



The Abdus Salam
International Centre
for Theoretical Physics



S. Randjbar-Daemi

Mission: Sharing Knowledge

Disseminate frontline scientific knowledge in developing countries.

Establish collaborative links between scientists of all over the world.

5000-6000 visitors every year.

- General
- Mena Region
- Global Centers and Branches

A successful model of international collaboration

- First and leading *global* institution for scientific research and education (emphasis developing countries!).
- Founded 1964 IAEA +Italian government (AS: Nobel Prize 1979)
- Since 1995: Tripartite: Italy +IAEA+UNESCO (85% Italy, 10% IAEA 1.5%+administration



Research Sections

- High Energy, Cosmology and Astroparticle Physics (1964)
- Condensed Matter and Statistical Physics (1974)
- Mathematics (1986)
- Earth System Physics (Climate Change+...) (1998)

Other Research Activities

- Multidisciplinary Laboratory (microprocessors...) (1985)
- Telecommunications/ICT for Development (1990)
- Renewable Energy, High Performance Computing
Quantitative Biology (2011-2012)

Postgraduate Education

- **Post-Graduate Diploma (1991, 1992, 2006)**
- **STEP (Sandwich PhD) (2002)**
- **PhD in main research areas (Trieste U. 2005, SISSA 2011)**
- **Master in Complex Systems (2011)**

