



INTERNATIONAL RESEARCH AND EDUCATION IN ENGINEERING (IREE)

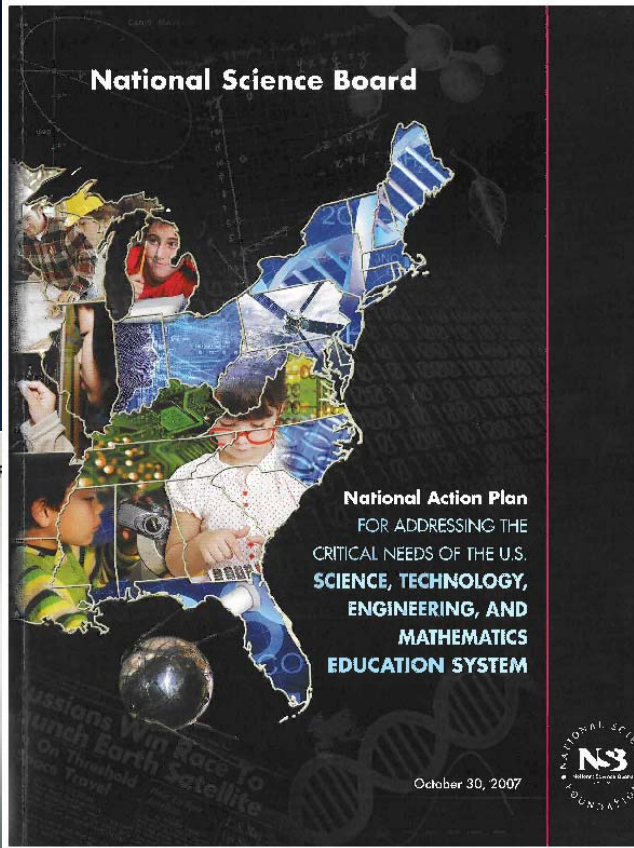
Win Aung
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Division of Engineering Education and Centers
National Science Foundation
Arlington, VA

ASME IMEE Conference
Hilton Heads Island, SC
March 27, 2009





National Science Board



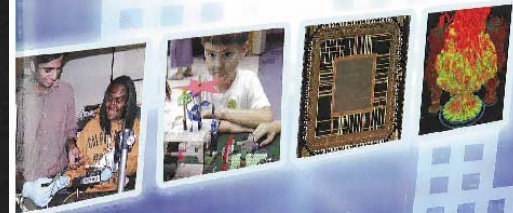
National Action Plan FOR ADDRESSING THE CRITICAL NEEDS OF THE U.S. SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS EDUCATION SYSTEM

