

**Headquarters**

Washington, DC 20546-0001



November 8, 2019

SMD/Director, Astrophysics Division

TO: Prof. Fiona Harrison, Co-Chair Astro2020 Decadal Survey  
Prof. Robert Kennicutt, Co-Chair Astro2020 Decadal Survey

RE: NASA assessment of probe concept studies

To prepare the community for the 2020 Astrophysics Decadal Survey, in 2015 NASA initiated 10 mission concept studies for missions in the cost range \$400M-\$1B, a.k.a. Probes.

The NASA-funded Probe studies, selected competitively and PI-led, typically lasted 18 months and received modest funding, including a single run at a Center design lab.

The NASA-funded Probe study teams submitted their final reports to NASA on March 4, 2019. These are archived at <https://science.nasa.gov/astrophysics/2020-decadal-survey-planning>.

To assess concept feasibility and cost fidelity, NASA assembled a group of subject matter experts from the community, the Probes Cost Assessment Team (PCAT).

The PCAT was tasked with two principal objectives:

- Assess the likelihood that a mission concept could be achieved within the \$1B mark set by NASA.
- Assess whether the JPL-led and GSFC-led costing approaches were reasonably in agreement.

Enclosed with this memorandum is the Final Report of Probes Cost Assessment Team.

The Probe concept studies funded by NASA are not the only Probe concepts that are being presented to the Astro2020 Decadal Survey. NASA does not assert that it funded studies of the “best” Probe concepts. Rather, NASA funded the best written proposals for Probe concept study funding. I encourage Astro2020 to seriously consider Probe concepts that did not receive NASA funding.

Please contact me if you have any questions about this Report.

A handwritten signature in blue ink, appearing to read "P. Hertz".

Paul Hertz  
Director, Astrophysics Division  
Science Mission Directorate