

Second Iberoamerican School of Astrobiology: Origins from the Big Bang to Civilisations

In 1999, the Abdus Salam International Centre for Theoretical Physics (ICTP), the International Centre for Genetic Engineering and Biotechnology (ICGEB), both located in Trieste (Italy) and the Chancellor's Office of the *Universidad Simon Bolivar* (USB) of Venezuela organized held the *First Iberoamerican School of Astrobiology* (28 November- 8 December, Caracas, Venezuela). The event also had the sponsorship of TWAS, UNESCO, NASA and ESA (see J. Chela-Flores, G.A. Lemarchand and J. Oró, eds., *Astrobiology: Origins from the Big Bang to Civilisation*, Kluwer Academic Pub., 2000). This graduate school was a success and several of the students that participated in it 10 years later are now leading research groups performing cutting edge basic research in several topics related with Astrobiology.

Year 2009 combines a great variety of events:

- International Year of Astronomy 2009 (IYA 2009),
- 400 years of Galileo's first sky observation with a telescope,
- 400 years of the publication of "*Astronomia Nova*" by J. Kepler,
- Darwin Birth's Bicentenary,
- 200 years of the publication of "*Philosophia Zoologica*" by Jean B. Lamarck,
- 150 years of the publication of "*The Origin of Species*" by Charles Darwin,
- 50 years of the publication "*Searching for Interstellar Communication*" the seminal paper by G. Cocconi and P. Morrison published at the mainstream journal NATURE, with the foundations of the present radioastronomical search for intelligent life in the universe,
- 10 years since the *First Iberoamerican School of Astrobiology* (Venezuela, 1999),
- 60th Anniversary of the UNESCO Regional Bureau for Science in Latin America and the Caribbean,

The UNESCO Regional Bureau for Science in Latin America and the Caribbean in cooperation the Faculty of Science of *Universidad de la República* (UDELAR, Uruguay) and the the *Instituto Argentino de Radioastronomía* (CONICET Argentina) is organizing the ***Second Iberoamerican School of Astrobiology: from the Big Bang to the Civilizations*** to be held from 7-13 September, 2009 in Montevideo, Uruguay. The **Graduate School** will provide Latin American and Caribbean students with the possibility to contact different regional and international experts in cutting-edge research related with Astrobiology: the search for life in the universe. This is an interdisciplinary and intersectoral research activity that combines knowledge of physics, astronomy, biology, geology, atmospheric sciences, hidrology, electronic engineering, ecology, cognitive sciences, sociology and philosophy.

The **Graduate School** will host 60 national and regional graduate students and approximately 17 professors (~5 extra-regional, ~8 from the region and ~4 from the host country).

Thought as a spin-off activity, and taking advantage of the presence of outstanding personalities in the field of astrobiology, the **Graduate School** schedule also foresees to paralely hold:

Five public events (keynote addresses, public lectures) to be held at the Municipal Planetarium of Montevideo (*Planetario Municipal "Agr. Germán Barbato"*), the MERCOSUR Headquarters, the Faculty of Science of the *Universidad de la República (UDELAR)* and other public places (TBD).

One scientific conference with poster sessions to show on-going research carried out by graduate students and professors from the region

One Workshop on Life in the Universe for Science Teachers addressed to science educators.

Scientific Organizing Committee (SOC)

- Julián Chela-Flores, *International Centre of Theoretical Physics*, Trieste, ITALY
- Frank D. Drake, SETI Institute, USA
- Nelson Falcon, *Universidad de Carabobo*, VENEZUELA
- Julio A. Fernández, Dean, Faculty of Sciences, *Universidad de la República (UDELAR)*, URUGUAY
- Álvaro Giménez, Director, *Centro de Astrobiología (INTA-CSIC)*, SPAIN
- Guillermo Giménez de Castro, McKenzie University, BRAZIL
- Jordi Gutiérrez, *Universitat Politècnica de Catalunya*, SPAIN
- Antonio Lazcano, *Universidad Nacional Autónoma de México (UNAM)*, MEXICO
- Guillermo A. Lemarchand, *IAR*, ARGENTINA and *UNESCO Regional Bureau for Science in Latin America and the Caribbean* URUGUAY (Chairman)
- Pablo Mauas, *Instituto de Astronomía y Física del Espacio (CONICET)* ARGENTINA
- Rafael Navarro González, *Universidad Nacional Autónoma de México (UNAM)*, MEXICO
- Adriana Ocampo, NASA Headquarters, USA
- Gustavo Porto de Mello, *Universidade Federal do Rio de Janeiro, (UFRJ)*, BRAZIL
- Juan G. Roederer, University of Alaska-Fairbanks, USA
- Antígona Segura, *Universidad Nacional Autónoma de México (UNAM)*, MEXICO