October 30, 2007



National Science Board

MOVING FORWARD TO IMPROVE ENGINEERING EDUCATION



November 19, 2007



NATIONAL BESTSELLER



The World Is Flat
A BRIEF HISTORY OF
THE TWENTY-FIRST CENTURY

Thomas L. Friedman

Farrar, Straus and Giroux

The World Is Flat

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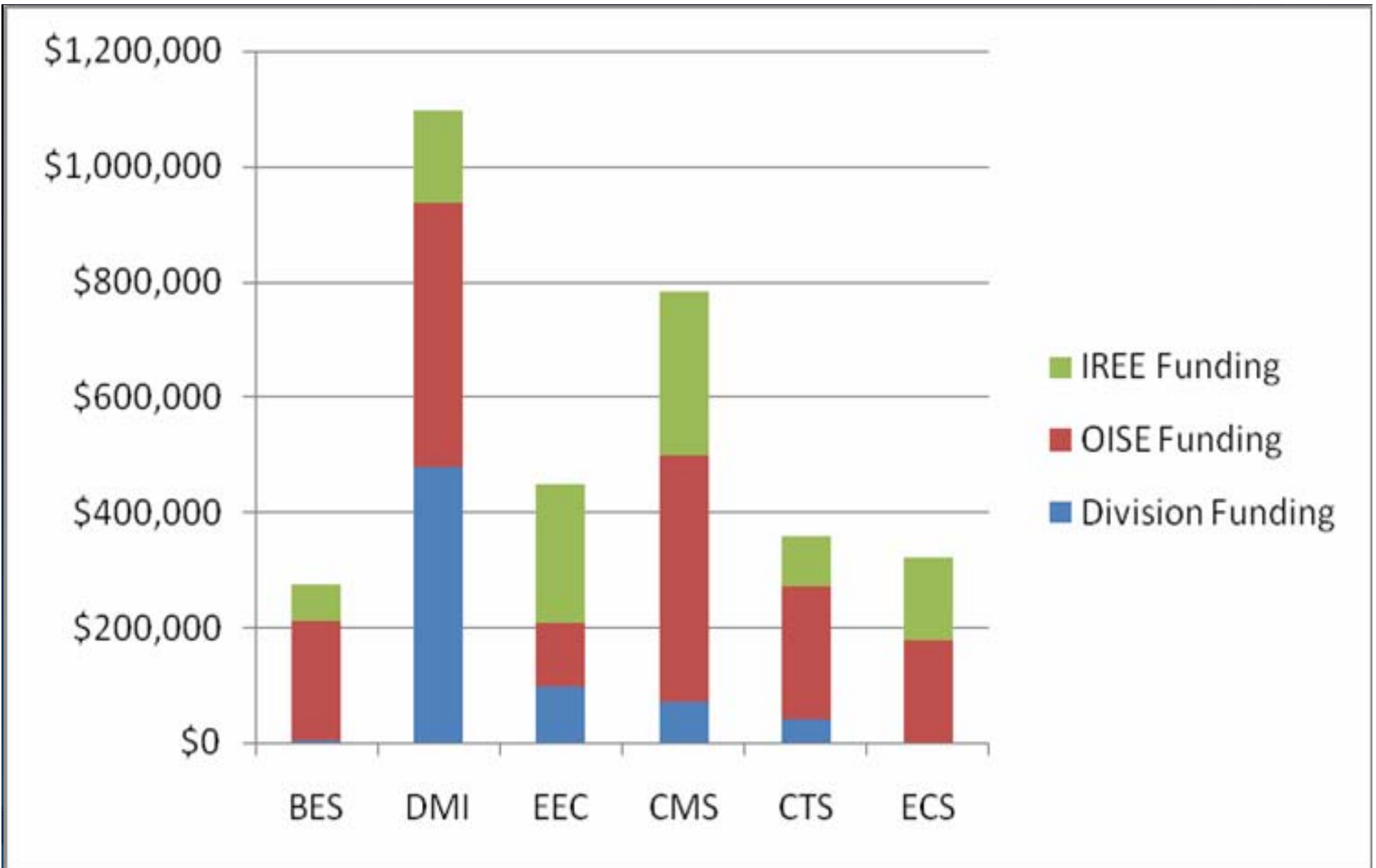
IREE: Broadening Students Global Perspective and Innovations

- Pilot started in 2006
- Completely funded by NSF: No need for PIs to make reciprocity arrangement
- Tap into new ideas worldwide
- Leverage resources of global partners



IREE Objectives

- Enhance international perspective for U.S. early-career faculty and students
- Leverage international partnerships to enhance education and research innovations in U.S.