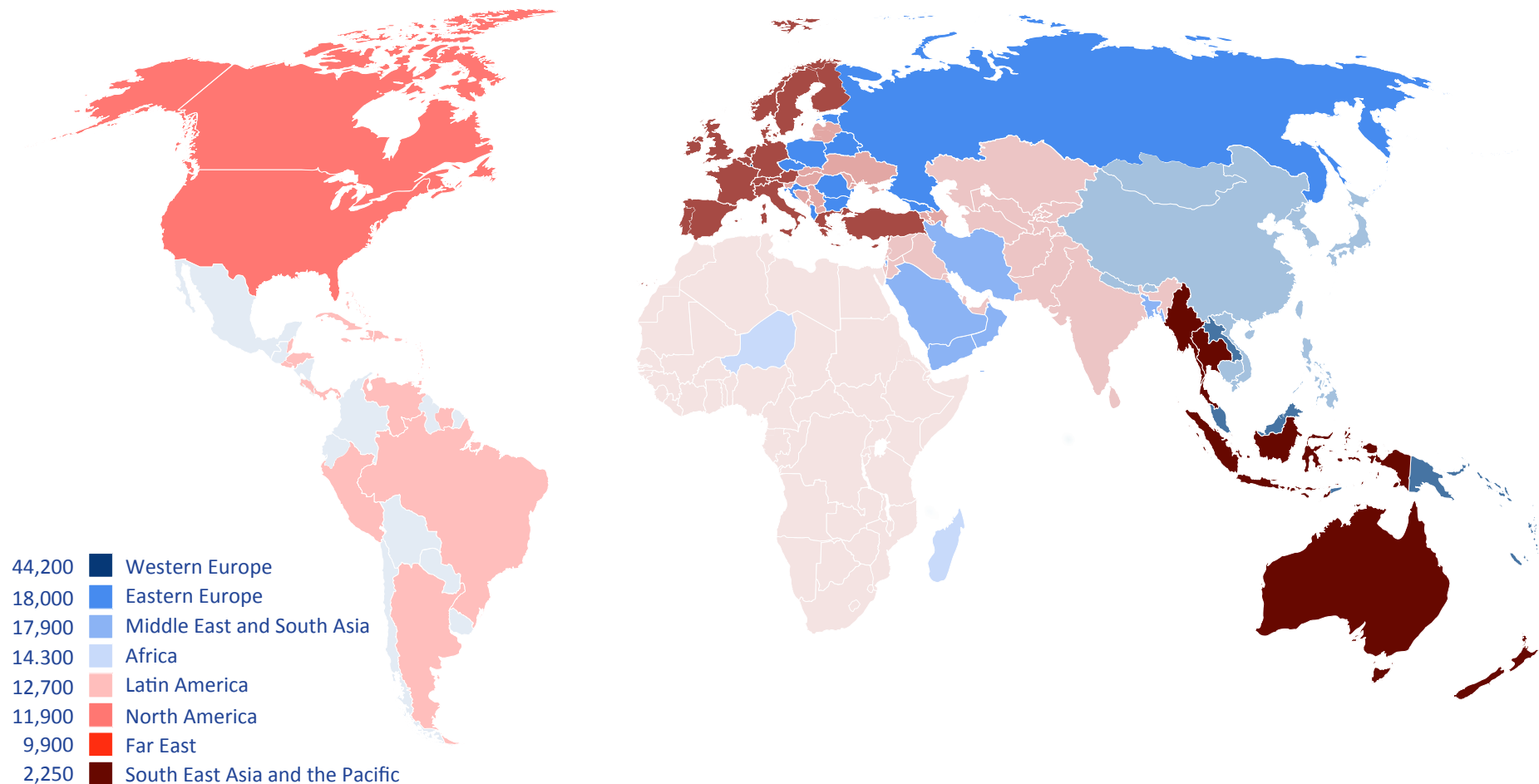
Salam Lectures 2012



ICTP Visitors, 1970- 2012



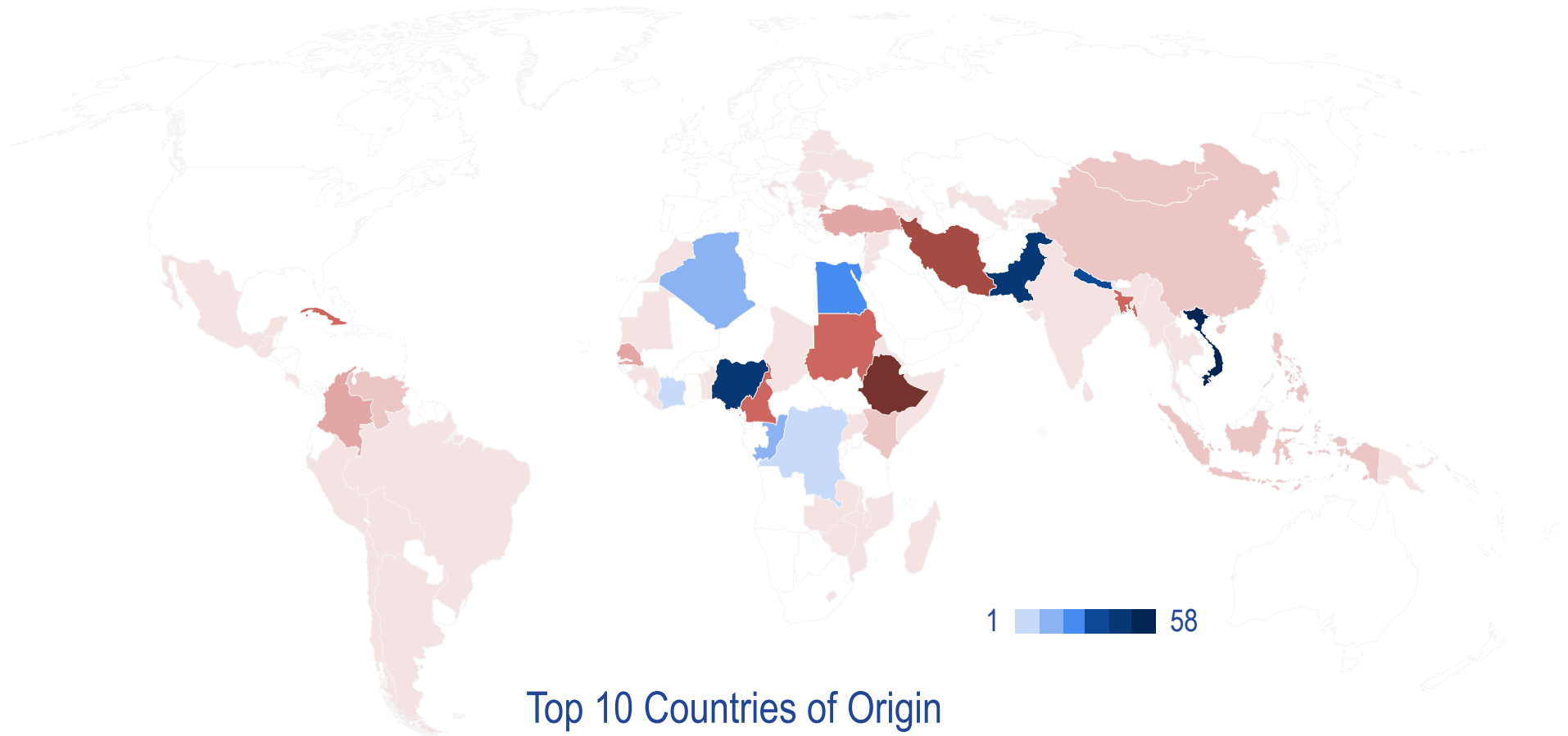
- More than 130,000 visits since 1970
- 188 countries represented
- 20% of ICTP visiting scientists are women



Fighting the 'Brain Drain'

- **Associates and Federation Schemes (1964)**
- **Programmes at ICTP and developing countries (conferences, workshops, schools) (1964)**
- **TRIL (training and research in Italian laboratories) (1983)**
- **OEA (office of external activities) (1985)**
- **ICTP hosts: TWAS (1983), IAP (1993), OWSD (2005)**

