Hands-On Research Schools

for science faculty (ages 25-35) from developing countries

PARTICIPANTS

♦ do experimental research w/ inexpensive modern instruments

♦ learn computational modeling methods

♦ develop career skills (mentored practice with communication, teaching, networking)

Photographs by Lizabeth Kelley
Hands-on table-top science

- Inexpensive instrumentation
e.g., web camera -- $60

- Inexpensive computation
Hands-on schools → not conferences or workshops

Boolean logic networks
Low cost experiments

**bouncing jet**

cost: $10

Ghandhinagar, India (2008)
Daily Hands-On laboratory sessions

Human locomotion laboratory

force platform
4-6 participants in each session
Nonlinear optics laboratory
Observe and measure fluid patterns

make and analyze videos

fluid between rotating cylinders
Turbulence
track particles in digital movies
Mathematical modeling sessions
Career Development

TUTORIALS: giving talks and posters, writing proposals and papers, designing research projects, improving classroom teaching
Develop communication skills

poster presentations  
talks
Practice New Teaching Methods (Interactive Engagement)
Teaching Lecture Demonstrations
Diversity

- **backgrounds:** science, engineering, medicine
- **cultures, religions, gender attitudes, dress**
- **diets --** Halal, Kosher, vegan, vegetarian, spicy/nonspicy
Hands-On history and future
2014 School: at ICTP 29 June – 11 July

Each school:
- 50-75 participants from 16-30 developing countries
- 10-12 senior faculty, each with an assistant

2008: India
2009: Brazil
2010: Cameroon
2012: China
2013: ICTP/Trieste

Future:
annual schools at ICTP

handsonresearch.org