

ICTP South American Institute for Fundamental Research (ICTP-SAIFR)

Location: IFT-UNESP, Sao Paulo

Director: Nathan Berkovits

Vice-Director: Rogério Rosenfeld

Executive Manager: Jandira Ferreira de Oliveira

Executive Secretary: Nadia Roque

Computer Systems Manager: Danilo Ramos

Financial Manager: Lilia Faria



International Centre for Theoretical Physics South American Institute for Fundamental Research

ICTP-SAIFR is a new South American branch of the ICTP in São Paulo which is a collaboration of **FAPESP** (São Paulo Research Funding Agency) and **UNESP** (São Paulo State University) with the ICTP. Activities are held in the auditorium of the Instituto de Física Teórica (IFT) of UNESP.



Motivation

- Theoretical physics institutes play an important role in bringing researchers together and reducing the amount of bureaucracy involved in inviting visitors and organizing activities. Although there are dozens of such institutes in North America, Europe, and Asia, there are very few in South America.
- South America has a few countries with highly developed physics research (Brazil, Argentina, Chile) and several countries with very little physics research.
- Internationalization of physics research in South America is difficult because of excessive bureaucracy in hiring requirements and the lack of international advisory boards.

Why IFT-UNESP in São Paulo?

- Founded in 1952, IFT-UNESP is one of the oldest and most prestigious graduate schools in theoretical physics in South America with approximately 20 professors and 60 masters and PhD students.
- The São Paulo state research funding agency FAPESP is perhaps the most stable and well-funded agency in South America.
- IFT-UNESP is centrally located next to a major bus/train station near the largest South American airport and close to several large universities.

Short history of ICTP-SAIFR

- March 2010: ICTP management suggests opening of South American regional center at IFT-UNESP in São Paulo.
- August 2010: Rector of UNESP gives enthusiastic support.
- November 2010: Memorandum of Understanding is signed between ICTP and UNESP at ICTP 45th anniversary.
- June 2011: First meeting of Steering Committee is held.
Acting director and scientific council are appointed and 2012 activities are decided.
- August 2011: Three ICTP-SAIFR secretaries are hired.
- September 2011: International search committee for first 2 permanent positions is formed.
- November 2011: 5-year budget is approved by FAPESP.
- February 2012: Joint Steering Committee/Scientific Council meeting and Opening Ceremony are held.



International Centre for Theoretical Physics
South American Institute for Fundamental Research

Ceremony of Inauguration of ICTP-SAIFR on February 6, 2012



(left to right)

Carlos Brito Cruz (Fapesp scientific director)

Juan Maldacena (representing South America)

Fernando Quevedo (steering council chair and ICTP director)

Julio Cezar Durigan (UNESP rector)

Juan Montero (IFT director)

Jacob Palis (Brazil Academy of Science president)

Peter Goddard (scientific council chair and IAS director)

ICTP-SAIFR Councils

Steering committee

Fernando Quevedo (chair)-ICTP director

Julio Cezar Durigan - UNESP rector

Carlos Brito Cruz - FAPESP scientific director

Jacob Palis - Brazilian Academy of Science president

Juan Maldacena – representing South America

Scientific council

Peter Goddard (chair) – IAS, Princeton

Seifallah Randjbar-Daemi - ICTP vice-director

Juan Montero - IFT-UNESP director

Marcela Carena - Fermilab, Batavia

Marcel Clerc - Univ. de Chile, Santiago

Luiz Davidovich - UFRJ, Rio de Janeiro

Daniel Sudarsky - UNAM, Mexico City

Matias Zaldarriaga - IAS, Princeton

Anthony Zee - Univ. of California, Santa Barbara

Barton Zwiebach - MIT, Cambridge

Contributions to Budget

UNESP

5 new permanent research professor positions

4 secretaries

Infrastructure of IFT-UNESP

FAPESP (5-year grant)

9 postdoctoral positions and 3 Young Investigators

1 million reais/year (440,000 US dollars/year) for visitors and activities

ICTP

Funding for visitors from other South American countries

Training of secretaries

2012 ICTP-SAIFR activities

São Paulo International Schools on Theoretical Physics (2-week PhD schools on specific research topic)

- **Southern-Summer School on Mathematical Biology (Jan. 16-29)**
- **Advanced School in Relativistic Astrophysics and Cosmology (July 16-27)**
- **School on Symbolic Computation in Theoretical Physics (Nov. 5-16)**

Workshops

- Perspectives on Non-Perturbative QCD (May 7-8)
- Joint IIP-ICTP Workshop on Gravity and String Theory (May 8-9)
- IX Simposio Latinoamericano de Física de Altas Energias - SILAFEA (Dec. 10-14)

Minicourses

- Joseph Minahan on Integrability and AdS-CFT (Sept. 3-4)
- Boris Kayser on Fundamental Issues in Particle Physics (Oct. 22-23)
- Rafael Porto on Effective Field Theory (Nov. 28 – Dec. 5)

2013 ICTP-SAIFR activities

São Paulo International Schools on Theoretical Physics

- **2nd Southern-Summer School on Mathematical Biology (Jan. 21 – Feb. 2)**
- **School on Particle Physics in the LHC Era (April 1-12)**
- **School on Nonperturbative QCD (May 27-June 7)**
- **School on Approaches to Quantum Gravity (Sept. 2-9)**
- **School on Fundamental Astrophysics (Oct. 7-18)**
- **School on Nonlinear Optics and Nanophotonics (Nov. 25 – Dec. 6)**

