

# Looking through Galileo's eyes

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In 1609, exactly four centuries ago, Galileo revolutionised humankind's understanding of our position in the Universe when he used a telescope for the first time to study the heavens, which saw him sketching radical new views of the moon and discovering the satellites orbiting Jupiter.

In synch with the International Year of Astronomy (IYA), which marks the 400th anniversary of Galileo's discoveries, a group of astronomers and curators from the Arcetri Observatory and the Institute and Museum of the History of Science, both in Florence, Italy, are recreating the kind of telescope and conditions that led to Galileo's world-changing observations, reports January's *Physics World*.

Astronomers will be using the recreated apparatus to catalogue all the objects recorded in Galileo's 'Sidereus Nuncius' (or, in English, "Starry Messenger"), the treatise that Galileo published in 1610 which included many of his early observations.

The team has already observed the Moon and Saturn and are now recording images of Jupiter's moons and the phases of Venus, both of which provided crucial evidence to confirm the heliocentric hypothesis and prove that the Earth is not the centre of the Universe.

To recreate the apparatus, the team undertook a painstaking investigation of the nature of the lens of a telescope given to Galileo's patron, the Grand Duke of Tuscany, Cosimo II, in 1610. That work involved measuring the shape and refractive index of the lens, and using X-ray fluorescence to determine the condition of the glass. The group now

plans to put the images seen by the telescope online. Sadly, the team has not been able to build a replica of the telescope actually used by Galileo to make the observations reported in *Sidereus Nuncius* as only one lens of that instrument survives.

The project, however, is more ambitious than just recreating one of Galileo's telescopes. The ultimate aim is to catch what Galileo himself might have seen. It is known that Galileo died blind and the researchers are keen to open Galileo's tomb to retrieve DNA and diagnose his optical affliction in order to create conditions that resemble looking through Galileo's very own eyes. At present, though, the Basilica of the Holy Cross in Florence, where the tomb lies, is refusing the researchers access to Galileo's remains.

This project is just one of many activities being undertaken by professional and amateur astronomers during the International Year of Astronomy 2009.

This month's *Physics World* also describes highlights from some of the events due in 2009, including IYA 2009's opening ceremony at the UNESCO Headquarters in Paris; GLOBE at night, a fortnight in March devoted to recording the magnitude of visible stars to measure light pollution in locations around the globe; and early April's 100 Hours of Astronomy, hoping to encourage as many people as possible to pick up a telescope and observe the stars just as Galileo did 400 years ago.

Source: Institute of Physics

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