



Outreaching Particle Physics to Developing Countries

Kate Shaw

The Abdus Salam
International Centre for Theoretical Physics (ICTP)

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We don't know where the next Curie or Einstien will originate from

Sustainable Development

- the need to solve environmental and developmental problems **requires scientists**
- investment into educational, technological and cultural institutions play a key role in growing a knowledge-based economy
- scientific research at universities drives quality of education at all levels

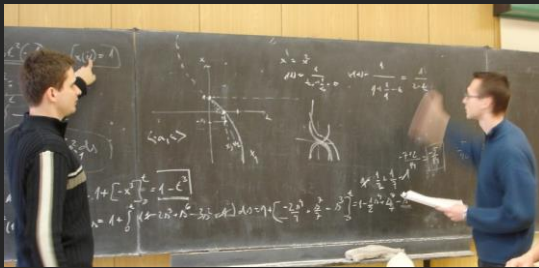
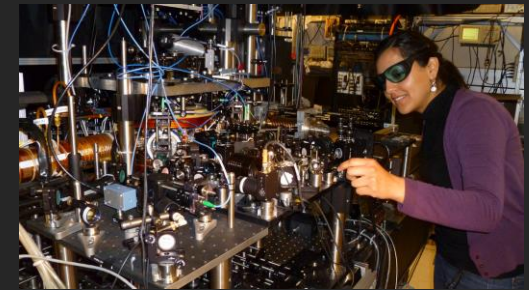
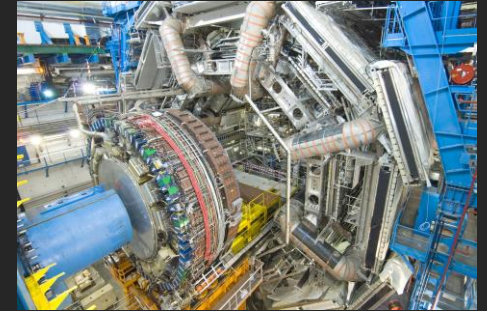
Advance of the knowledge based society

Fundamental Science

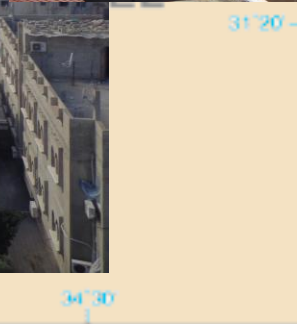
Applied Science

Technology, Engineering and Innovation

Sustainable Development



Gaza



Abd 'Awdah
(Joz Abu 'Awdah)

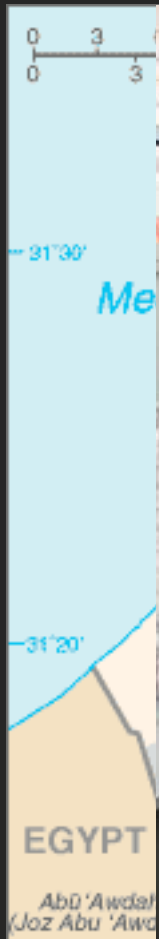
34° 20'

34° 30'

Islamic University of Gaza



AlAzhar University



Muhammed Alhissi



Muhammed Alhissi – Gaza

“My dream is to obtain a PhD in Physics and do research”

“Thanks to ICTP, I applied for a joint master scholarship, and I got it. I am glad for this but not glad enough since I do not know how I will travel to Italy from this big prison "Gaza"!”

“Even when the crossing opens, there are more than 10,000 people in front of me waiting to travel. “

“Sometimes, I feel that my dream will vanish. Many students lost their opportunities to study abroad”

Issues for students

Interest in Research:

- Students do not see a degree in physics leading to anything other than a teaching career
- Students often have little or no exposure to research
- Badly equipped laboratories demotivate students

Awareness of opportunities:

- Students often are not aware of opportunities to study abroad, or possible career paths

Brain drain:

- Students who do continue their studies abroad often do not see opportunity back in their home country and do not return

Issues for Academics

Isolation:

- Lack collaborators, funding for conferences, visits

Universities are often seen only as teaching institutions

- Little opportunity for funding for research
- Faculty saturated with teaching

Brain drain:

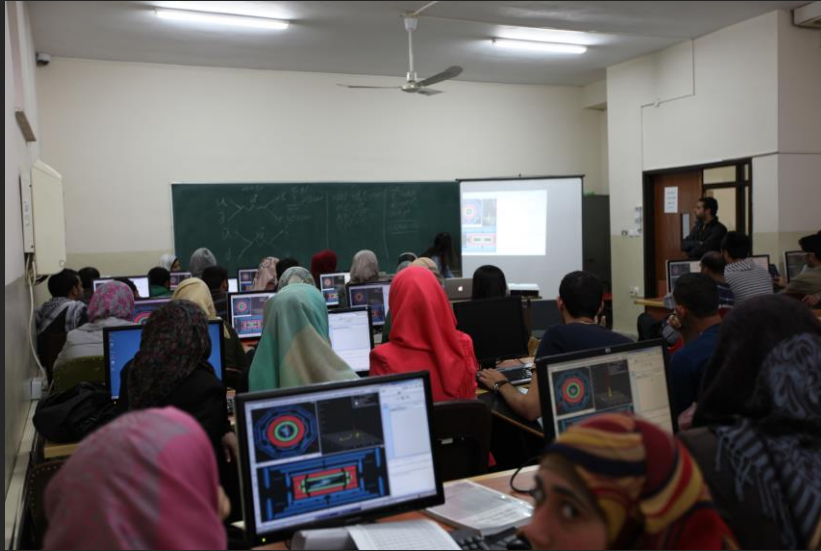
- Physicists will often leave their home country

Physics Without Frontiers

- **Stimulate interest in Research**
- **Raise awareness of opportunities**
- **Fight the brain drain**
- **Promote physics research**

Physics Without Frontiers

Palestine



Physics Without Frontiers Lebanon 2015

At Lebanese University, Beirut

24 April, Friday

09.00	Welcome & introduction	12.00	Lunch
09:15	Lecture I: Standard Model of Particle Physics <i>Ahmad Zein Assi (ICTP)</i>	13.00	Lecture V: Introduction to the Hands on Session <i>Kate Shaw (ICTP)</i>
10:00	Lecture II: Discovering Physics with Hadron Colliders <i>Kate Shaw (ICTP)</i>	14.00	Hands on Session using LHC Data
10:45	Break	15.30	Combination and Analysis
11.15	Lecture III: Detecting Particle with ATLAS <i>Remi Zaidan (University of Iowa)</i>	15:45	Virtual Visit with ATLAS Control Room
		16.30	Lecture VI: Careers and Opportunities <i>Ahmad Zein Assi (ICTP)</i>
		17.00	Certificates and Goodbye

