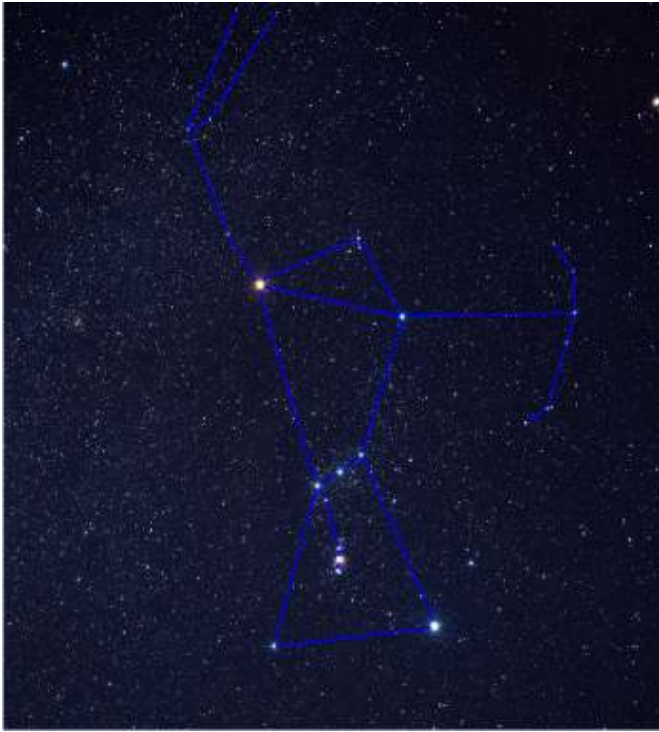


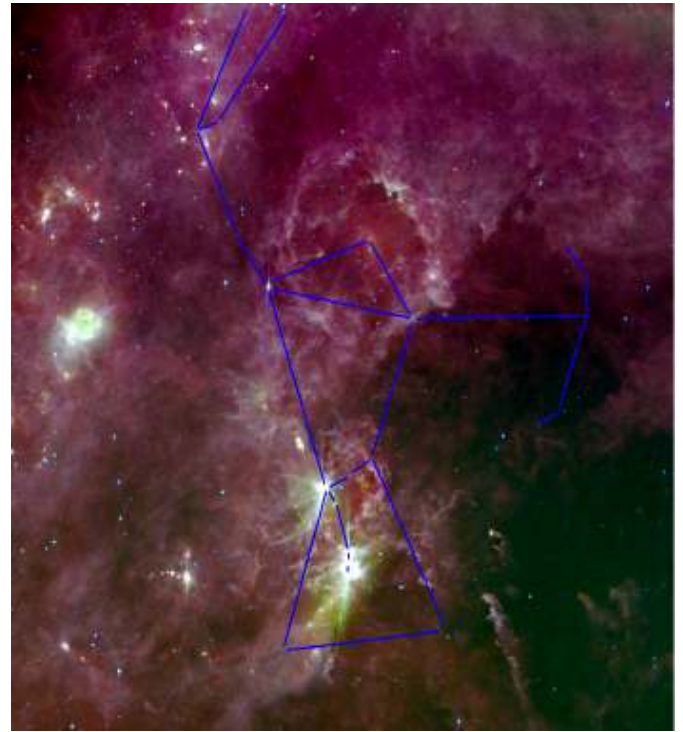
The Charles H. Townes Centennial Celebration Symposium

University of California at Berkeley

Program for Saturday, August 1, and Sunday, August 2, 2015



Visible sky



Infrared Sky

Charles Townes and Infrared Astronomy

After working at Bell Labs, Columbia, and MIT primarily on molecular spectroscopy and quantum electronics, Prof. Townes came to Berkeley in the mid-60's to take on a new line of research: infrared astronomy. He believed that this field could benefit from new and emerging technology and instrumentation, that the infrared sky could reveal new and exciting insights into the universe. The pictures of the constellation Orion above—created by NASA's IRAS satellite with even newer technologies—illustrate the appeal of piercing the clouds of this relatively unexplored wavelength.

