Precursor Science Calls in Support of GOMAP: ROSES22 – D.16 & D.18

Science investigations that will reduce future Great Observatory mission risk and inform mission designs and trades when those activities begin. All three Great Observatory concepts identified in the Astro2020

Precursor Science

- The Astrophysics Decadal Survey Precursor Science (ADSPS) program supports research in areas related to the recommendations from the National Academy of Science and Engineering report, "Pathways to Discovery in Astronomy and Astrophysics for the 2020s" for 1) a Habitable Worlds Observatory (HWO), 2) a large Far Infrared mission, and 3) a large X-ray mission.

- Research proposals to ADSPS should describe how scientific progress in the areas being investigated will either reduce the design and development risk for one or more of these future large missions or help to define the requirements such missions must meet to enable transformative discoveries.

Precursor Science Workshops

Proposers to this program element are encouraged to read the reports from the Precursor Science Workshops including the science gaps worksheets

https://exoplanets.nasa.gov/exep/astro2020-precursor-sciws2-roses-call/

to gage the relevance of their research to the closing of community-identified science gaps important for future great observatory definition.

Radial Velocity and Precursor Science

NASA has recently issued two solicitations:

- **Astrophysics Decadal Survey Precursor Science** (ADSPS; ROSES 2022, Appendix D.16) - supports research that addresses the critical precursor science data needs of the future Great Observatories described by Astro2020. (NOI: 20-Jan-2023, proposals due: 24-Mar-2023)
- **Extreme Precision Radial Velocity Foundation Science** (EPRV; ROSES 2022, Appendix D.18) - supports the development of the future HWO by promoting research to advance EPRV measurement precisions to the ~1 cm/s level required to detect potentially habitable, Earth-sized rocky planets orbiting sunlike stars in the solar neighborhood. (NOI: 16-Feb-2023, proposals due: 26-Apr-2023)
- Both solicitations can be accessed through the ROSES 2022 Table of Solicited Research Programs at https://solicitation.nasaprs.com/ROSES2022table3.

Radial Velocity

Extreme Precision Radial Velocity (EPRV) measurements represent an important tool for ongoing exoplanet science research, and for addressing the precursor science needs of the Habitable Worlds Observatory (HWO).

In recognition of the key role that improvements in EPRV capabilities will play in preparing for HWO, NASA has recently issued the two independent solicitations.

Radial Velocity and Precursor Science

For investigators who wish to propose science involving EPRV measurements:

- Investigations that have the primary goal of advancing the state-of-the-art in EPRV measurement precisions should be proposed to EPRV 2022;
- Investigations that use EPRV to meet the critical data needs of the future HWO as documented in the precursor science gap list (https://exoplanets.nasa.gov/exep/astro2020-precursor-sciws2-roses-call/) should be proposed to ADSPS 2022;
- Investigations with the general goal of advancing our understanding of exoplanets and exoplanetary systems without specific application to the future HWO mission should be proposed to the Exoplanets Research Program (XRP; next cycle solicited under ROSES 2023).
- Proposals to any of the above programs must meet all requirements described in the respective solicitations. Prospective proposers are strongly encouraged to read the call for proposals carefully and should contact the cognizant program officer with any questions.

IF you do not plan on being a PI or a CoI on proposals, please consider volunteering to be member of the review panel.

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