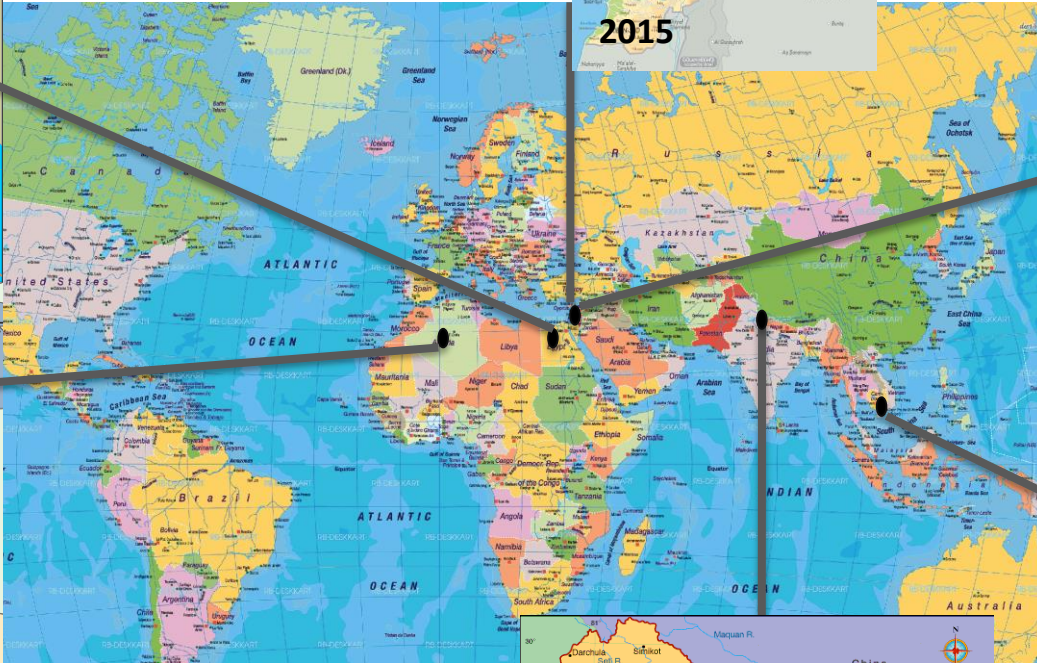
Physics Without Frontiers



Role Models



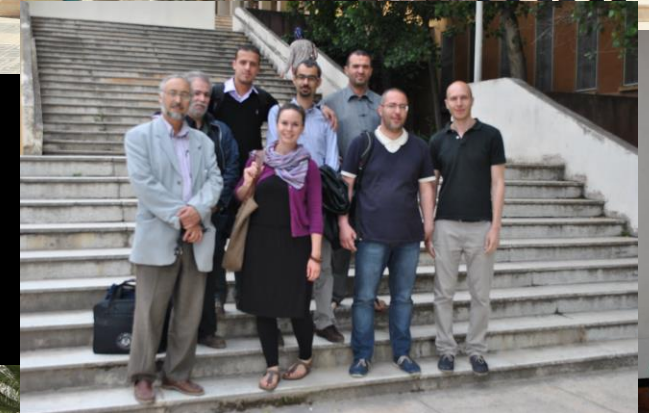
Where have we been



This map is only intended as a guide and is not exact. The map must always be used in conjunction with the malaria advice text. Bite avoidance measures should be taken in all areas.

Click on an icon below for additional country information

Regional Information Major Airports Major Railways



What can you do?

Virtual Visit to ATLAS Control room



Public Lectures



LPMS
مخبر فيزياء الجسيمات والفيزياء الرياضياتية

البحر
Département De Physique

جامعة بنغازي
جمعية الشعري لعلم الفلك بالتنسيق مع

محاضرة عامة

Fond diffus cosmologique
Inflation cosmique
Fluctuations quantiques

Expansion de l'univers
13,7 milliards d'années

International Center of Theoretical physics ICTP, Atlas group, Italy

Back to the Big Bang

The LHC: A New Vision of the Subatomic World

أسرار العالم المجهرى وعلاقتها بالانفجار العظيم
آخر اكتشافات في الفيزياء الجسيمية

يوم الخميس 16 ماي 2013 على الساعة 12:30
Grand Auditorium Mhd. Seddik Benyahya

الدرجوة بحامة

Networking



Partner with a University



Birzeit University, Palestine

Taught masters course Particle Physics as visiting lecturer with Bobby Acharya remotely

Partner with a University

- Lecture series
 - Virtual or Real!
- Exchange students
- Postdocs visit
- Apply for funding for sandwich programs
- Keep ties, send information on opportunities
- Attend their conferences
- Collaborate



Outreach, Outreach, Outreach

- Scientific community needs the best students to choose Physics at University – whatever their background

Outreach, Outreach, Outreach



Outreach, Outreach, Outreach



Our native countries: are we untapping our potential?

Three major demographic factors correlated with the likelihood of a young person choosing physics at Alevel.

- Gender
- Socioeconomic status
- Ethnic background

We must learn the barriers preventing young people from different backgrounds choosing STEM, in particular physics has the largest gap

Summary

Pool of well educated and motivated men and women from developing countries who need opportunities for study and collaboration



- **Scientific opportunity must be based on merit, not on ones country of birth or economic background**
- **There is a huge untapped potential of scientists throughout the world, we and our institutes must reach out and collaborate**

Thank you!



What if the next Curie or Einstein is a student in a country where scientific research and education is not a priority?