The bright star in Orion's shoulder is Betelgeuse (Alpha Orionis) and the bright object in the sword hanging from the belt is the Orion nebula, both of which were much studied by Prof. Townes and his colleagues. The abstract of a talk to be presented in this Symposium by Peter Tuthill entitled "Still Rising: The story of Luminous Giants" captures the importance of these observations both scientifically and metaphorically:

Interest in the red giant stars studied by the Berkeley Infrared Spatial Interferometer over the last couple of decades has continued to build, fascinating new generations of astrophysicists. As the spectacular last stage in the lives of most stars, this relatively ephemeral phase has profound implications that reach into the evolution of galaxies as well as the origins of planets and life--most of the matter in our bodies can be traced to red giant winds. This talk will outline recent results from imaging following the trail blazed by the ISI, although the talk title might well apply to Charles Townes himself: a giant of the intellect whose impact is still ascendant.

Saturday Program Schedule

The Scientific Legacy of Charles Townes

Moderator: Paul Goldsmith

Saturday, 9:00 AM – 12:00N with 15 minute break

LeConte Lecture Hall 1

Steve Boggs	Physics Dept. Chair's opening remarks
Fred Johnson	Columbia: spectroscopy
Elsa Garmire	MIT: nonlinear optics
Tom Geballe	Berkeley1: ground-based radio and mid-infrared astronomy
John Storey	Berkeley2: airborne astronomy
Ed Wishnow	Berkeley3: interferometry
Arno Penzias	Charles Townes as catalyst

Lunch: 12 N-1:30PM (registered attendees only)

6th Floor, New Campbell Hall

The Student Legacy I: Diverse Paths

LeConte Lecture Hall 1

1:30 PM – 5 PM with 15 minute break

Posters

Manfred Bester	SSL spacecraft tracking and operation
John Lugten	National Ignition Facility (NIF) and inertial confinement
Sara Beck	Infrared spectra of galaxies from the 1970's to the present

Oral Presentations (12 minutes for presentation plus 5 minutes for discussion)

Robert Boyd	Photonics
Aniruda Das	Neurobiology
Andy Harris	Wideband spectroscopy (including an ISI Project)
Everett Lipman	Using lasers to examine the molecular machinery of life
Demitrios Matsakis	USNO timekeeping
Ashley Karp (Chandler)	JPL rocketry
Howard Smith	Developments in the science and religion dialog today

Video clip

Taran Singh	Trailer for full length video, "Unturned Stones"
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Reception 5-6:30PM (registered attendees only)

375 LeConte Hall

Banquet: 7-10PM (registered attendees only)

Bancroft Hotel, 2680 Bancroft Way, Berkeley, CA 94704

Sunday Program Schedule

The Student Legacy II: Recent Astronomical Results

Moderator: Ed Wishnow

9:00 AM – 12:00 PM with 15 minute break

LeConte Lecture Hall 1

Oral Presentations (10 minutes for presentation plus 5 minutes for discussion)

Howard Smith	The evolution of luminous galaxies
John Lacy	[NeII] observations of the Galactic Center – still interesting?
Reinhard Genzel	The quest for the massive black hole in the Galactic Center, and why Charlie knew it all along
Tom Geballe	Adventures with H_3^+
Paul Goldsmith	Can you breathe in space?
Neal Evans	Yes, stars DO form by gravitational collapse
Bill Danchi	Exoplanet habitability: debris disks with LBTI
Dan Watson	Evolution of protoplanetary disks
John Monnier	Optical comb technologies and IR interferometry
Peter Tuthill	Still Rising: The story of Luminous Giants
John Storey	Antarctic astronomy

Symposium organizing committee:

- Paul Goldsmith, Chair (Jet Propulsion Lab, Pasadena, CA)
- Robert Boyd (Univ of Rochester and Univ of Ottawa)
- Reinhard Genzel (UC Berkeley and Max Planck Institute-Garching)
- Tom Geballe (Gemini Obs, Hilo, Hawaii)
- John Storey (Univ of New South Wales)
- Everett Lipman (UC Santa Barbara)
- Ed Wishnow (UC Berkeley/SSL)
- Walt Fitelson (UC Berkeley/SSL)



The three telescope Infrared Spatial Interferometer (ISI) currently located at Mt. Wilson, CA. This was the main astrophysics research effort of Prof. Townes for the last 25 years of his life.