The Abdus Salam
International Centre
for Theoretical Physics

United Nations Educational, Scientific and Cultural Organization

IAEA
International Atomic Energy Agency

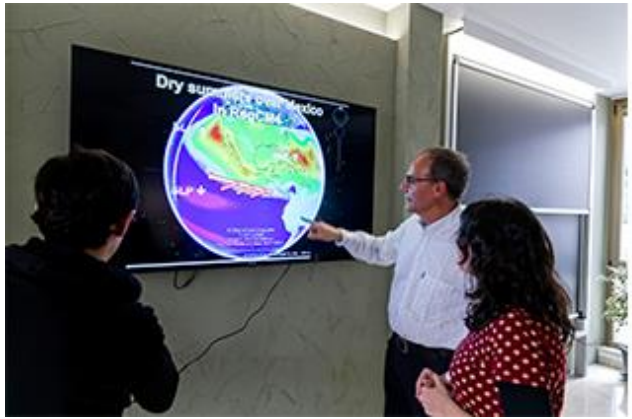
ICTP: World-class Research and a Successful Model of International Collaboration

What is ICTP?

- Founded in 1964 by Nobel Laureate Abdus Salam to enhance international cooperation through science
- Combines world class research with a unique global mission of building science capacity in the developing world
- Governed by tripartite agreement between Italy, UNESCO and IAEA

What is ICTP?

Research

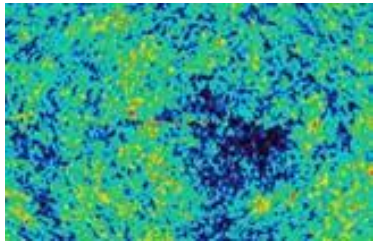


Education

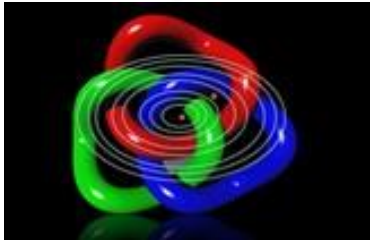
Outreach

Research at ICTP

High Energy Cosmology and Astroparticle Physics



Condensed Matter and Statistical Physics

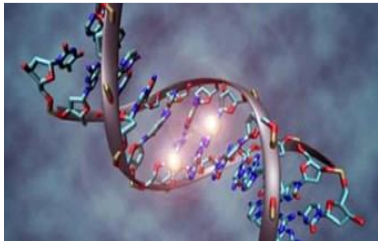


Mathematics

Science, Technology and Innovation

Earth System Physics

Quantitative Life Sciences



Also: Sustainable Energy and High Performance Computing

Nobel-worthy contributions

Research at ICTP and its partner institutes has contributed to 5 Nobels:

- **Physics Nobel 1979**: ICTP founder Abdus Salam
- **Nobel Peace Prize 2007**: ICTP's Earth System Physics scientist Filippo Giorgi's work with IPCC
- **Physics Nobel 2013**: ICTP's High Energy Physics section contributed to ATLAS discovery of Higgs Boson
- **Physics Nobel 2015**: Prize confirmed theory of solar neutrino oscillations co-developed by ICTP scientist Alexei Smirnov
- **Physics Nobel 2017**: gravitational wave detection by LIGO (ICTP-SAIFR collaborated)

Education at ICTP

ICTP degree programmes

- PhD in Physics (with University of Trieste)
- PhD in Physics and Mathematics (with SISSA)
- PhD in Earth Science and Fluid Mechanics (with University of Trieste)
- Masters in Medical Physics (with University of Trieste)
- Masters in High Performance Computing (with SISSA)
- Master of Complex Systems (with consortium of European universities)

