

**Dear Colleague Letter to Solicit Nominations
for the
Technology and Science Working Group (TSWG)
of the
Starshade Science and Industry Partnership**

February 26, 2019

Dear Colleague,

Starshades (or External Occulters) are one of the starlight suppression technologies for high contrast imaging of exoplanets and are baselined for large- and probe-class mission concept studies¹ funded by the NASA Astrophysics Division for submission to the Astro2020 Decadal Survey. Recently the Astrophysics Division authorized the Exoplanet Exploration Program (ExEP) to execute a directed development activity to advance starshade technology to Technology Readiness Level (TRL) 5 in order to enable potential future exoplanet science missions. The Starshade Technology Development Activity to TRL5, or S5, follows an approved Technology Development Plan² with technology milestones that respond to documented mission performance requirements. The ExEP recognizes that robust and impactful technology maturation requires ongoing consideration of new technology approaches and new mission concept drivers. Therefore the ExEP charters a Starshade Science and Industry Partnership (SIP)³ of which a key element is a Technology and Science Working Group (TSWG). The purpose of the TSWG is to encourage participation in the starshade technology development.

In this letter, the ExEP is soliciting applications from interested individuals in the community for participation as members of the Starshade TSWG. The TSWG will:

1. Identify solutions to challenges faced by the S5 development activity;
2. Propose new approaches, techniques, and research beyond planned S5 activities that can maximize starshade technology readiness;
3. Document new mission concept drivers for starshade technology performance requirements;
4. Maintain alignment between S5 technology development activities and future mission needs;
5. Facilitate groups of investigators to communicate research, new technology, and new mission concepts across disciplinary, organizational, and geographic boundaries;
6. Document findings in an annual Starshade SIP report to the NASA Astrophysics Division.

¹ <https://science.nasa.gov/astrophysics/2020-decadal-survey-planning>

² <https://exoplanets.nasa.gov/exep/technology/starshade/>

³ https://exoplanets.nasa.gov/internal_resources/1035

Nominations for the TSWG memberships are due to ExEP no later than April 12, 2019. Only email applications of a single PDF file will be accepted. Self-nomination is welcomed. Please submit your application via email to the ExEP Starshade Scientist Dr. Renyu Hu (renyu.hu@jpl.nasa.gov).

The application material should consist of:

- A one or two-page cover letter including the reasons for the nominee's interest in the TSWG and the capabilities and experience that the nominee brings to the TSWG; and
- A one or two-page resume including relevant activities and publications.

Nominations are solicited from individuals at research and academic institutions, Government and Government laboratories, industry, and from private individuals with research, technology, or science capabilities and contributions in starshade-related technology. Approximately eight TSWG members will be selected so that the TSWG will have broad expertise in relevant science and technology areas. TSWG members must be US citizens or Legal Permanent Residents. The ExEP Program Scientist, Dr. Douglas Hudgins, Astrophysics Division, NASA Headquarters, will appoint the members of the TSWG. The TSWG Chair will be appointed from the TSWG membership.

TSWG members are expected to participate in biannual, in-person Starshade forum and in bimonthly telecons. The TSWG will self-organize and report to Dr. Renyu Hu, the ExEP Scientist for Starshade Technology, and to Gary Blackwood, the ExEP Program Manager and management lead for the Starshade SIP. The Starshade SIP is an element of the S5 Activity that the NASA Exoplanet Exploration Program Office manages for the NASA Astrophysics Division.

Participants of the forums will also include S5 technical staff, delegates of industry and of small businesses. The forums will be open to the community at large. Export-controlled topics, if any, will be covered in a separate forum. The first forum will be held in July 2019. Travel expenses to the forums will be reimbursed to TSWG members. To maximize participation, the TSWG will be asked to select up to four graduate students and/or post-docs to attend and present at each forum, and travel expenses will be reimbursed for these students. The TSWG will conclude in December 2020 and may be renewed pending the outcome of the Astro2020 Decadal Survey.

NASA reserves the right to cancel the "Dear Colleague Letter" at any time should programmatic and/or other reasons warrant it. Questions about the TSWG may be addressed to the ExEP Starshade Scientist Dr. Renyu Hu (renyu.hu@jpl.nasa.gov).

Dr. Douglas Hudgins
Program Scientist, NASA Exoplanet Exploration Program
Astrophysics Division, NASA Headquarters