ngCFHT in the Context of the Mauna Kea Observatories
Dear Search Committee,

Through this letter I would like to apply for the position of CFHT Director. Attached you will find a copy of my CV and names of 4 references. Below you will find a summary of some of the challenges and opportunities I foresee at CFHT and how, given my background, I believe I can effectively engage them as CFHT Director.

Driven by community desires for ever more powerful capabilities to conduct research, and tempered by the realities of global budget challenges most countries now face, the next decade will be a time of change across astronomy. Observatories that identify opportunities within that sea of change and adapt to exploit them, will thrive in this environment. Those that struggle to remain the same, will suffer.

I also note the interesting prospect of possibly replacing CFHT with a 10 m class segmented telescope feeding a WFMOS. As a champion for Gemini’s WFMOS project and member of the original team that built the Gemini telescopes, I am very familiar with the extraordinary science opportunity and technical challenges associated with such a project. It represents an innovative evolution of a facility that in one form or another has always been “best in class” and, if supported at the funding agency level, I would gladly offer my expertise to the support of such a project.
CFHT's “Global” and “Local” Future
CFHT as a Nexus of Collaboration Across Mauna Kea
Announcement of Opportunity (AO) for operation of UKIRT released last year
- Facility available at “no cost” but new owner must provide operating funds
- STFC will provide new owner with check to cover deconstruction costs

CFHT submitted an Expression of Interest in response to this AO
- No commitments made – a means of getting a “seat at the table” in the discussion of UKIRT’s future that could benefit CFHT

Currently exploring the possibility of China joining CFHT Corp., the additional funding being used to cover the cost of operating UKIRT, leading to the availability of a pair of 4 m on the upper ridge of Mauna Kea to our international community...
An Expanded CFHT Partnership Gains...

- This is all in an exploratory phase and may not come to fruition – nonetheless, for the purposes of this Workshop, it is important to realize we are exploring possibilities for collaborative operation and development of Mauna Kea facilities that will advance ngCFHT.
- Additional corporate partner, increasing stability, capabilities, and broadening our scientific user base.
- Availability of UKIRT while CFHT is transformed into ngCFHT, providing our community with 4 m access on continual basis.
- Long term UKIRT would provide imaging capability while ngCFHT provides wide field spectroscopy – a powerful combination.
- Brings us one partner closer to ngCFHT.
- Important step in the effort to find innovative ways to increase collaborative operations and development across the Mauna Kea Observatories.
Important Future Steps

We need to open a ngCFHT Project Office in Waimea
Important Future Steps

We need to enroll additional partners...

Contact me if you would like to discuss joining our growing partnership at your home institution.
Important Future Steps

We need to engage the Big Island community through public outreach...
Important Future Steps

We need to sustain science community input and increase the visibility of this project...
Steps Toward the Next Generation CFHT

Gregory G. Fahlman

Canada-France-Hawaii Telescope Corporation, P. O. Box 1597, Kamuela, HI 96743

Abstract. The 3.6-m Canada-France-Hawaii Telescope was started as a project in 1974 and saw first light in 1979. It was the first international project to commit to a location on the summit of Mauna Kea and, from the outset, was dedicated to the best exploitation of its superb site. The context in which CFHT operates has changed with the presence of four 8-m-class telescopes on the Mauna Kea summit. The CFHT site can easily accommodate a larger aperture facility and the recent designation of our site by the University of Hawaii as one that may be “recycled” has opened the real possibility of constructing an ngCFHT. Here I will describe the progress toward this end.
ngCFHT Initiative

~35 Years of Canada-France-Hawaii Telescope

Letter to Director Search Committee

JAC Announcement of Opportunity

CFHT Submits Letter of Interest

China Join CFHT?

ngCFHT Workshop

CFHT Users' Meeting

CFHT 2013 Users' Meeting
Yes, and with each step taken, we will see further, identify more opportunities, seize those that take us in the right direction, and build forward...

“Can we really do this – build ngCFHT?”

Important near-term steps include -

- Community support
- Additional partners
- Better definition of project costs, technical approach, risks, schedule, etc. through ngCFHT-PO
- Local outreach
- Board/Agency level endorsement
What’s Left to Present?

Kei Szeto
Facility Design

Rodrigo Ibata
Stellar Populations

SuMIRe
Hitoshi Murayama
Currently exploring the possibility of China joining CFHT Corp., the additional funding being used to cover the cost of operating UKIRT, leading to the availability of a pair of 4 m on the upper ridge of Mauna Kea to our international community...

