

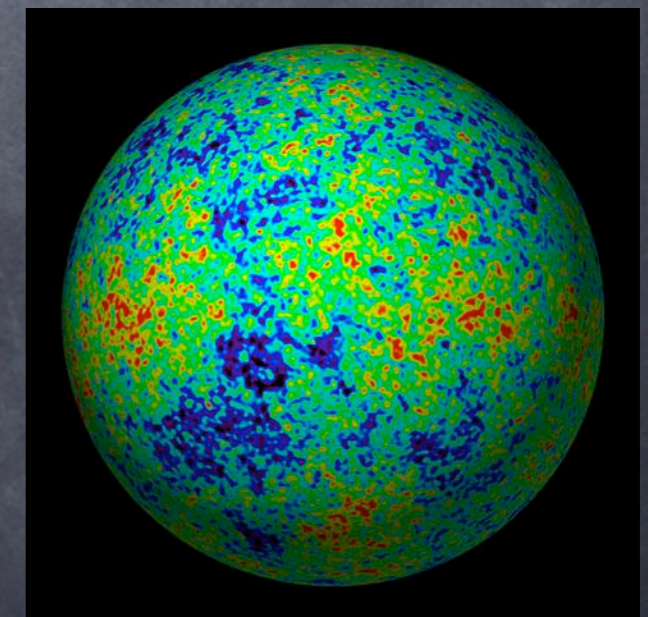
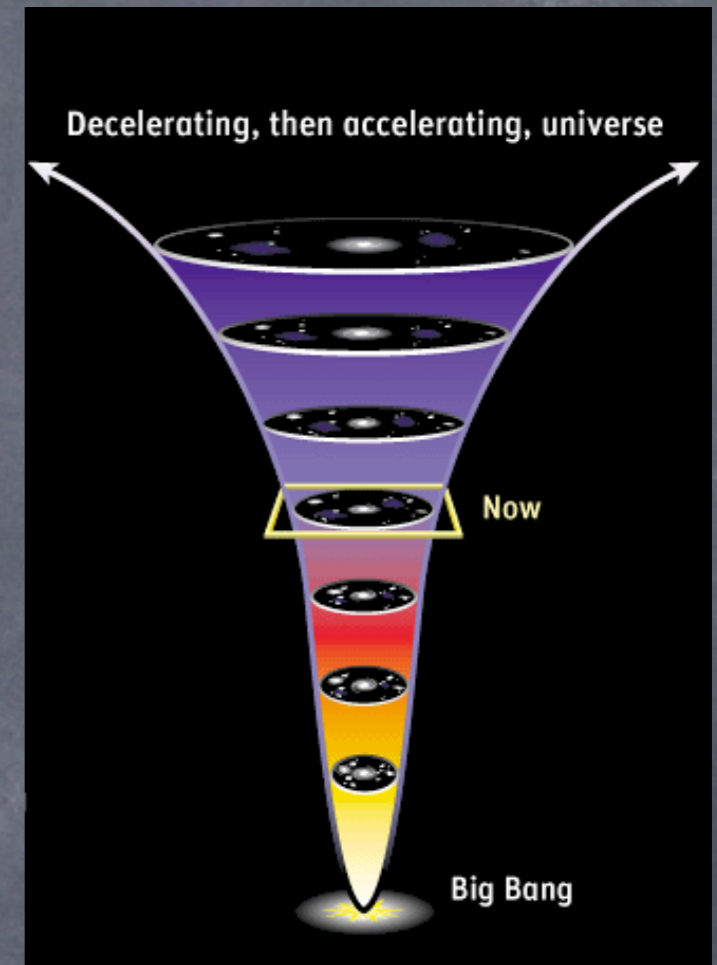
Cosmology at the University of Cape Town



<http://cosmology.uct.ac.za>

The coming of age of Cosmology

- The last five years have seen the coming of age of Cosmology, a mature branch of science based on the hot Big Bang theory and the Inflationary Paradigm.
- We can now define rather precisely a Standard Model of Cosmology, where the basic parameters are determined within small uncertainties, of just a few percent, thanks to a host of experiments and observations.