2006 IREE Funding by ENG Divisions

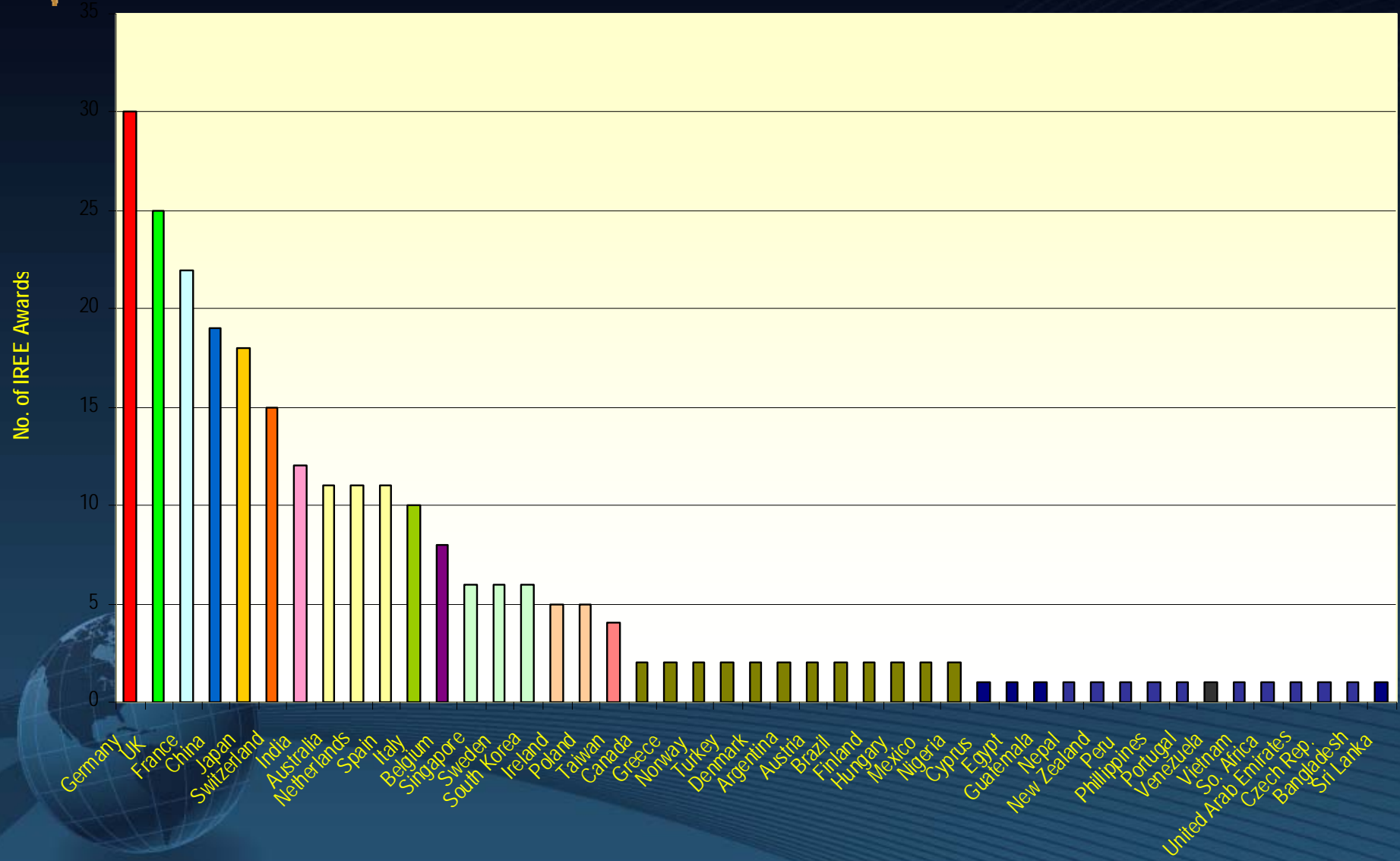
Chart/tabulation credit: IDA STPI



	FY 2007	FY 2006
TOTAL FUNDS:	\$3,910,547	\$3,269,003
TOTAL REQUEST:	\$4,925,838	\$7,137,342
NO. OF PROPOSALS:	152	177
NO OF AWARDS:	132	115
NO. WITH IREE FUNDS:	96	56
\$ SUCCESS RATE:	79%	46%
PROPOSAL SUCCESS:	87%	65%
TOTAL PROPOSALS 2006 + 2007:		329
TOTAL AWARDS 2006 + 2007:		247
AVERAGE SUCCESS RATE:		75%

