

From Galileo Galilei to the Astrophysics of the 21st Century

Presentation

Celebrating the 4th centenary of the astronomical use of the telescope (originally known as a "tubo ottico" in Italian) by Galileo Galilei was the main reason behind the International Astronomical Union's announcement, on 27 October 2006, that UNESCO had declared 2009 to be the "International Year of Astronomy" (IYA 2009), a decision that was ratified by an UN resolution on 19 December 2007.

The enormous importance of Galileo's discoveries, as well as those of Copernicus and Kepler, represented not only the beginning of a new way of describing and studying the celestial bodies but also – and above all – the need for a change in the way that the relationship between Man and the cosmos was viewed. Thus, it signified carrying out a profound philosophical reformation, a reformation which, in the words of Paolo Galluzzi (Director of the Istituto e Museo di Storia della Scienza of Florence), "implied the full recognition of the freedom of investigation and expression of thought [furthermore, it could be said that] Galileo's struggle against the principle of authority represents one of the distinctive elements of the spirit of modernity".

Ever since Galileo Galilei made his observations, Man has been constantly studying the sky. The great modern telescopes (both the optical and radio varieties) and the launching into orbit of instruments capable of operating on all the wavelengths of the spectrum have led to the great leap forward that astrophysics experienced during the course of the 20th century and the dawn of the 21st. The design and construction of future giant telescopes, both on Earth and aboard satellites, as well as the opening up of new windows to the universe – neutrino astronomy and gravitational waves – will, during the 21st century, bring about a crisis of knowledge that will, without any doubt, result in a more profound, rigorous view of the cosmos. The series of conferences entitled "From Galileo Galilei to the Astrophysics of the 21st century" is an attempt to pay homage to the renowned Italian scientist, as well as contributing to the knowledge of some of the current challenges to astrophysics research in our millennium.