

# SOFIA

## Science e-Newsletter



July 2018

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### Update to Call for Proposals

The SOFIA Call for proposals was released on June 1, 2018, and the formal update was released on July 23, 2018. In addition to the regular Call for Proposals, Cycle 7 will host a second call to premiere the SOFIA Legacy Program to enable programs spanning two cycles. A total of 500 hours of observing time and \$5 million of funding is offered between the two calls.

Significantly, the update to the Call for Proposals includes adjustments to the Reserved Observation Catalogs (ROCs) for the German Receiver for Astronomy at Terahertz Frequencies (GREAT), the Far Infrared Field-Imaging Line Spectrometer (FIFI-LS), and High-resolution Airborne Wideband Camera-plus (HAWC+). Those planning to submit proposals for Cycle 7 should compare their intended targets with the ROCs and the Data Cycle System (DCS) Science Archive to make sure there is no conflict.

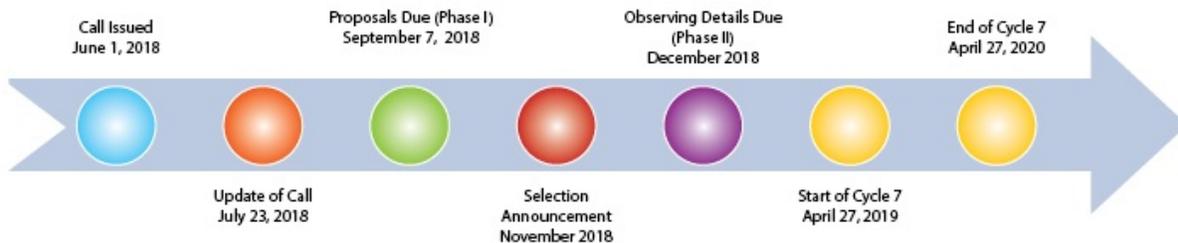
[Call for Proposals](#)

[SOFIA Legacy Call for Proposals](#)

[Proposal Resources](#)

[DCS Science Archive](#)

[Download the latest USPOT \(v3.5.4\)](#)



### Last but not Least: Final SOFIA Community Day of 2018

The last opportunity for in-person assistance with developing proposals for Cycle 7 will be Friday, August 3, 2018 at the National Optical Astronomy



Observatory in Tucson, Arizona. In addition to SOFIA science highlights, the workshop will cover the observatory's capabilities and proposal preparation. Registration is free, and those with SOFIA-related research are invited to give a short presentation during the workshop.

For those unable to attend in person, this workshop will also be accessible remotely via the online video conferencing platform, BlueJeans. Access credentials for BlueJeans will be provided on the Community Days webpage. Additionally, the presentation slides are also available for view/download on the Community Days webpage.

[Registration for Community Day Workshop at NOAO Community Days webpage](#)

## From Gas to Stars and Back Again

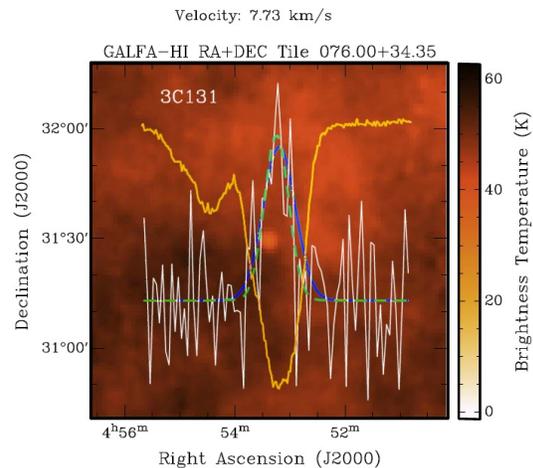
A potential evolutionary cycle between diffuse molecular clouds in the interstellar medium and stars has been under investigation in recent years. The process begins with transformations of largely atomic, low-density clouds into dense molecular clouds, where star formation takes place. Determining this rate of transformation could be critical to understanding the overall star formation rate in galaxies. Led by Paul Goldsmith, this study was able to provide new

information on the structure of, and future evolution of, atomic, low-density clouds by utilizing high spectral resolution spectroscopic observations of the [CII] fine structure line toward four quasars with GREAT's seven-beam array, upGREAT, along with preexisting *Planck* data on dust emission, and Arecibo data on HI absorption.

"We were able to determine the thermal pressure in these clouds, which is a key parameter for their evolution and gives us information about the structure of the interstellar medium," explains Goldsmith. "We also confirmed that the dominant heating mechanism is photoelectric, even when the enhanced cosmic ray ionization rates we found in the outer portions of the clouds are considered." Future observations are required to truly unveil whether an evolutionary cycle exists between diffuse atomic clouds, molecular clouds, and stars, but this research conducted with GREAT is yet another stepping stone on the path to finding out.

Velocity Resolved [C II] Emission from Cold Diffuse Clouds in the Interstellar Medium  
Goldsmith, Paul F., et al., 2018, *ApJ*, 856, 96.

[Read the paper here](#)



Executive Editor: Joan Schmelz  
Content: Raquel Destefano  
Design: Leslie Proudfit

Please feel free to direct questions and comments to the SOFIA Science Center help desk: [sofia\\_help@sofia.usra.edu](mailto:sofia_help@sofia.usra.edu).