Postgraduate Diploma Students, 1991—2012/2013

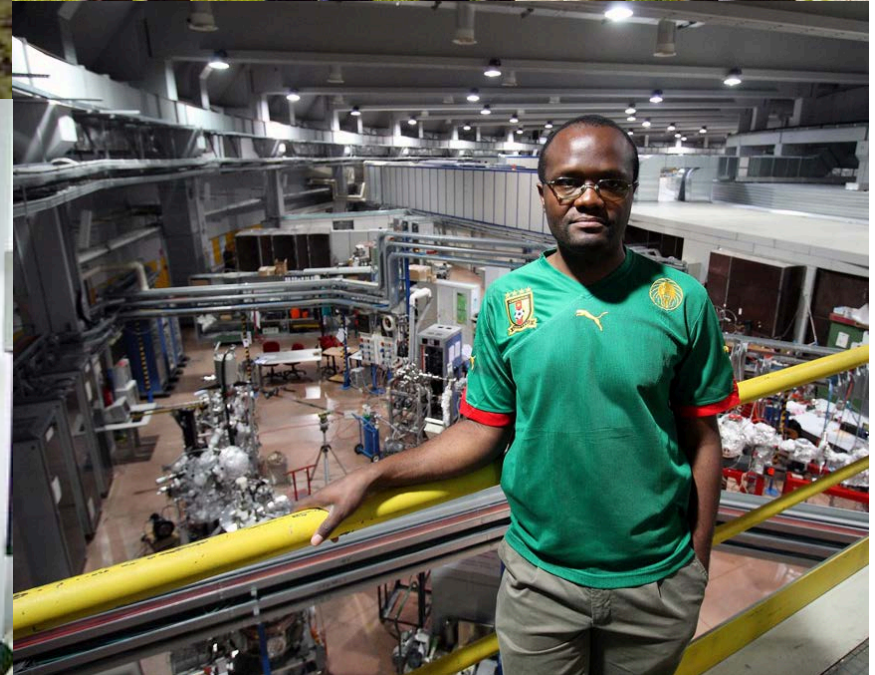
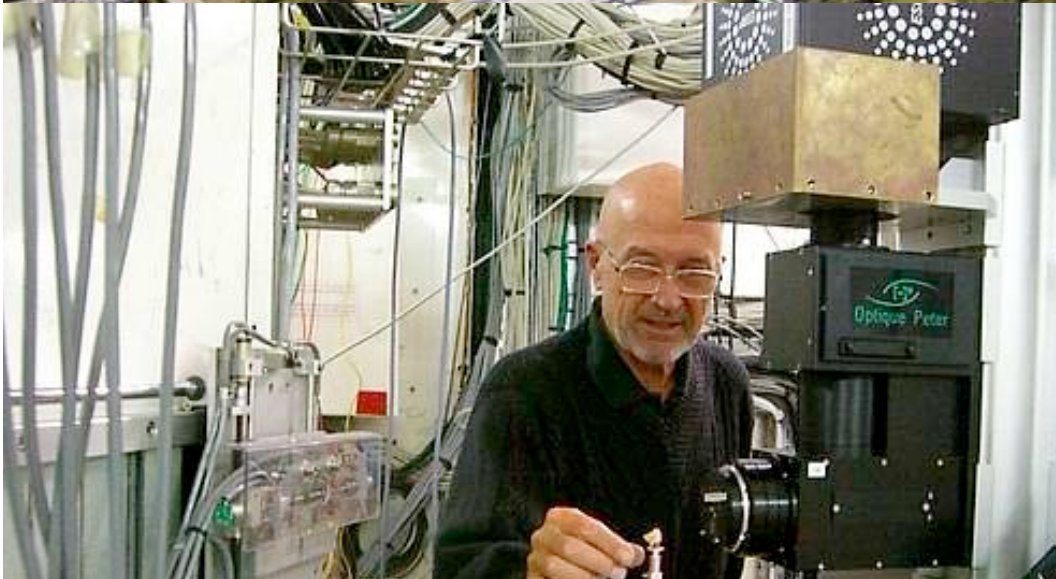


