Canada-France-Hawai'i Telescope Corporation
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Associate Partnerships in the Canada-France-Hawai'i Telescope
and
Collaboration on MSE-Pathfinder and/or MSE-Design Study

Please respond by May 1, 2023

Kamuela, Hawai'i
March 17, 2023

Dear Valued Colleague,

The Canada-France-Hawai'i Telescope (CFHT) invites expressions of interest in collaboration in one of two ways. First, we invite participation in our Associate Partnership Program. See Annex 1 for an overview of CFHT's technical and scientific capabilities available to our associate partners.

Second, we invite you to respond to the Call for Letters of Interest to participate in the development of the Maunakea Spectroscopic Explorer (MSE) through either the:

- Design and Fabrication of an MSE-Pathfinder Instrument for CFHT (Annex 2)
- Design of the Maunakea Spectroscopic Explorer (MSE) (Annex 3)

Annex 2 contains scientific and technical information regarding a baseline design concept for a new CFHT instrument, Pathfinder. Annex 3 contains technical information on the MSE-Design Study. Lastly, Annex 4 describes the framework applicable to CFHT/MSE contracts. The full call is available on this CFHT webpage.

For the initiatives above, CFHT/MSE seeks in-kind contributions of engineering and project management expertise, instrument hardware, and/or financial contributions.

1. Context

Located on the Maunakea summit, the Canada-France-Hawai'i Telescope is a 3.6-meter observatory hosting a unique suite of world-class instruments described in Annex 1. In collaboration with the international science community and with the local indigenous community, CFHT is committed to developing MSE, a massively-multiplexed spectroscopic survey machine. We envision MSE to be a model of community-based science and engineering, firmly aligned with and incorporating the traditional and cultural values of Native Hawaiians. We anticipate construction of MSE to occur during the 2030s, with science operations beginning at the end of that decade, consistent with the timeline envisioned for a massively multiplexed spectroscopy facility in the *Pathways to Discovery in Astronomy and Astrophysics for the 2020s* (Astro2020) report.

In pursuit of transforming the existing CFHT facility into the MSE observatory, we seek to broaden our global community of institutions and researchers, establishing a new foundation for the MSE partnership with a call to participate in the design phase of MSE. Furthermore, we invite those interested in using our current suite of instruments to join CFHT as Associate Partners.

As a precursor to MSE, we seek to develop a new instrument, Pathfinder, as an intermediate step in our transformation. Pathfinder will also address some of the Astro2020 scientific priorities in the areas of time domain, galactic archaeology/evolution, cosmology, and the high-energy sky. We expect full operation of the Pathfinder instrument to begin no later than 2030 with three to four years of operation prior to the beginning of construction for MSE. Pathfinder is anticipated to be utilized for at least 50% of CFHT's observing time, allowing partners to conduct competitive surveys and large programs. Some Pathfinder instrument modes could begin operations as early as 2028.

Under Hawaiian law, a new authority, the Mauna Kea Stewardship and Oversight Authority, will take over management of Maunakea in 2028. CFHT is committed to supporting and respecting this process, which we anticipate will lead to new leases for existing and new facilities at the top of Maunakea. The new process guides our development timeline for MSE and the Pathfinder instrument.

2. Purpose

The purpose of this call is to identify institutes/organizations interested in participating in the above opportunities.

Those interested in exploring associate partnership in CFHT, or in partnering on the Pathfinder and/or MSE project development, should submit a letter of interest to Jean-Gabriel Cuby, CFHT Executive Director, at cuby@cfht.hawaii.edu. Additional information and discussions will proceed with interested parties beginning in May 2023.

Sincerely,

Jean-Gabriel Cuby