Education at ICTP

ICTP's Postgraduate Diploma Programme: Preparing young scholars for PhD studies

Since 1991

- more than 1000 Diploma graduates
- more than 75% earned or working toward PhDs

Training at ICTP

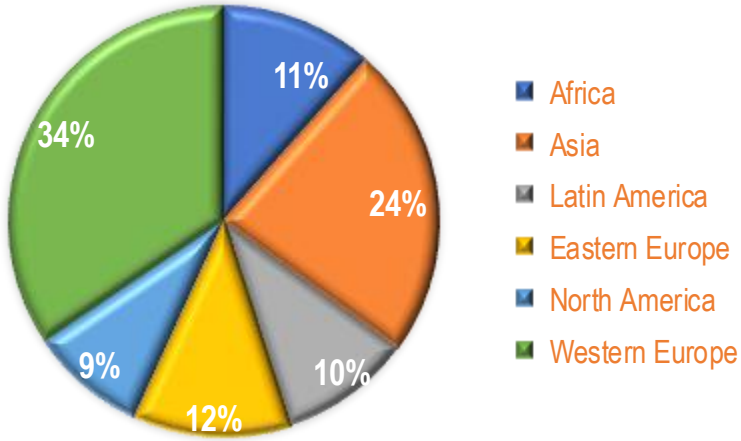
ICTP's international conferences encourage "Brain Gain"

- Provide training and skills to scientists from developing countries
- Organise more than 60 conferences/workshops each year
- Welcome up to 5000 scientists from 145 nations each year
- Attract an additional 1000-2000 scientists/year through hosted activities