Top 10 Countries of Origin

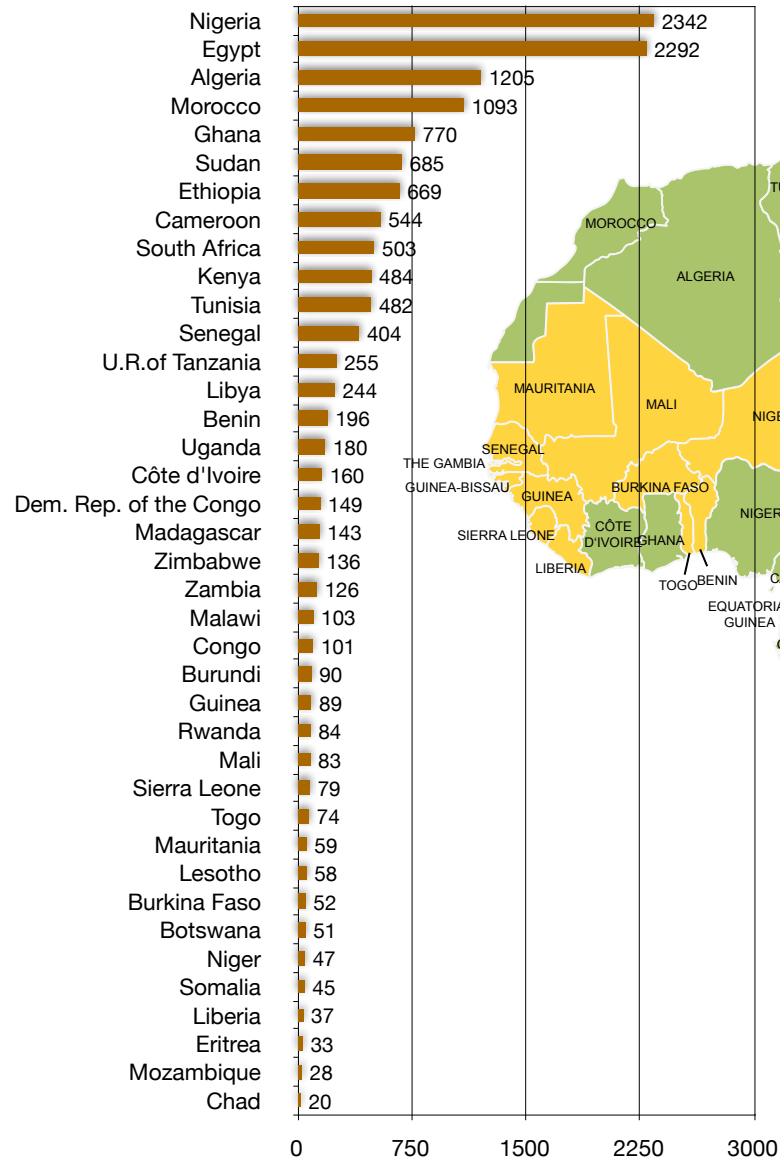
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|------------------|--------------------|
| 1. Viet Nam (58) | 6. Nepal (38) |
| 2. Ethiopia (57) | 7. Bangladesh (37) |
| 3. Nigeria (42) | 8. Cameroon (34) |
| 4. Pakistan (42) | 9. Sudan (33) |
| 5. Iran (41) | 10. Cuba (31) |

- **Schools, Conferences, Workshops around the year**
(~ 60 at ICTP, ~25 hosted activities, ~15 in developing countries)
- **Half of them on subjects related to 4 main research areas (core).**
- **The rest on many subjects:**
medical physics, optics, nano physics, plasma physics, electronics, high performance computing, biophysics, satellite navigation, science dissemination and e-learning, m-science, entrepreneurship, nuclear physics (IAEA), teacher

