



Universidad de
Cartagena



Joint ICTP-TWAS Caribbean School on Electronic Structure Fundamentals and Methodologies

Cartagena – Colombia
27 August-21 September, 2012

Organizers:

Javier Antonio Montoya M, Universidad de Cartagena

Carlos L. Beltrán Ríos, Universidad Industrial de Santander

Carlos Jaime Barrios Hernandez, Universidad Industrial de Santander

Jose Sierra, Universidad del Magdalena

Sandro Scandolo, International Centre for Theoretical Physics





The International Centre for Theoretical Physics (ICTP), Trieste, Italy



- ✓ Founded in 1964 by Nobel Laureate Abdus Salam
- ✓ Based in Trieste and sponsored by tripartite agreement between Italy, UNESCO and IAEA

ICTP mission

- > To foster growth of advanced physics and mathematics studies, especially in developing countries
- > To develop high-level scientific programmes and encourage international scientific exchange
- > To provide excellent research and training facilities





The International Centre for Theoretical Physics (ICTP)



ICTP Highlights:

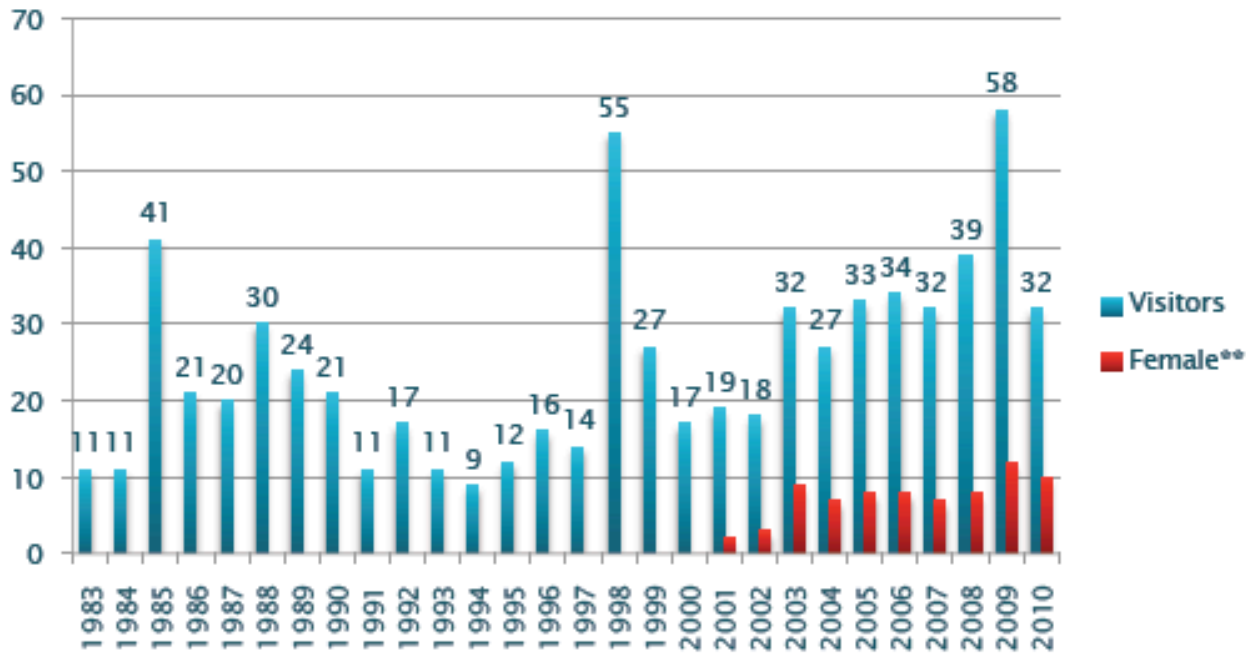
- > More than 120,000 visiting scientists since 1970
- > About 6000 scientists each year
- > 184 countries represented
- > ICTP Library holdings include 64,000 books
- > More than 60 conferences/workshops each year
- > Associate and Federation Schemes
- > Training and Research in Italian Laboratories
- > **NEW:** Centres of excellence in developing countries
(so far Brazil and Mexico)

www.ictp.it



The International Centre for Theoretical Physics (ICTP)

ICTP Visitors from Colombia, 1983-2010*



President Julio Cesar Turbay Ayala visited ICTP in 1980

Prof. Eduardo Posada, Director of CIF and ACAC, has been a member of the ICTP scientific council

*For the period 1970-1982, 58 visitors came from Colombia; the total number of visitors is 750.