Local Organizing Committee (LOC)

- Julio A. Fernández, Dean, Faculty of Sciences, *Universidad de la República (UDELAR)*, URUGUAY (Chairman)
- Lenín Henríquez, *UNESCO Regional Bureau for Science in Latin America and the Caribbean* URUGUAY
- Eduardo Mizraji, *Universidad de la República (UDELAR)*, URUGUAY
- Andrea Sánchez, *Universidad de la República (UDELAR)*, URUGUAY
- Gonzalo Tancredi, *Universidad de la República (UDELAR)*, URUGUAY

Graduate School Program

1. Origins of the Universe: Contemporary Theories about Cosmic Origins and its Evolution
2. Chemical Evolution of the Galaxy
3. The Search for Solar Analogs
4. Origins and Evolution of Planetary Systems
5. The Search for Exoplanets
6. The Evolution of Planetary Atmospheres
7. Alternative Models of Extrasolar Habitable Zones
8. Cosmochemical Evolution and the Origin of Life on Earth
9. The Search for Life in the Solar System
10. Biological Bases for the Study of the Evolution of Life in the Universe
11. The Study of Extreme Environments for Life: Extremophiles
12. Origins and Evolution of Cognitive Systems
13. Radio and Optical Searches for Artificial Extraterrestrial Signals: Project SETI
14. The Lifetimes of Technological Civilizations
15. Philosophical Implications of the Search for Extraterrestrial Life

Proposed Keynote Address and Public Lectures

- *50 Years of Project OZMA* by Frank D. Drake (SETI Institute, USA),
- *Charles Darwin Bicentenary and 150 years of the Theory of Evolution*, TBD,
- *The Sky in times of Galileo*, by Guillermo Boido (Science Historian, from *Universidad de Buenos Aires*, Argentina),
- *New Strategies and Challenges for International Cooperation in Science and Technology in Latin America and the Caribbean*, by Jorge Grandi, Director, UNESCO Regional Bureau for Science in Latin America and the Caribbean
- *ROUND TABLE: The Need of New Epistemologies for the Search for Life in the Universe*

Workshop on Life in the Universe for Science Teachers

A one-day workshop for science teachers from countries of MERCOSUR will be held in coordination with UNESCO Sectors of Education and Communication and Information. The workshop's purpose is to show different approaches for enhancing science activities in schools using the natural attraction that generates the search for life in the universe.

Invited Speakers/Lecturers

- **Ricardo Amils Pibernat**, *Centro de Astrobiología de Madrid (CSIC/INTA) SPAIN*
- **César Bertucci**, *Instituto de Astronomía y Física del Espacio (CONICET), ARGENTINA*
- **Guillermo Boido**, *Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires, ARGENTINA*
- **Frank D. Drake**, *SETI Institute, USA*
- **Julio A. Fernández**, *Facultad de Ciencias, Universidad de la República, URUGUAY*
- **Jorge Heraud-Pérez**, *Pontificia Pontificia Universidad Católica del PERÚ*
- **Antonio Lazcano**, *Facultad de Ciencias, UNAM, MEXICO*
- **Guillermo A. Lemarchand**, *UNESCO's Regional Bureau for Science in Latin America and the Caribbean, Montevideo*
- **Martín Makler**, *Centro Brasileiro de Pesquisas Físicas, BRAZIL*
- **Eduardo Mizraji**, *-Facultad de Ciencias, Universidad de la República -URUGUAY*
- **Rafael Navarro Gonzalez**, *Instituto de Ciencias Nucleares, UNAM, MEXICO*
- **Antígona Segura**, *Instituto de Ciencias Nucleares, UNAM, MEXICO*
- **Adriana Ocampo**, *NASA Headquarters, Science Mission Directorate Planetary Science Division, USA*
- **Gustavo Porto de Mello**, *Universidade Federal do Rio de Janeiro, Departamento de Astronomía, BRAZIL*
- **Juan G. Roederer**, *University of Alaska, Geophysical Institute, USA*
- **Gonzalo Tancredi**, *Facultad de Ciencias, Universidad de la República URUGUAY*

Social Events:

- ❖ Conference Dinner with one Keynote Address
- ❖ Visit to *Punta del Este* or other national resort.

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