ICTP and ELETTRA Synchrotron



ICTP Visitors from Africa

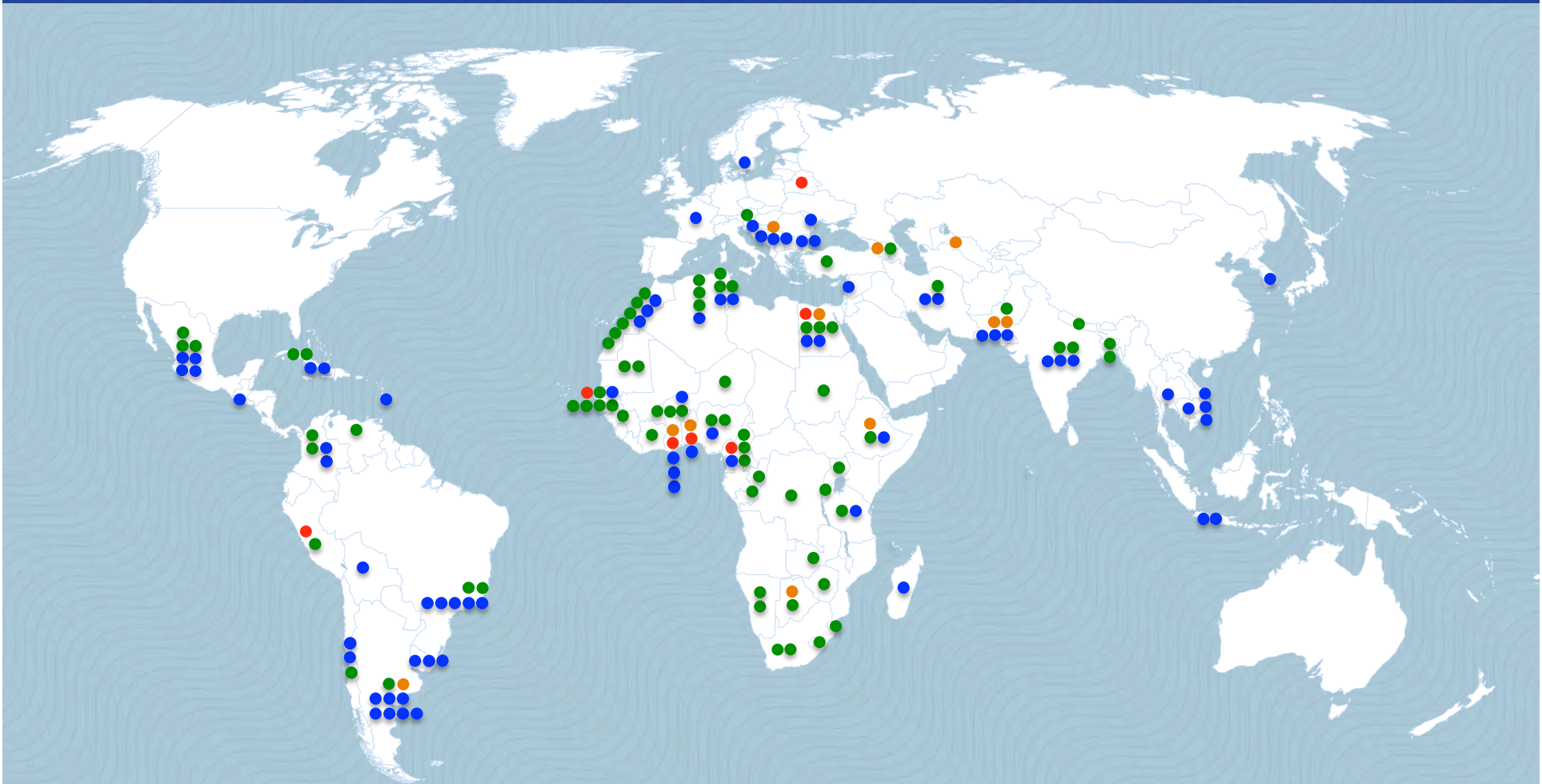


Between 1970 and 2012, ICTP welcomed 14,326 visitors from Africa



Least Developed Countries are shaded in yellow.

Countries with less than 20 visitors are not included in the chart



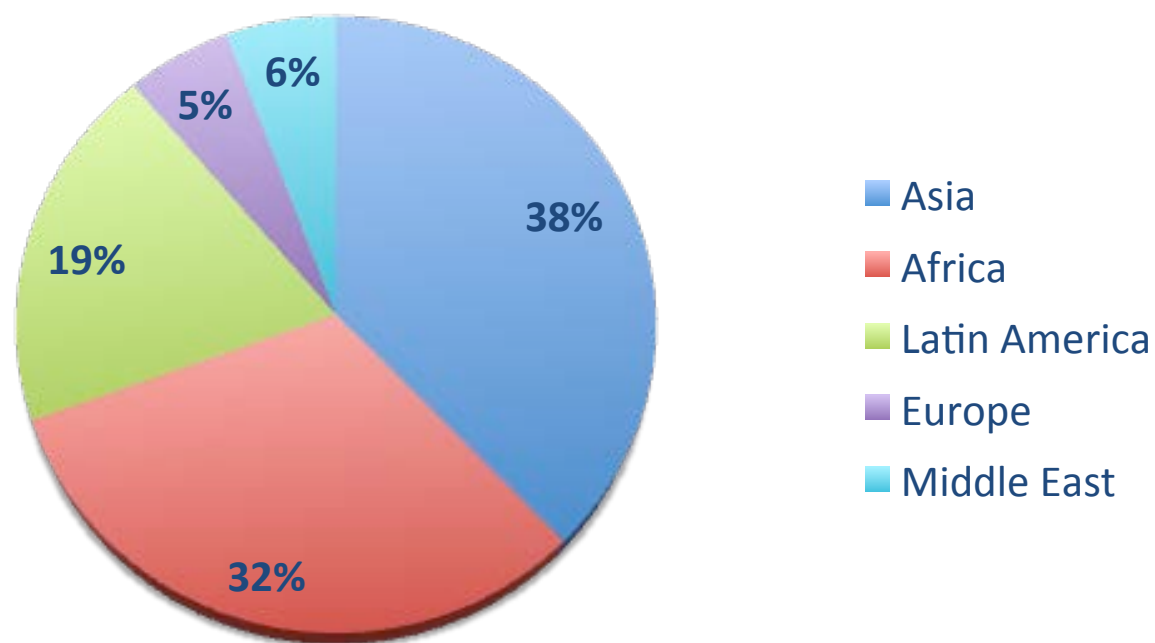
Outreach activities, 2012

- **Affiliated Centres (7)**
- **Projects (10)**
- **Networks (12)**
- **Scientific Meetings (73)**