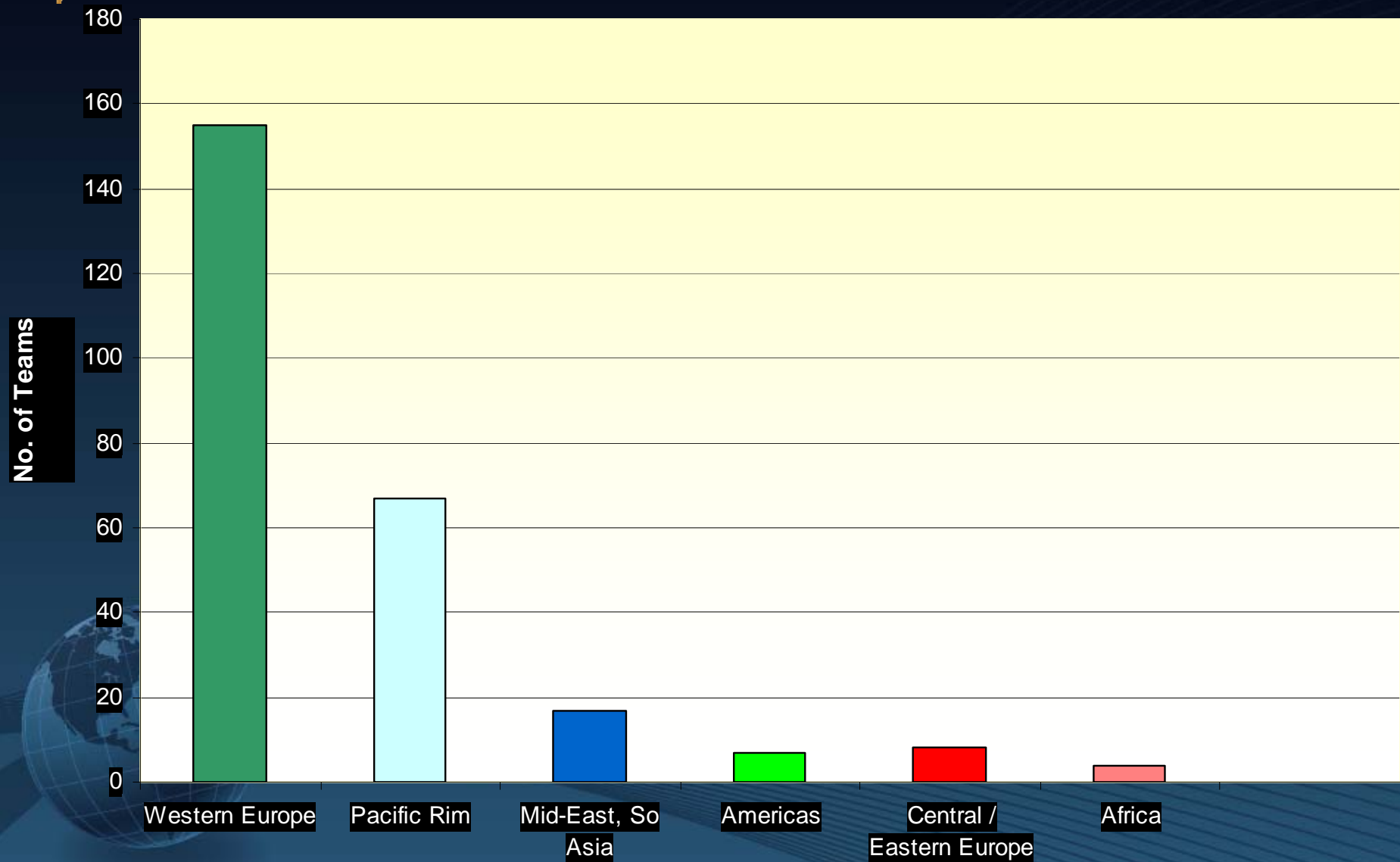


No. of IREE Awards 2006+2007 (to Each of 45 Countries)