Average percentage of women since 2001 is 23% of total visits from 2001-2010.

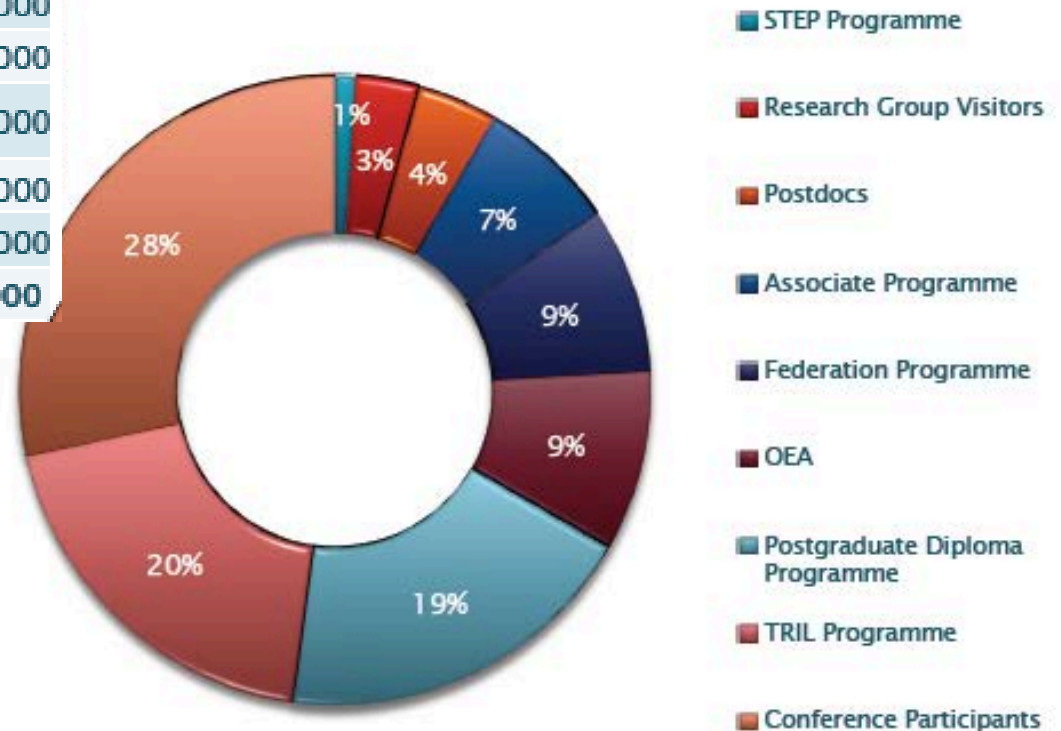


The International Centre for Theoretical Physics (ICTP)



ICTP programmes	Financial support in Euro
STEP Programme	9,000
Research Group Visitors	29,000
Postdocs	37,000
Associate Programme	63,000
Federation Programme	76,000
OEA	82,000
Postgraduate Diploma Programme	168,000
TRIL Programme	173,000
Conference Participants	252,000
TOTAL	889,000

