Centro Internacional de Física
Bogotá, Colombia
22th COMSATS meeting, Tianjin, China, 2019

Eduardo Posada
Director

CIF’s research groups

- Basic research
  - Biophysics and tropical diseases
  - Biophysics of cellular signaling
  - Cellular neurophysiology

- Applied research
  - Optics
  - Materials science
  - Environmental biotechnology
  - Applied physics and technological development
New results

Environmental Biotechnology

Strategies for mitigating the impact of climate change in the province around Bogota
• Two green houses built and operated. More than 300000 plants planted
• Pollination by bees in pilot coffee plantation: 30% increase of the production
• Organic fertilization in sugar cane plantation: 20% yield increase
• Optimization of energy consumption in “panela” manufacturing facilities
• Pedagogical work with the communities. More than 8000 peasants involved

New results

Applied Physics

Optimization of the use of energy by vulnerable populations in the province of Cundinamarca
• Development of “intelligent Photocontrollers” for public illumination in 8 towns. Total 1800 devices manufactured and being installed
• Installation of solar energy in 4 rural schools not connected to the grid
• Work with the communities on the rational use of energy
New results

Applied Physics + Biotechnology

Pilot project on rational use of energy in public buildings in 5 provinces of the central region of Colombia
- On-line monitoring of power consumption and climatic variables in public buildings
- Analysis of the data
- Implementation of the recommendations
- 10% savings in 3 months

National Cooperation Agreements

Universities
- National University in Bogota
- Universidad Javeriana
- Universidad de los Andes

Industry and public sector
- Inelsa electrical devices
- Cadena security and printing
- IGAC Remote sensing and image analysis
- National Space Commission
International Cooperation

COMSATS
ICTP
TWAS
Max Planck Institute, Gottingen
Ecole de Physique et Chimie, Paris
Paris VI
NYU, Biophysics Institute
Woodshole

What we can offer to COMSATS

• Expertise in environmental and climate change policies
• Sharing our industrial experiences
• Expertise in science policy
• Work with rural communities on rational use of energy and climate change
• Development of solutions for industrial problems
Future programs

• Monitoring of structural health of buildings and roads
• Research on tropical diseases
• Chip design laboratory
• Freeze-drying plant for tropical fruits
• Gamma ray sterilization of fruits and vegetables
• Treatment of plant lake contamination using native microorganisms

Science and technology for achieving SD goals

Most of CIFs activities are directly related with SD goals

• Climate change
• Rational use of energy
• Water decontamination
• Creation of industrial facilities for fruits and vegetables processing
• Research on tropical diseases
• Improvement of the infrastructure
Many Thanks