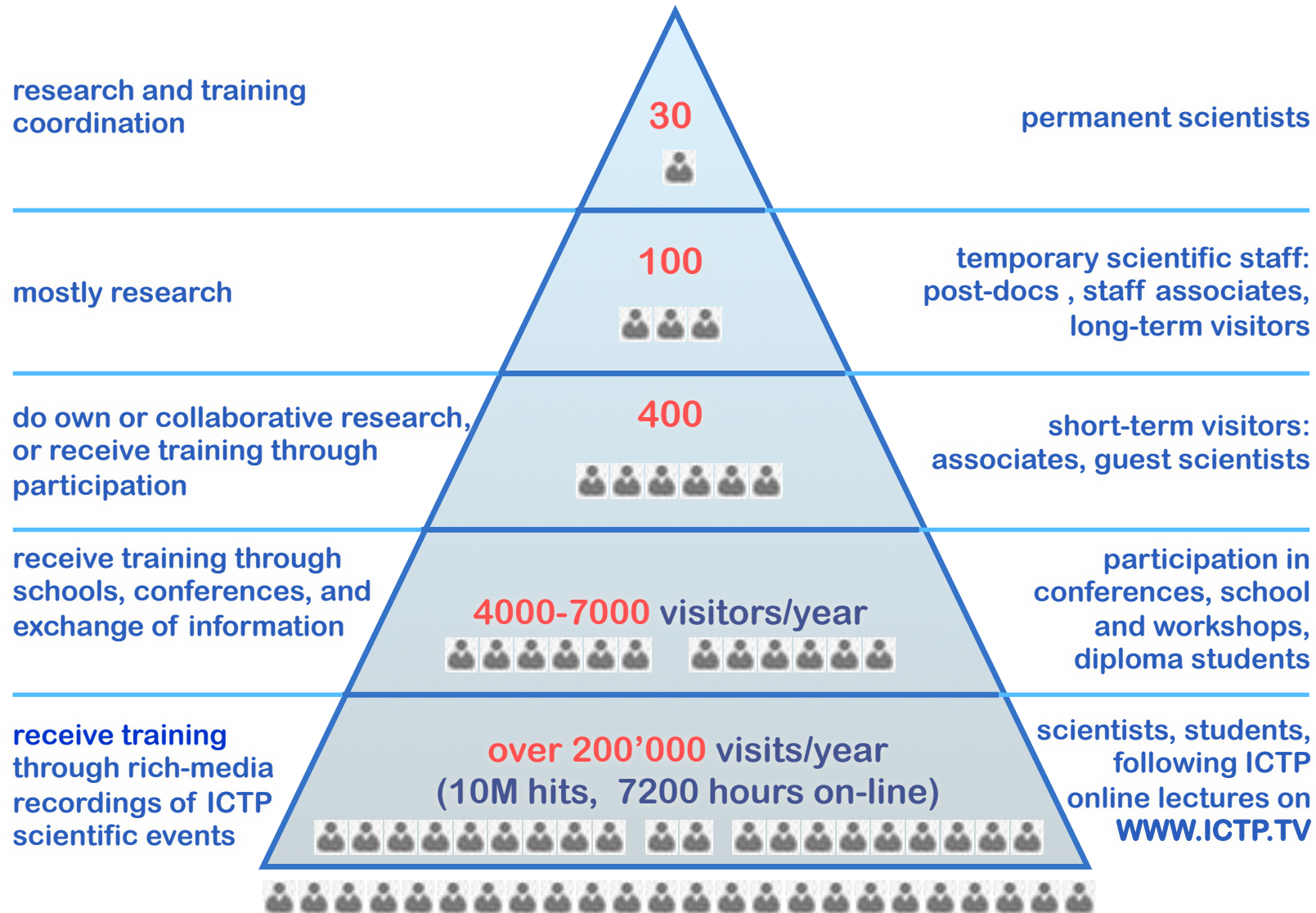
In addition ICTP-OEA has sponsored the visits of 13 Visiting Scholars/Consultants in 10 countries:

Benin (1), Colombia (2), Cuba (2), Ethiopia (1), Madagascar (1), Nigeria (1), Pakistan (1), South Africa (2), Tanzania (1), Venezuela (1)

ICTP financial support, 1996-2011
Share by geographical area for selected countries



ICTP Scientific 'users'