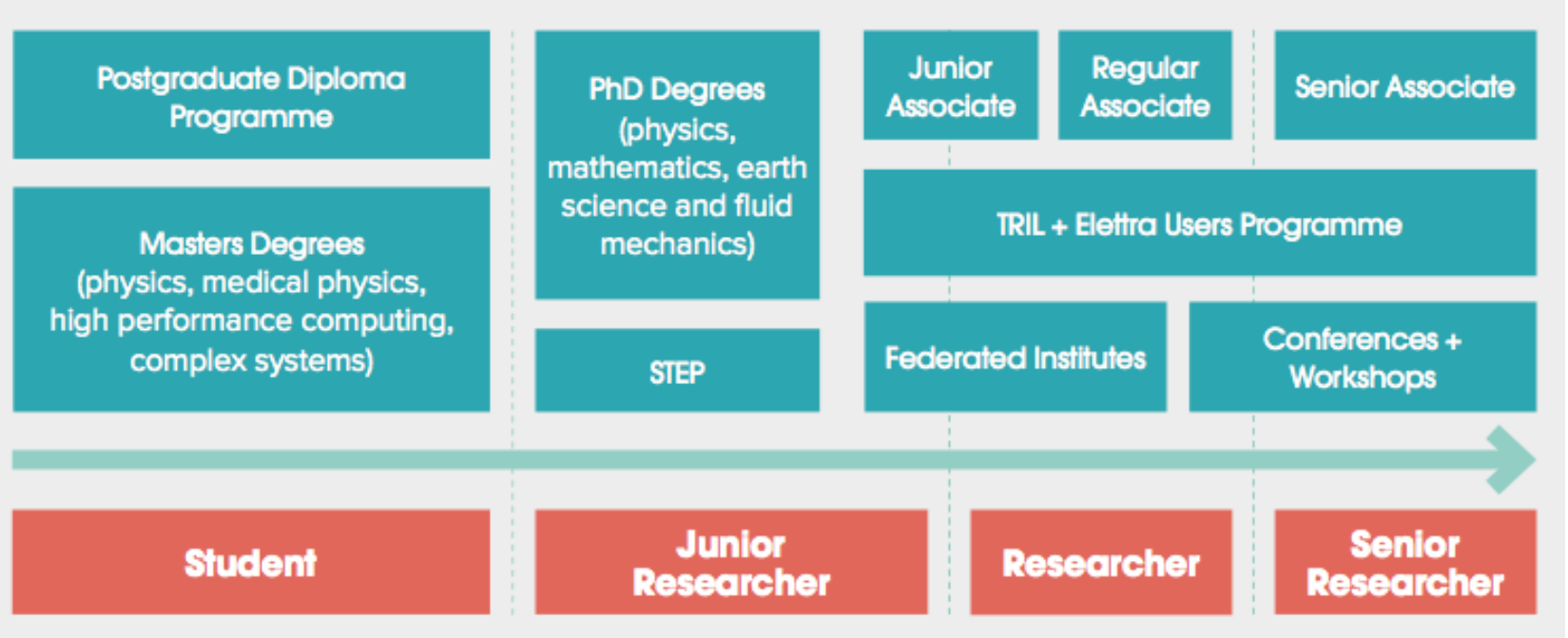
Training at ICTP

ICTP visiting scientists: where do they come from?

- More than 180,000 visits since 1970
- 188 countries represented
- In 2021, 30% of ICTP visiting scientists were women



ICTP training programmes: Supporting scientists in all stages of their careers



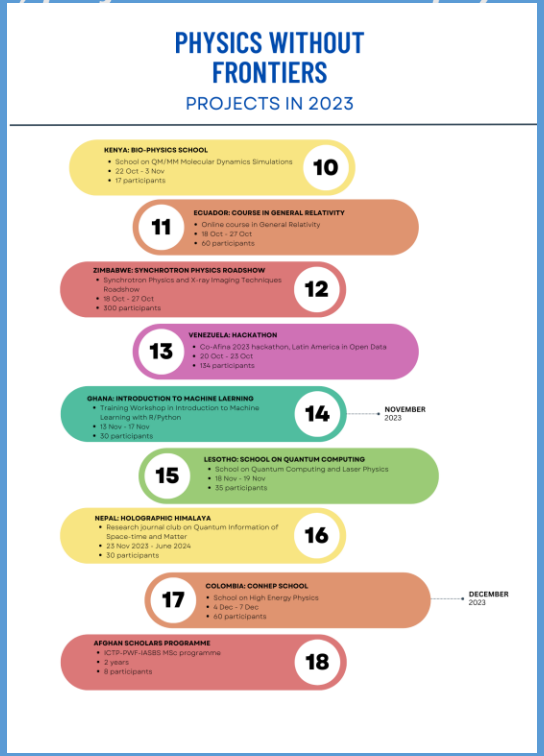
ICTP Scientific Outreach

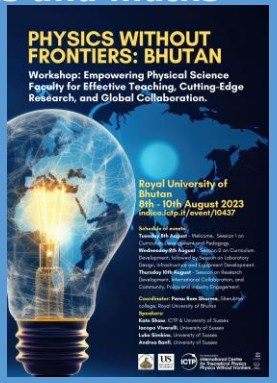
ICTP has a long tradition of scientific capacity building in developing countries

- Office of External Activities
- Partner Institutes (Brazil, China, Mexico, Rwanda)
- Physics Without Frontiers
- Science Dissemination Unit

PHYSICS WITHOUT FRONTIERS

In 2023 PWF organised 18 projects (> 30 activities & events)
We are working to expand to new countries, projects and fields in physics and maths





ICTP Impact 2021

ICTP regional centres of excellence

Mexico:

The Meso-American Institute for Sciences (MAIS) was established in collaboration with the Universidad Autónoma de Chiapas (UNACH) as a regional headquarters of ICTP in Mexico, Central America and the Caribbean.

Brazil:

The ICTP South American Institute for Fundamental Research (ICTP-SAIFR), is a regional centre for theoretical physics created in collaboration with the State University of Sao Paulo (UNESP) and the Sao Paulo Research Funding Agency (FAPESP).

Rwanda:

Inaugurated in 2018, the East African Institute of Fundamental Research (EAIFR), based at the University of Rwanda's Kigali campus, offers an important educational and research hub for the region and for Africa.

China:

In Beijing, the International Center for Theoretical Physics-Asia Pacific (ICTP-AP) is hosted at the University of the Chinese Academy of Sciences (UCAS) and provides opportunities for advanced training, research and education in theoretical physics and related interdisciplinary areas.

