



# SALA STAMPA DELLA SANTA SEDE **BOLLETTINO**

HOLY SEE PRESS OFFICE   BUREAU DE PRESSE DU SAINT-SIÈGE   PRESSEAMT DES HEILIGEN STUHLS  
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BIURO PRASOWE STOLICY APOSTOLSKIEJ   دار الصحافة التابعة للكرسي الرسولي

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## **Press Conference to present the Scientific Congress “Black Holes, Gravitational Waves and Space-Time Singularities”**

At 11.00 this morning, in the Holy See Press Office, Via della Conciliazione 54, a press conference was held to present the scientific congress “Black Holes, Gravitational Waves and Space-Time Singularities”, to take place from 9 to 12 May at the Vatican Observatory at Castelgandolfo. The panel was composed of Fr. Guy Consolmagno, S.J., planetologist and director of the Vatican Observatory; Fr. Gabriele Gionti, S.J., cosmologist, Vatican Observatory; Dr. Alfio Bonanno, cosmologist, INAF, Catania Astrophysical Observatory; and Dr. Fabio Scardigli, cosmologist, Polytechnic University of Milan.

The following is the full text of the Vatican Observatory press release:

### **Press Release from the Vatican Observatory**

What happens if you fall into a Black Hole? What happened in the early Big Bang? What is the ultimate destiny of the cosmos? These and other questions will be at the center of discussions at a scientific workshop on “Black Holes, Gravitational Waves and Space-Time Singularities” which will be held from May 9-12 at the Vatican Observatory in Castel Gandolfo. Among the 35 invited participants, are renowned scientists such as the 1999 Nobel Laureate in Physics, Gerald 't Hooft; 1988 Wolf Prize co-winner Roger Penrose; and cosmologists George Ellis, Renata Kallosh and Andrei Linde and Joe Silk.

One of the aims of this conference will be to encourage a fruitful interaction among participants from both theoretical and observational cosmology, and to create a suitable environment for the emergence of new ideas and research directions in contemporary cosmology. In fact, the recent detection of gravitational waves has opened up a new way of seeing the universe and has also stimulated new speculations about the true nature of the singularities of Space-Time (Black Holes are examples of Space-Time singularities). Topics that the conference intends to explore are the limits of modern cosmology and the scientific challenges of the near future.

The conference celebrates the scientific legacy of Mons. George Lemaître, fifty years after his death. Lemaître was professor of physics at the Catholic University of Leuven and from 1960 to 1966 (the year of his death) he served as president of the Pontifical Academy of Sciences. A dedicated priest, he belonged to the Priestly Fraternity of Friends of Jesus, founded by Cardinal Mercier Bishop of Malines, who ordained him as a priest and promoted a renewal of priestly spirituality. Lemaître was an outstanding cosmologist, nowadays considered one of the fathers of modern Big Bang theory. By the 1920s, astronomical observations of distant galaxies had revealed a mysterious recession motion whose origin was unknown; in 1927, Lemaître was the first to explain that this motion as the result of the expansion of the Universe, and not merely a peculiar motion of the observed objects. He obtained this result by solving the complicated equations of Einstein's General Relativity Theory, at that time a very new idea which connects the mass-energy distribution of the Universe with the bending of the geometry of the Space-Time.

He became famous for his theory of the “primeval Atom”, known today as the Big Bang Theory. Through the cosmological solution he had worked out in 1927, he understood that, looking backwards in time, the Universe should have been originally in a state of high energy density, compressed into a point like an original atom from which everything started.

This Vatican Observatory workshop is a modern legacy of Lemaître's scientific intuitions. The conference has also been organized with the support of INAF (Istituto Nazionale di Astrofisica) and INFN (Istituto Nazionale di Fisica Nucleare).

More information about the workshop is available at:

<http://www.vaticanobservatory.va/content/specolavaticana/en/workshop-lemaitre.html>

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