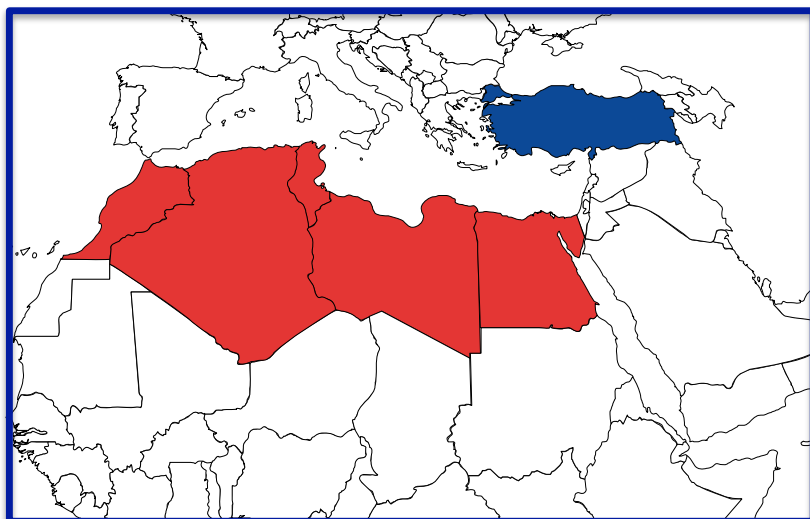


Internet Science Dissemination & ICT



**The African
Review of Physics**
formerly published as The African Physical Review

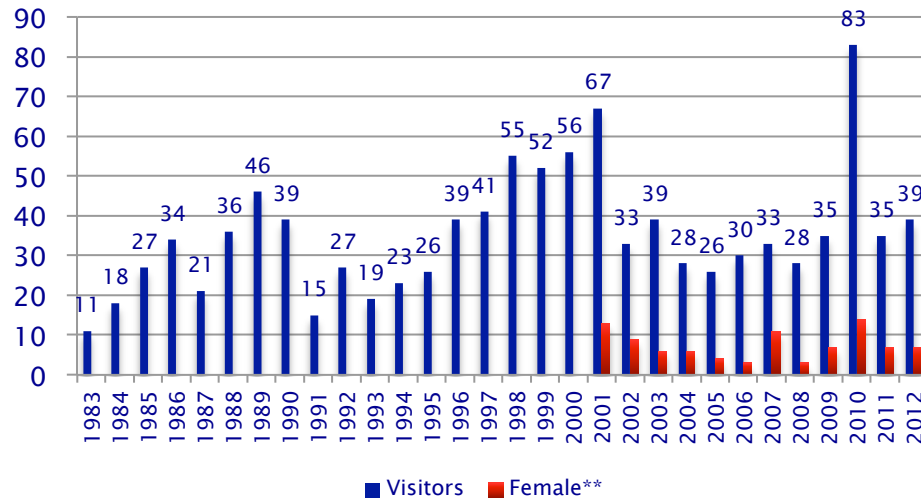




Focus on Mediterranean Countries of Africa and Turkey

Summary of ICTP activities in support of science to
Algeria, Egypt, Libya, Morocco, Tunisia and Turkey

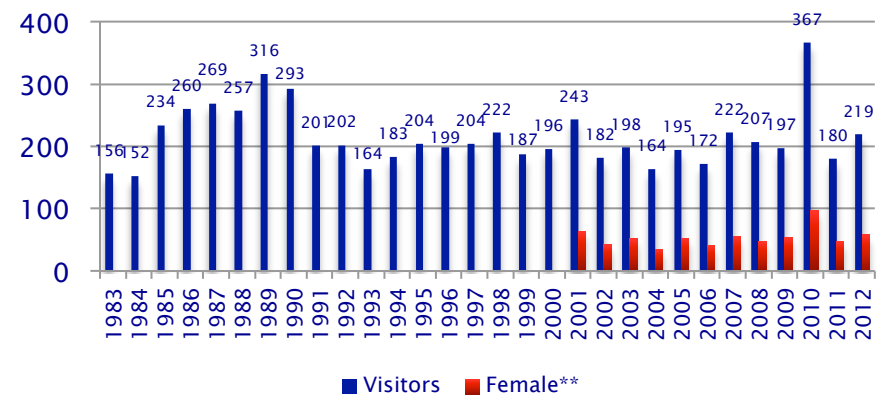
ICTP Visitors from Morocco 1983-2012*



*For the period 1970-1982, 33 visitors came from Morocco; the total number of visitors is 1094. Average percentage of women since 2001 is 19% of total visits from 2001-2012.

*For the period 1970-1982, 869 visitors came from Mediterranean Africa and Turkey; the total number of visitors is 7314. Average percentage of women since 2001 is 25% of total visits from 2001-2012.