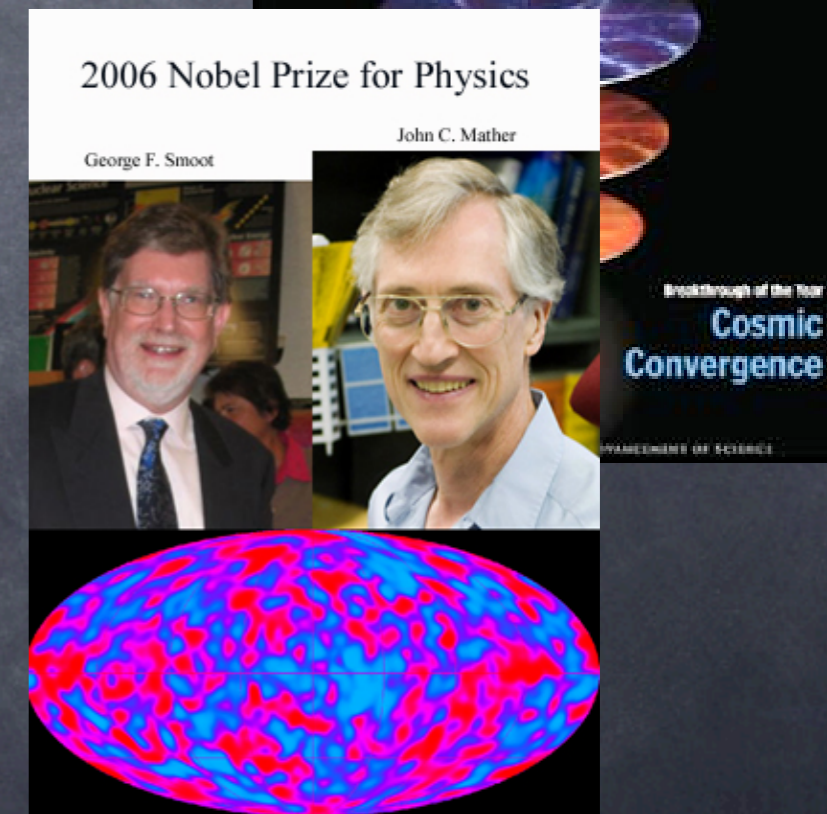
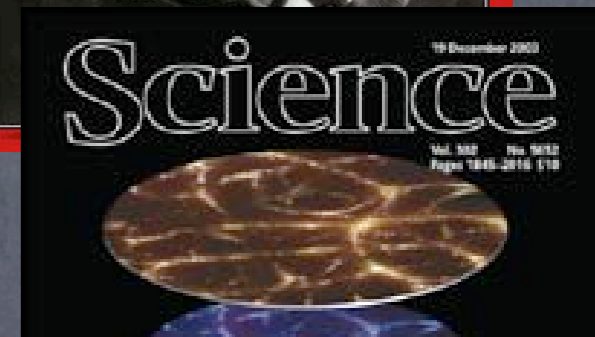
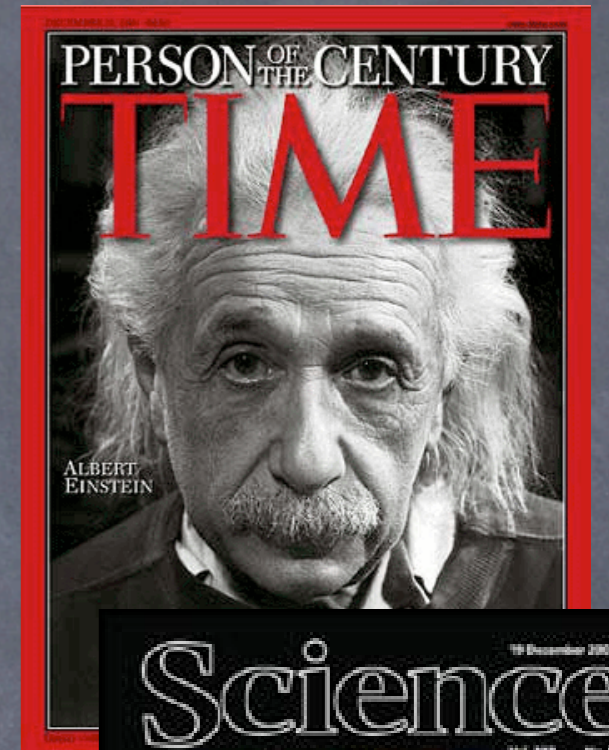
Why do Cosmology in South Africa

- The millennium reviews of the National Research Councils (USA) and PPARC (UK) both ranked dark energy, dark matter and other cosmological subjects as top of their lists of fundamental science questions for the new millennium.
- In the past four years, cosmology and astronomy papers have dominated the annual top-10 list of most-cited high-energy physics papers.



