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The Isaac Newton Group of Telescopes

The Isaac Newton Group of Telescopes is an establishment of the Particle Physics and Astronomy Research Council of the UK and the Nederlandse Organisatie Wetenschappelijk Onderzoek of the Netherlands

PRESS RELEASE

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ASTRONOMERS COMPLETE FIRST PHASE OF LARGE AREA, FAINT SKY SURVEY

An international team of astronomers led by Prof. Jan van Paradijs, University of Amsterdam has recently completed the first phase of a multi-year project to survey the sky to very faint limits using the Isaac Newton Telescope on La Palma, Canary Islands.

Last November, the team began their first phase of a planned five-year program to study faint objects within our Galaxy, and how they vary on short time-scales. The Faint Star Variability Survey, as it is called, has already covered an impressive 4.2 square degrees of sky, reaching a limiting magnitude of near 27 or 250 million times fainter than the faintest stars visible to the naked eye. This amount of sky coverage is already over 2000 times the area of the Hubble Deep Field and has the same faintness limit. Nearly 100,000 stars and even more extra-galactic objects have been measured so far.

At the heart of the Faint Star Variability Survey is the Wide Field Camera on the 2.5m Isaac Newton Telescope. This telescope is operated by the Isaac Newton Group at the Observatorio del Roque de los Muchachos, situated on top of a 2400m peak on La Palma, the western-most island in the Canary Islands chain. The Wide Field Camera consists of four large format imaging detectors called charge-coupled devices or CCDs. Each image obtained is roughly the size of the full moon.

The astronomers record the brightness of celestial objects in several wavebands from blue to near-infrared, every 5-10 minutes throughout the night. These images are reduced and analyzed in order to search for faint red or blue objects as well as to record their variability.

The survey results will also provide detailed information on the nature and distribution of stars within the Milky Way galaxy, faint objects within our solar system, and information on faint objects outside the Milky Way, such as galaxy clusters, quasars, and faint dwarf galaxy companions to our own galaxy.

Additionally, the team will also identify numerous types of interacting binary stars, variable stars, optical transients possibly related to gamma ray bursts, fast moving stars, Kuiper belt objects (which are faint asteroid-like bodies orbiting in the outer solar system), stars in the halo of our Galaxy, and many types of extra-galactic objects.

The Faint Sky Variability Survey plans to cover a total area of 100 square degrees in the next five years, sampling various regions of space during each observing session.

This survey operates within the framework of the Isaac Newton Group's Wide Field Survey. Other programmes running concurrently are focussed on galaxy evolution and cosmology.

The Isaac Newton Group (ING) consists of the 4.2m William Herschel Telescope, the 2.5m Isaac Newton Telescope and the 1m Jacobus Kapteyn Telescope. The ING operates these telescopes on behalf of the United Kingdom's Particle Physics and Astronomy Research Council (PPARC) and the Netherlands' Nederlandse Organisatie voor Wetenschappelijk Onderzoek (NWO). The telescopes are located in the Observatorio del Roque de Los Muchachos on La Palma. This international observatory is operated on behalf of Spain by the Instituto de Astrofisica de Canarias (IAC).

IMAGES

Images from the Faint Sky Variability Survey:

http://wapiti.uwyo.edu/people/everett/fsvs/index.html

Isaac Newton Telescope's Wide Field Camera:

http://www.ing.iac.es/wfc/wfc.html
http://www.ast.cam.ac.uk/ING/wfc/wfc.html

Pictures of the Isaac Newton Telescope:

http://www.ing.iac.es/PR/int_sun.gif
http://www.ast.cam.ac.uk/ING/PR/int_sun.gif
http://www.ing.iac.es/PR/int_sun.tif

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