ICTP Visitors from Mediterranean Africa and Turkey 1983-2012*



**Data on female visitors not available before 2001.

Participation in ICTP programmes

ICTP Programmes	Algeria	Egypt	Libya	Morocco	Tunisia	Turkey
Pre-PhD Programmes						
Postgraduate Diploma Students	17	27	-	5	-	19
ICTP-IAEA Sandwich Training Education Programme Fellows	1	20	-	4	5	1
Career Development						
Associates Scheme Members	52	66	5	54	22	53
Federation Scheme Affiliates	21	106	-	78	40	90
Laboratory Opportunities						
TRIL Fellows	11	29	1	15	3	28

ICTP in Mediterranean Africa

Algeria	Egypt	Libya	Morocco
Earthquake and Tsunami Risk Reduction: Bridging Education, Research and Communication for a Better Preparedness, 2013	Workshop on Aerosol–Climate Interactions: Mechanisms, Monitoring, and Impacts in Tropical Regions, Hurghada, 2008	School on Dynamical Systems, Tripoli, 2010	Mediterranean School on Nano–Physics, Marrakech, 2010
Geophysics, Geodesy and Tectonics of the North Africa Plate Boundary for Better Earthquake and Tsunami Hazard Assessments, Algiers, 2010	School on Algebraic Approach to Differential Equations, Alexandria, 2007,	Conference on Basic Science, Gherlan, 2009	
International Conference on Micro and Nanotechnologies ICMNT2006, Tizi–Ouzu, 2006	First International Workshop on Climate Variability over Africa, Alexandria, 2005		

On average, each conference has attracted 75 participants

ICTP Visitors from the Mediterranean Region, 1970-2012



ICTP: Success story



- **Impact much bigger than numbers**
- **Holistic and Sustainable** (several generations)
- **Global** (East-West + North-South)
- **Highest level research and training**
- **Activities in and outside Trieste**
- **But ICTP too small, important to joint international collaborations+...**

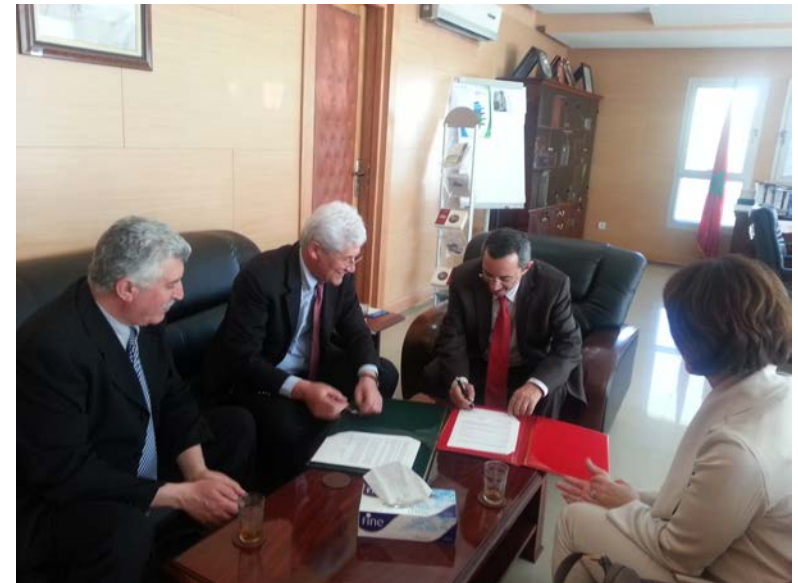
ICTP GLOBAL CENTERS

- 2010 Rabat
- Center for Physics and Mathematics (CPM)

- ICTP-CENESTEN-MESRS

- 9 May 2013

- ICTP-Univ.Mohammed V- Agdal



ICTP Regional Centers



ICTP- South American Institute for Fundamental Research ICTP-SAIFR, Sao Paulo: 2011!,...

ICTP- Euroasian Center for Advanced Research, ICTP-ECAR, Izmir, Turkey: 2012

**ICTP-Mesamerican Institute for Theoretical Physics
ICTP- MAIS, Mexico, To be inaugrated on 12 June**

China, Indonesia,

Top Five Targets



- **Formal PhD programme.** (ICTP-SISSA PhD, started 2011!)
- **Regional centres of excellence .** (Sao Paulo: 2011!,...)
- **New research areas:**
 - Renewable Energy
 - Quantitative Biology
 - Computing Sciences and High Performance Computing
- **Promote internet and e/m-learning techniques**
- **'Institute Advancement Office'.** (50th anniversary Campaign)



As a fully-fledged UNESCO Institute, ICTP is a flagship of UNESCO's sciences programmes. It is a leading international centre that fosters access by scientists, from both developing and developed countries, to scientific excellence in physics and mathematics – including in the cutting-edge area of climate change modelling. ICTP embodies the ideals of UNESCO in education, science and culture. With visits of scientists from over 184 countries in the past 45 years to conduct and discuss research, ICTP has advanced science in a unique multicultural context.

Irina Bokova, Director General

United Nations Educational, Scientific and Cultural Organization



ICTP has played a vital role in making the benefits of scientific research available to improve human health, prosperity and wellbeing. It has been a reliable partner for the IAEA in helping developing countries use nuclear science and technology for peaceful purposes. ICTP can take pride in its considerable achievements.

Yukiya Amano, Director General

International Atomic Energy Agency



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. Investing in science is the most efficient long-term way to address the major challenges facing humankind.

Stephen Hawking

University of Cambridge

THANK YOU !!