ICTP financial support to Colombia, *Share by programme, 1996-2010*





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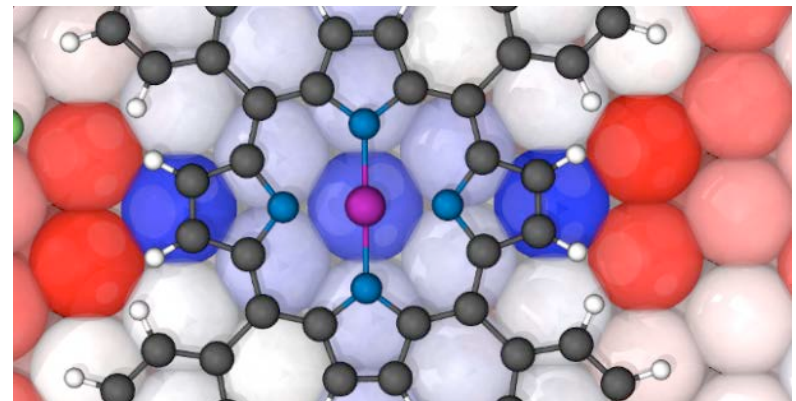
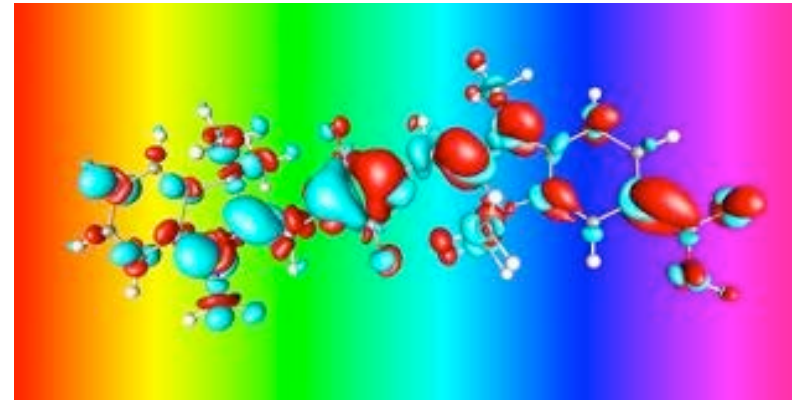
Joint ICTP-TWAS Caribbean School on Electronic Structure Fundamentals and Methodologies

SCIENTIFIC TOPICS

Electronic structure methods are based on the solution of the fundamental (quantum) equations for the electrons, **without any empirical input**, and allow for the description of the mechanical, vibrational, electrical, magnetic and several other properties of solids with "chemical" accuracy.

They are becoming a fundamental tool of investigation in **condensed matter physics, materials science, biology, and nanoscience**.

Applications include: materials for renewable energies, nano-electronics, biochemistry, etc

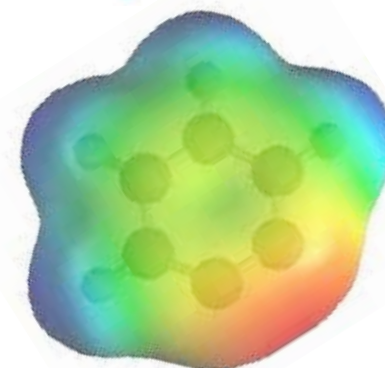
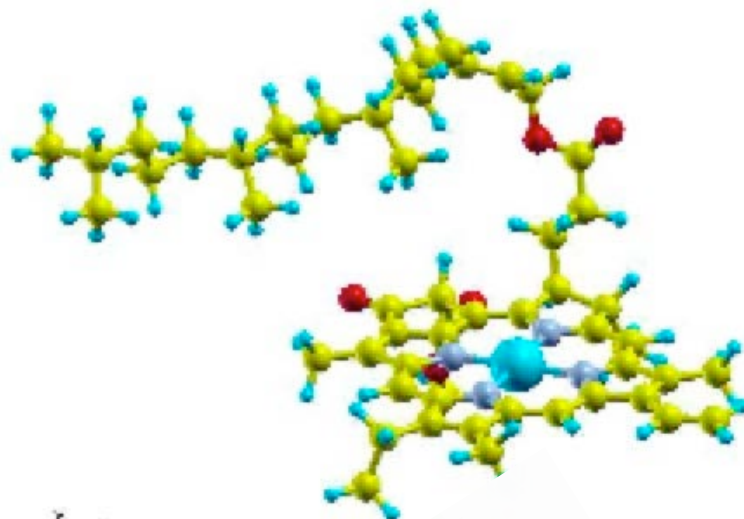




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The School will offer the opportunity to carry out **cutting-edge theoretical research** with relatively low financial investment in equipment.

The purpose of this school is to strengthen the scientific base of **junior scientists** by exposing them to a selection of international high-level lectures combined with **computational laboratories** to train students to the independent use of the codes for their own research.





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Electronic structure schools held so far