Dear Gary,

Through this letter and in response to your recent UKIRT Prospectus I would like to convey interest on the part of CFHT in exploring the possibility of deploying SPIRou, our 1-2.5 μm high-resolution fiber-fed spectrometer, on UKIRT. SPIRou is optimized for spectro-polarimetric and radial velocity measurements approaching 1 m/s. It is being designed by a fairly large distributed team including IRAF/OMP (Toulouse), IPAG (Grenoble), LAM/OMP (Marseille), Observatoire de Genève (Switzerland), UdM (Canada), ULaval (Canada), HIA (Canada), ASIAA (Taiwan), and CFHT (Hawaii). The principal science objectives of SPIRou include mapping the magnetic environments of young, embedded stars, and detecting significant numbers of terrestrial class exo-planets in the habitable zones of their low-mass host stars.

The principal scientific motivation for this proposal is to expand the scope of the exo-planet survey envisioned for SPIRou on CFHT by dedicating it to UKIRT where, in principle, SPIRou could be used to support a multi-year NIR search for terrestrial class planets orbiting low mass stars. This concept is akin to the dedicated deployment of HARPS on the NTT but of course SPIRou operates at NIR wavelengths and we expect its sensitivity to low mass exo-planets to be even greater. Since the instrument is fiber-fed, reconfiguring the front-end optics of SPIRou to be compatible with UKIRT’s secondary mirror beam feed should be achievable. Furthermore, since the combination of CFHT and SPIRou is envisioned to be fully remotely operable from Waimaka, and UKIRT is remotely operated now from Hilo, adapting SPIRou to be remotely operated at UKIRT should pose a major challenge.

If you are interested in pursuing this concept, several important details need to be pointed out –

1. SPIRou has just completed its PDR and a decision to go forward with building the instrument is before the CFHT Board which meets 10-13 December 2012. Obviously if the SPIRou development project does not go forward, this proposal is no longer offered.
2. CFHT is unable to provide any financial support for the operation and maintenance of UKIRT. I am proposing a major in-kind contribution (SPIRou) as a catalyst for organizing a partnership that might be interested in the sort of scientific collaboration proposed here.
3. If CFHT is to operate UKIRT as part of this arrangement, all associated costs would have to be borne by other partners in this collaboration.

Any agreement consistent with the broad terms I have outlined above is of course subject to terms and conditions that would need to be negotiated and ultimately approved by the CFHT Board. At
Recent ngCFHT Development as We Seek Partners...

- Technical studies completed thus far -
  - Load capacity studies of telescope and enclosure piers
  - Telescope and enclosure configuration studies
  - Aero-thermal study
  - Telescope optical designs
  - Spectrograph conceptual designs
  - Telescope downtime study (deconstruction and construction)
  - Valuation study of existing infrastructure
  - Cost, schedule and development plan

- Science case has been developed in considerable detail by an international team of ~60 scientists from a dozen countries -
  - Exoplanets
  - ISM
  - Stars and Stellar Astrophysics
  - Milky Way Structure and Stellar Populations
  - Local Group
  - Nearby Galaxies/Clusters
  - Galaxy Evolution
  - Intergalactic Medium
  - QSO’s and AGNs
  - Cosmology and Dark Energy

The growing ngCFHT consortium seeks scientific and technical collaboration and partnership with similar facilities worldwide as we explore the possibility of pursuing this future for CFHT through various 2013 meetings...
Important Near Term Steps

- Additional Partners
- Open ngCFHT Project Office in Waimea
- Local Outreach
Contact me if you would like to discuss joining our growing partnership at your home institution.
Graphics needed – stork, UA FF card with wings, pyramid, photo of science fair, Chi-hung photo, ASIAA logo, UKIRT logo, science case graphics, feasibility study graphics (things I won't talk about), map of asia showing recent stops,
Steps Toward the Next Generation CFHT

Gregory G. Fahlman

Canada-France-Hawaii Telescope Corporation, P. O. Box 1597, Kamuela, HI 96743

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Begin by pointing out everything I’m not going to talk about

Intent is to convey a unique and relevant message to the ~100 participants in the workshop who have flown into Hilo from all over the world

Will attempt to answer the basic question, how are we really going to pull this off...