Introduction & Scope

Deliverable (in 2-3 months): Community report on topics, discussions, and recommendations from today's workshop.

What is the Far-Infrared today?

- Originally the emphasis was $20\ \mu\text{m} - 600\ \mu\text{m}$ (15 - 0.5 THz)
- Recognize Origins Space Telescope (OST) wants to cover $\sim 6\ \mu\text{m} - 600\ \mu\text{m}$
- Recognize Band 10 ALMA begins at $\sim 320\ \mu\text{m}$



Seeing Beyond
the Light



Following the rise of dust and metals in galaxies and the path of water across cosmic time to Earth and other habitable planets

Tracing the Signatures of Life and the Ingredients of Habitable Worlds

The Origins Space Telescope will map the trail of water through all stages of star and planet formation and characterize the atmospheres of potentially habitable worlds.



Unveiling the Growth of Black Holes and Galaxies over Cosmic Time

The Origins Space Telescope will reveal powerful starbursts and buried black holes, energetic feedback, and the dynamic interstellar medium from which stars are born.



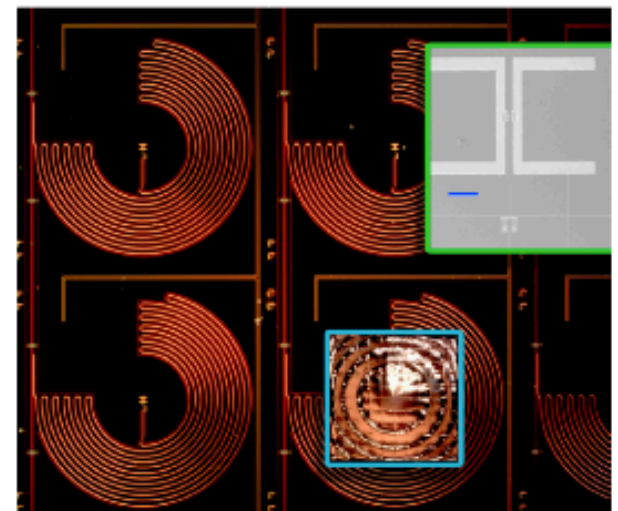
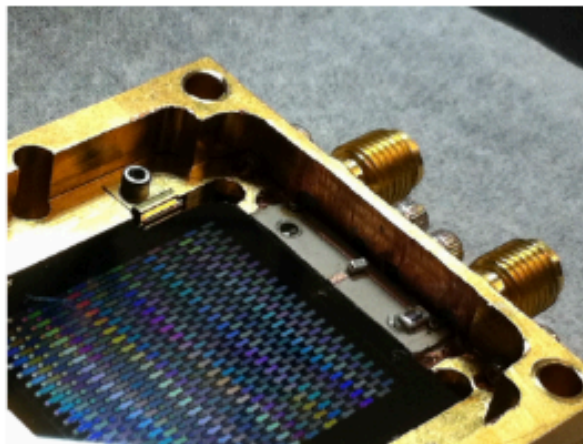
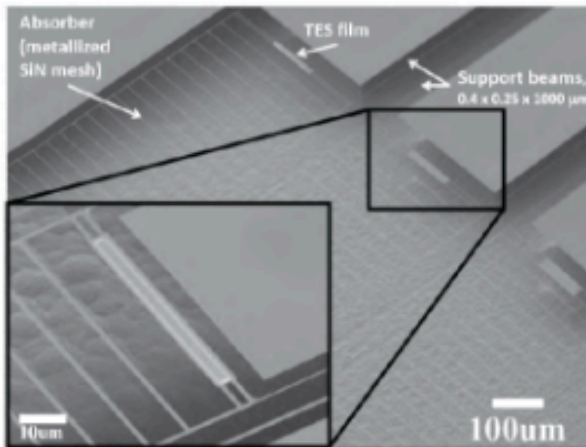
Origins Space Telescope

<https://asd.gsfc.nasa.gov/firs/>

<http://origins.ipac.caltech.edu/>

<http://origins.ipac.caltech.edu/page/technology>

Sensitive Leg-Isolated TES Bolometers



<https://houckworkshop.sciencesconf.org/>

SCIENCE ENABLED BY NOVEL INFRARED INSTRUMENTATION



A workshop to honor the memory of
James R. Houck (1940-2015)

WORKSHOP THEMES

The Spitzer/IRS legacy
Paving the road toward future infrared missions
Future perspectives of infrared spectroscopy
Infrared detector development
Development of key technologies for infrared astronomy

Conference website

houckworkshop.sciencesconf.org

June 25-29, 2017
Cornell University
Ithaca, NY, USA

Workshop Introduction & Scope

- We, as the far-IR community, could face up to a few decades before a space-based far-IR telescope once again adds to our growing knowledge of the Solar System, our Galaxy, and the Universe beyond.
- How can we be better at utilizing our existing platforms, including SOFIA, balloon-based platforms, sounding rockets, and the emerging field of reusable suborbital vehicles?
- How can we get our technology ready for the next great far-IR leap?

Workshop Introduction & Scope

At the end of today, we're looking for an agreement on...

- 3 things you would like to see in the next SOFIA instrument (solicitation is coming out this summer!)
- 3 things you would like to see in FIR technology / instrumentation / instruments on other platforms