

2 January 2012

Prof Takaaki Kajita
Director of the Institute for Cosmic Ray Research,
The University of Tokyo.

Dear Professor Kajita,

As UK Principal Investigator for GEO 600, I am writing to express my congratulations to yourself and to the scientists and funding agencies in Japan for the start of construction of the Large-scale Gravitational-wave Telescope LCGT in the Kamioka mine.

The detection of gravitational waves from violent astrophysical systems in our Universe is one of the most challenging problems in experimental astro-physics and is of the highest potential return. It promises the opening up of a new field of astronomy – looking at the interactions of black holes and neutron stars in a way not possible with conventional optical, radio or other electromagnetic observations.

The development of gravitational wave detectors has been in progress for the past forty years but it is only with the recent building of long baseline laser interferometers in Japan, the USA and Europe that limiting noise sources have been reduced to a level – equivalent to the detection of movements close to one millionth of the diameter of an atomic nucleus of masses several km apart - where detection is a real possibility.

In reality however, to have a high probability of detecting signals and thus to bring about the opening of gravitational wave astronomy – where gravitational wave signals can be fully characterized in terms of polarisation, direction and source distance - requires more sensitive instruments and a network of such instruments to be strategically placed about the globe.

Advanced versions of LIGO (USA), Virgo (Europe) and GEO 600 (Europe) are now fully funded for operation on the post 2014 timeframe, and the addition of a detector in Japan of equivalent or better sensitivity is a major advance as it will significantly enhance the potential for a discovery and place Japan at the forefront of the field. The directional sensitivity of this array of gravitational wave detectors will provide a true global observatory.

The Japanese gravitational wave groups have made major fundamental and fruitful contributions to global interferometer research with the development and operation of the TAMA 300 detector, and are leading the research field with the studies of the underground cryogenic interferometer prototype, CLIO, and now with developments for LCGT.

Professor James Hough
FRS, FRSE, FInstP, FAPS, FRAS
Chief Executive Scottish Universities Physics Alliance
(SUPA)

Institute for Gravitational Research
School of Physics & Astronomy, Kelvin Building, Glasgow
G12 8QQ

Tel: +44 (0)141 330 4706
6833

Fax: +44 (0)141 330

Email: james.hough@glasgow.ac.uk

I wish to take the opportunity to congratulate all the scientists involved in the Japanese gravitational wave research groups for their outstanding research over the years and for their major efforts in achieving the commencement of construction of LCGT which will be the centre for gravitational wave research in Asia.

Yours sincerely,

A handwritten signature in black ink that reads "James Hough". The signature is written in a cursive style with a large, prominent 'J' and 'H'.

James Hough

Professor James Hough
FRS, FRSE, FInstP, FAPS, FRAS
Chief Executive Scottish Universities Physics Alliance
(SUPA)

Institute for Gravitational Research
School of Physics & Astronomy, Kelvin Building, Glasgow
G12 8QQ

Tel: +44 (0)141 330 4706
6833

Fax: +44 (0)141 330

Email: james.hough@glasgow.ac.uk