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Physics Without Frontiers Activities	11

ICTP Scientific Outreach

The Salam Distinguished Lecture Series

Annual lecture series features top physicists

Supported by

KFAS
مؤسسة الكويت للتقدم العلمي
Kuwait Foundation for the Advancement of Sciences

Year	Lecturer
2022	Alessandra Buonanno
2021	David Spergel
2020	Marc Mézard
2019	Juan Maldacena
2018	Alan Guth
2017	Sir Michael Berry
2016	Sir Brian Hoskins
2015	Don Zagier
2014	Subir Sachdev
2013	William Bialek
2012	Nima Arkani-Hamed

ICTP Success Stories

Freddy Cachazo,Venezuela
Diploma Alumni (1996-97)

- Recipient, 2014 New Horizons Prize
- Gribov Medallist 2009
- Dyson Chair, Perimeter Institute

Zohra Ben Lakhdar, Tunisia
ICTP Associate

- 2005 L'Oreal-UNESCO Award for Women in Science recipient
- founding member, Tunisian Physics Society and Tunisian Astronomy Society
- Professor of physics, Tunis El Manar University

Narayan Adhikari, Nepal
Diploma Alumni (1997-98)

- ICTP Regular Associate 2008-15
- ICTP Senior Associate 2018-23
- Research group leader, Tribhuvan University, Nepal

ICTP Testimonials

Stephen Hawking,
University of Cambridge:

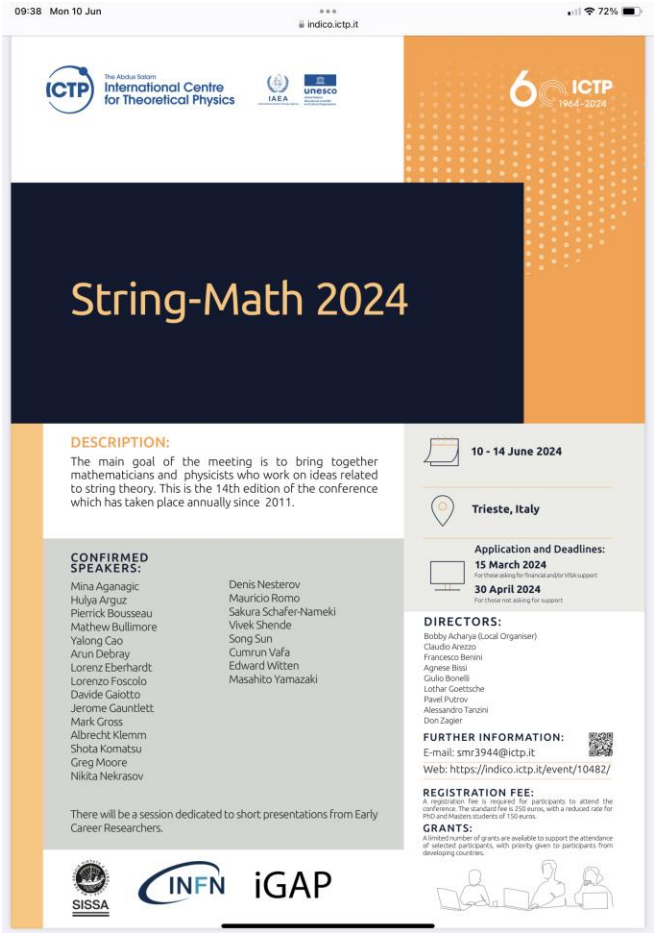
“Over the years, ICTP has left a deep legacy in performing and promoting outstanding fundamental scientific research. In particular, it has had a major impact supporting science in developing countries.”

ICTP Testimonials

David Gross, Nobel Laureate in Physics 2004 and Director, Kavli Institute for Theoretical Physics:

"Much good emanates from ICTP. Salam's vision of a facility that couples the doing of first-rate research with advanced scientific training has been overwhelmingly vindicated and validated."

String Math @ ICTP



Thank you!

More details at www.ictp.it