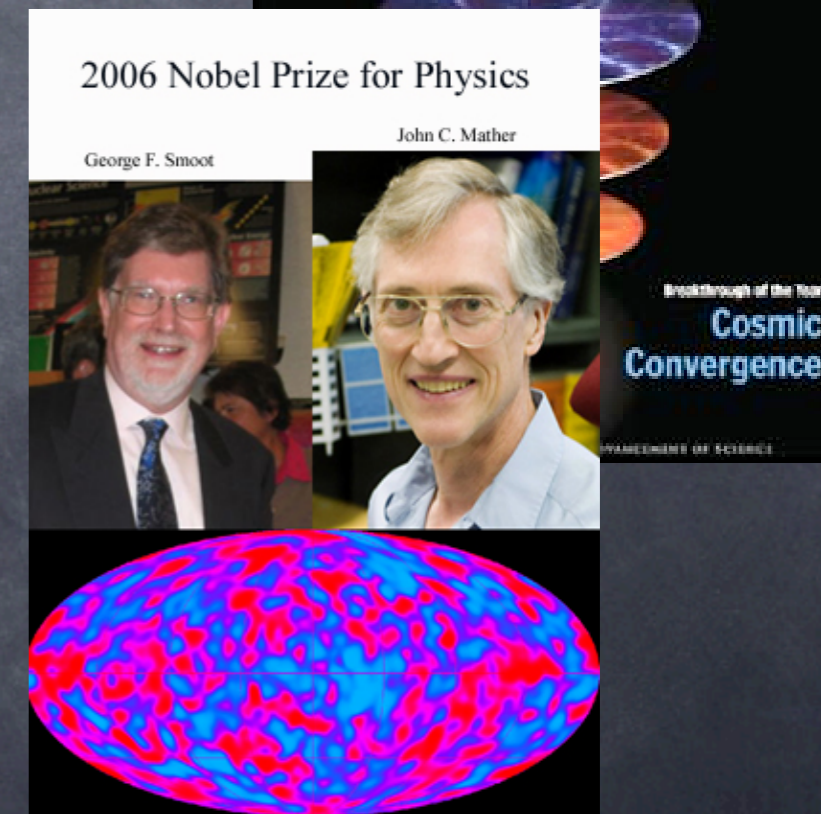
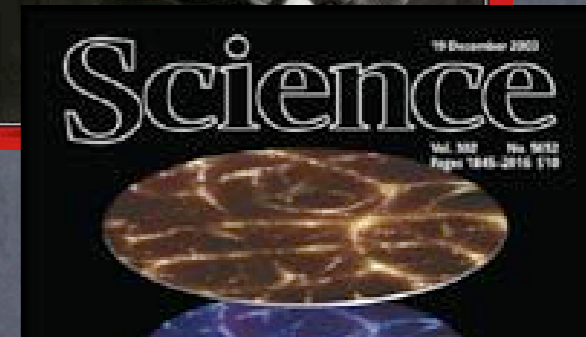
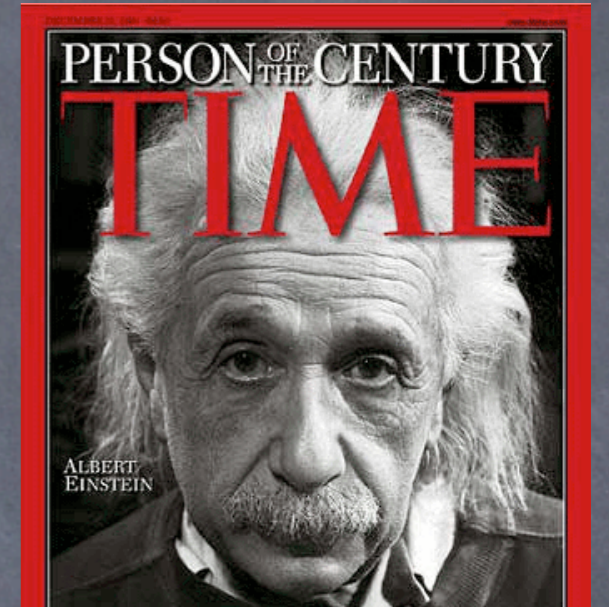
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There is much we do not understand

The Cosmology and Gravity Group

Brief History of the Cosmology and Gravity Group (CGG)

- W. de Sitter, one of the key figures in early theoretical cosmology worked at the SA observatory at the turn of the last century.



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- Serious work on General Relativity had started before that under the direction of H. Rund (who obtained his PhD at UCT) and a number of his students (Matravers, Lovelock and Wainwright) have made major contributions to GR and cosmology.



Membership of the CGG

Permanent staff

- George Ellis (1973 -)
- Dave Matravers (1973 -1992)
- Charles Hellaby (1989 -)

Postdocs

Graduate Students



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This makes us one of the largest groups of its kind in the southern hemisphere.

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- Cosmic microwave background anisotropies.



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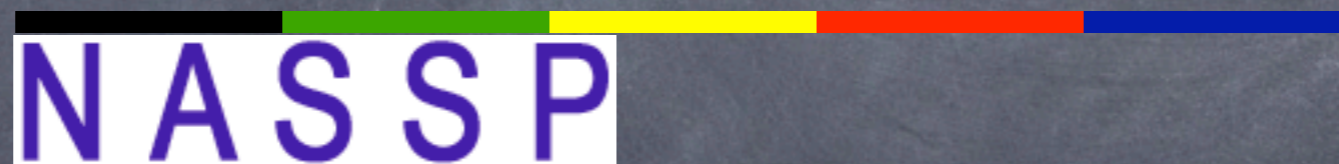


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- Plasma Physics in Astrophysics and Cosmology.
- String Theory with emphasis on the AdS/CFT Correspondence.
- Gravitational Waves (in GR, Braneworlds and alternative gravity).



- Group members participate in many international research collaborations and we have an active visitor and seminar programme.
- The CGG plays a leading role in the teaching and management of the National Astrophysics and Space Science Programme.
- The group attracts considerable funding including international cooperation grants with Sweden, Italy, France, Poland and the UK and is therefore well placed to participate in international student exchange programme.





- Members of the group are actively involved in developing cosmology surveys for SALT and KAT and also participate in the SDSS and WFMOS collaborations.
- The group has good computing facilities including access to the 30-node NASSP & MAM computing labs and will be an active user of the Center for High-Performance Computing.