The 262 Country-Teams for 2006 + 2007 Classified by Continents





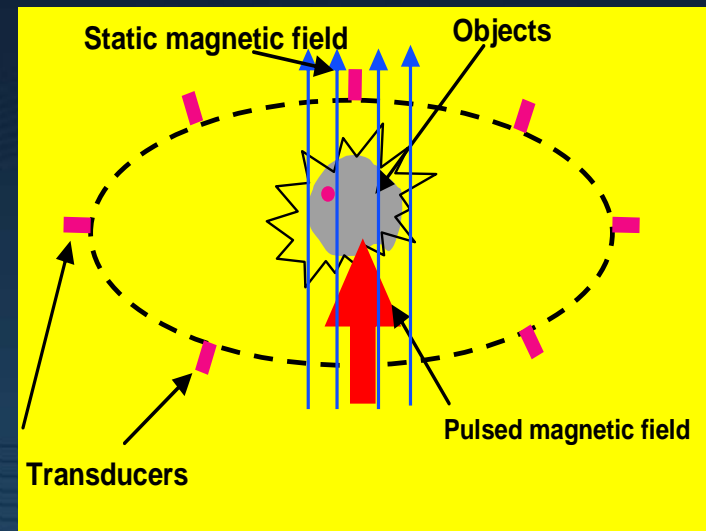
What is Expected of Travelers?

- Leverage international partnerships to enhance innovations
- Come back with a broader perspective for what is going on in the host country
- Have fun, make friends, and try to keep them for years to come
- Document what's learned abroad in a trip report to NSF within 3 months



IREE: U-MN / U-Rome Collaboration Advances Neural Imaging and Broadens Students' Perspective on Italy

- Enables development of magnetoacoustic tomography with magnetic induction (MAT-MI)
- Examples include:
 - > Neuropsychological paradigms associated with two subjects and their functional brain activity (EEG and autonomic data)
 - > Significantly broadening of two students' international scientific and cultural understanding and perspective



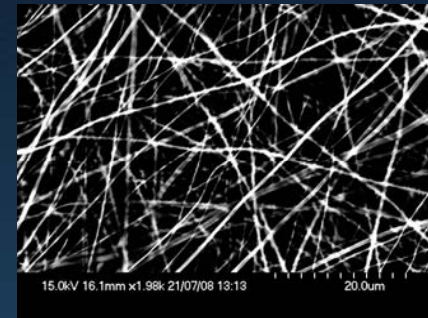
**Conceptual framework of
MAT-MI imaging**

He, 0602957



IREE: U.S. Students Gained Access to Sophisticated Facilities in Ireland

- ◉ Enables the extension of U.S. research relating to heart valve organ culture systems
- ◉ Examples include:
 - > Determining the optimal gelatin/PEO concentration for a sustainable fiber that had the most similar properties in comparison to collagen type 1
 - > Determining the efficacy of the optimized crosslinked gelatin scaffolds on transfection using superfect transfection reagent



SEM of Electro-spun gelatin fiber with a concentration 47.5 mg/ml gelatin and 2.5 mg/ml PEO
Grande-Allen, 0502432









Travel Safety

- *State Department Website*

http://travel.state.gov/travel/tips/safety/safety_1747.html

- *Transportation Security Adm Website*

<http://www.tsa.gov/travelers/index.shtm>

- *Register with US Embassy in country*





Health

- *Eyeglasses or contact lenses*
- *Prescription drugs*
- *Vaccinations*
- *CDC Traveler's Website*
<http://wwwn.cdc.gov/travel/default.aspx>
- *Insurance*



Housing

- *Don't assume anything!!!*
- *Electricity: voltage/frequency/plugs?*
- *Cooking facilities?*
- *Laundry?*
- *Bed?*
- *Air conditioning?*



Networking

- *Take a presentation with you*
- *Business cards*
- *Visiting other labs - get intros from:*
 - *US advisor and professors*
 - *Foreign host*
 - *Literature search*

- 
- A small, semi-transparent globe showing the Earth's continents and oceans, positioned to the left of the "Gifts" bullet point.
- *Gifts*



Preparations for Research

- *Know before you go*
- *Read host's publications*
- *Develop a detailed plan*
- *Short e-mails: specific and explicit*
- *Decide on scope*
- *Ensure equipment/materials will be available during the time you'll need them*



In the Long Term

1. How will global economic downturn affect engineering enrollment in the U.S.?
2. What will be the impact on U.S. students' interest to gain global perspective?
3. What is impact on universities' interest to globalize engineering curriculum?
4. How should funding agencies respond so that they will serve the needs of the communities with available resources?



Questions, Comments, Suggestions

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