

In relation to the APCTP WORKSHOP “A Discussion on the Cosmological Principle”

Nobel Prize Laureate in Physics

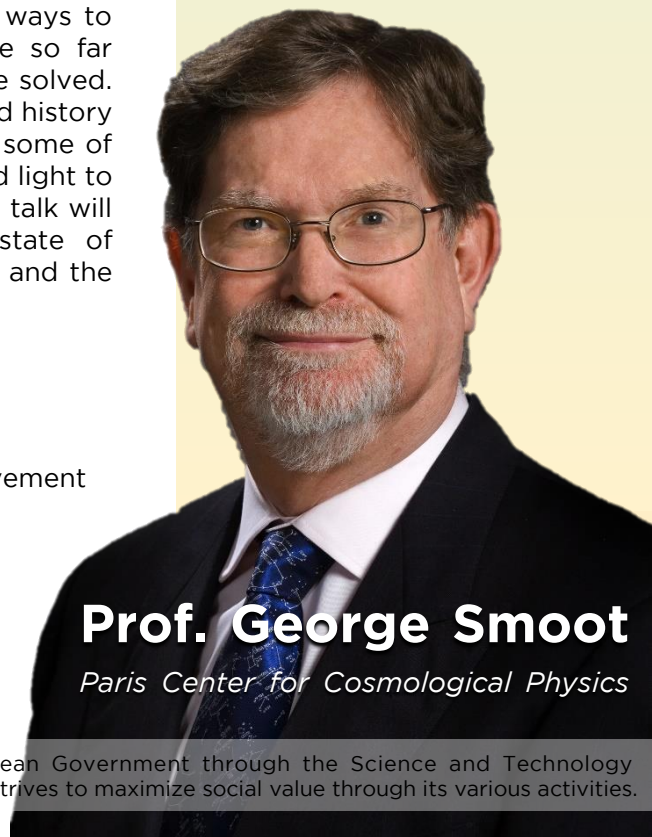
October 25th (Mon), 2021 / 20:00 (KST)

APCTP Seminar Room 512 & ZOOM

A Brief History of the Cosmic Background Radiation Mapping the Universe and Its History

Starting from a conjecture about the only way for formation of the elements and a serendipitous use of new technology led to the discovery of the relic radiation from the beginning of the Universe. This searingly hot radiation at early times has cooled by the expansion of the Universe to be now only a cold whisper of the cosmic microwave background. Now using our most advanced techniques and instruments, many developed for this task, we sift through light coming to us from all parts of the universe. We separate and study the cosmic microwave background as a relic of the very early universe to understand the events surrounding the birth and subsequent development of the Universe. A precision inspection and investigation of the CMB and other observations along with careful analysis, discussion, and computer modelling have allowed us to determine what happened over billions of years with amazing certainty and accuracy. Some of the findings are surprising. A continuing mapping of the large scale structure allows us to check this in detail and gives us the concepts for even more ways to map the history of the Universe. While things are so far consistent, there remain even more mysteries to be solved. In spite of that we can tell the tale of the creation and history of the Universe and show key supporting evidence some of it from very early times including cosmic background light to provide a direct image of the embryo universe. This talk will be a brief review of the history and current state of cosmological understanding based on observations and the challenging issues still to be confronted.

- 2006 Nobel Prize in Physics
- 2006 Gruber Prize
- 2003 Einstein Medal, Albert Einstein Society
- 1991 NASA Medal for Exceptional Scientific Achievement



Prof. George Smoot

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