Workshops

- **VI Quantum Gravity in the Southern Cone (Sept. 11-13)**
- **Workshop on Higher-Spin and Higher Curvature Gravity (Nov. 4-7)**

Minicourses/Programs

- **Edward Corrigan on Classical and Quantum Integrability (April 15-17)**
- **Kevin McAnn on Energetic Approach to Food Webs (June 17-21)**
- **Riccardo Sturani on Gravitational Waves (August 1-29)**
- **Celso Grebogi on Complex Systems (Sept. 23-24)**
- **Pedro Vieira on Amplitudes/Correlation Functions (Oct. 20 - Dec. 20)**

2014 ICTP-SAIFR activities

São Paulo International Schools on Theoretical Physics

- **3rd Southern-Summer School on Mathematical Biology (Feb. 3-15)**
- **Minischool on Dynamical Systems in Biology (May 4-9)**
- **School on Random Matrices and Random Geometry (August 25 – Sept. 2)**
- **Minischool on Few-Body Systems (October 6-10)**
- **School on Electronic Structure and Quantum Transport Methods (Oct. 13-24)**
- **Joint ICTP-Trieste/ICTP-SAIFR School on Observational Cosmology (Dec. 1-12)**

Workshops

- **Workshop on Cosmology (Feb. 20-21)**
- **Workshop on Nanophysics and Spintronics (March 13-14)**
- **II Workshop on Perspectives in Nonperturbative QCD (May 12-13)**
- **Workshop on Particle Physics (August 11-15)**
- **Workshop on Random Geometry and Random Matrices (Sept. 3-4)**
- **Workshop on Complex System (Oct. 22-23)**
- **Workshop on the Foundations of Quantum Theory and Cosmology (Nov. 3-7)**

Minicourses/Programs

- **Felipe Abdalla on Data Analysis in Cosmology (Jan. 27-31)**
- **Amnon Aharony and Ora Entin on Nanophysics and Spintronics (Feb. 24 - March 25)**
- **David Kosower on QCD Amplitudes (August 18-22)**
- **Pedro Vieira on Advanced Quantum Field Theory (Nov. 3 – Dec. 12)**

2015 ICTP-SAIFR activities

São Paulo International Schools on Theoretical Physics

- **IV Southern-Summer School on Mathematical Biology (Jan. 5-11)**
- **School on Pathogen Dynamics, Climate and Global Change (Jan. 12-24)**
- **3rd Joint Dutch-Brazil School on Theoretical Physics (Feb. 2-6)**
- **Minischool on Biophysics of Protein Interactions (March 9-13)**
- **School on QCD and LHC Physics (July 22-31)**
- **School on Gravitational Waves (August 3-12)**
- **International Neutrino Summer School 2015 (August 17-29)**
- **School on Complex Networks and Neuroscience (Sept. 28 – Oct. 16)**

Workshops/Programs

- **Program on Integrability and Holography (Nov. 1, 2014 – Feb. 28, 2015)**
- **NCC/ICTP-SAIFR Workshop on Advanced Techniques for Scientific Programming (April 13-30)**
- **Workshop on Gravitational Waves (August 13-14)**

Organizational Support of External Activities

- **First Peruvian School on High-Energy Physics and Cosmology in Lima (June 22-26)**
- **6th ICTP Latin-American String School in Mexico City (Oct. 26 – Nov. 6)**

Participation in Activities

- Approximately 600 graduate students and 300 researchers participate every year in ICTP-SAIFR activities.
- All applications for participation are online and are judged by the selection committee of the activity.
- São Paulo International Schools are usually two weeks with 5-6 lecturers and 50-60 PhD students. Travel and local expenses are paid for students from other cities and countries. All lectures are recorded with ICTP equipment and put online.
- Minicourses are given by one or two distinguished lecturers and expenses are paid for participants from South America.
- Programs/workshops typically involve a few invited long-term visitors and a short workshop on a selected topic.
- IFT-ICTP colloquia and 2-3 research seminars every week
- Proposals for activities can be submitted online and are judged in February of the preceding year.

Permanent Job Applications

- Applications for permanent research professor positions are online and are evaluated by an international search committee.
- The first of the five positions was awarded to Eduardo Ponton (Columbia Univ.) in particle physics, and two tenure-track professors in cosmology (R. Porto, IAS) and astrophysics (F. Iocco, Madrid) have recently been hired with funding from the Simons Foundation and FAPESP.

Current Members of International Search Committee:

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|------------------------------------|----------------------------------|
| Peter Goddard (IAS) – chair | Marcela Carena (Fermilab) |
| David Gross (KITP) | Leo Kadanoff (Chicago) |
| Martin Rees (Cambridge) | Uros Seljak (Berkeley) |
| Robert Wald (Chicago) | Simon White (MPA) |
| Edward Witten (IAS) | Matias Zaldarriaga (IAS) |

Postdocs, Visitors and More Information

- Applications for postdocs and for short-term and long-term visits are online.
- The ICTP-SAIFR has visiting agreements with Perimeter Institute, CERN, Fermilab, and Nordita which allow ICTP-SAIFR members to visit these institutions and vice versa.
- 60 distinguished physicists in South America are ICTP-SAIFR Associated Members that help to advertise activities.
- Annual prize competition for undergraduates in physics
- Scientific bulletins on ICTP-SAIFR activities are sent by email every three months to our email mailing list.
- Posters for ICTP-SAIFR schools and workshops are sent to over 500 universities around the world.
- All activity information and online applications are on our webpage www.ictp-saifr.org