



**Delaware State University**  
*Making our mark on the world*

# International Gender Issues in Physics

*March APS Meeting*

*New Orleans, LA*

**13 March 2008**

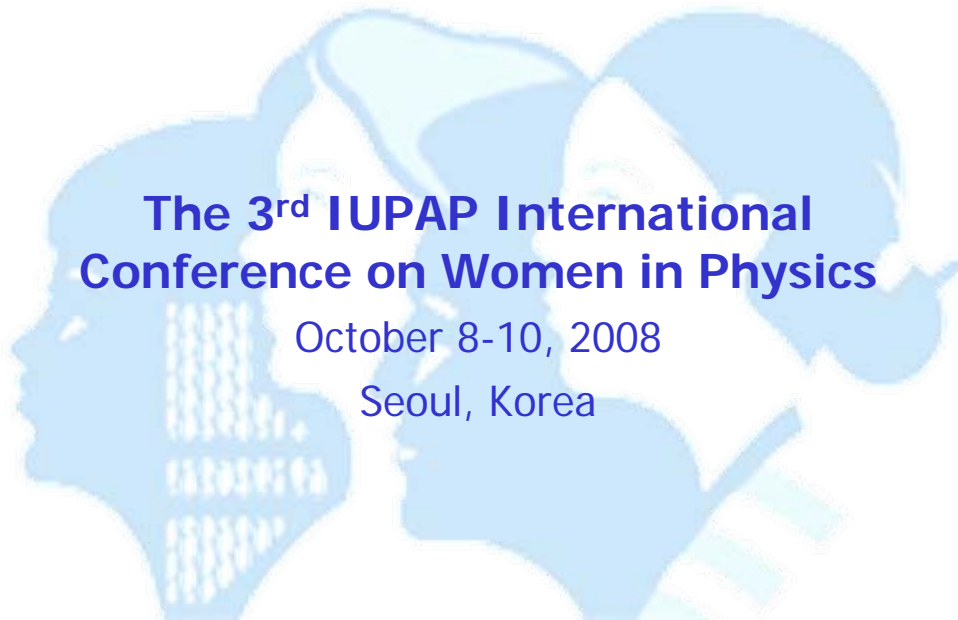
**Session V34**

**Beverly Karplus Hartline**  
**Delaware State University**  
**Moderator**

**The 3<sup>rd</sup> IUPAP International  
Conference on Women in Physics**

October 8-10, 2008

Seoul, Korea



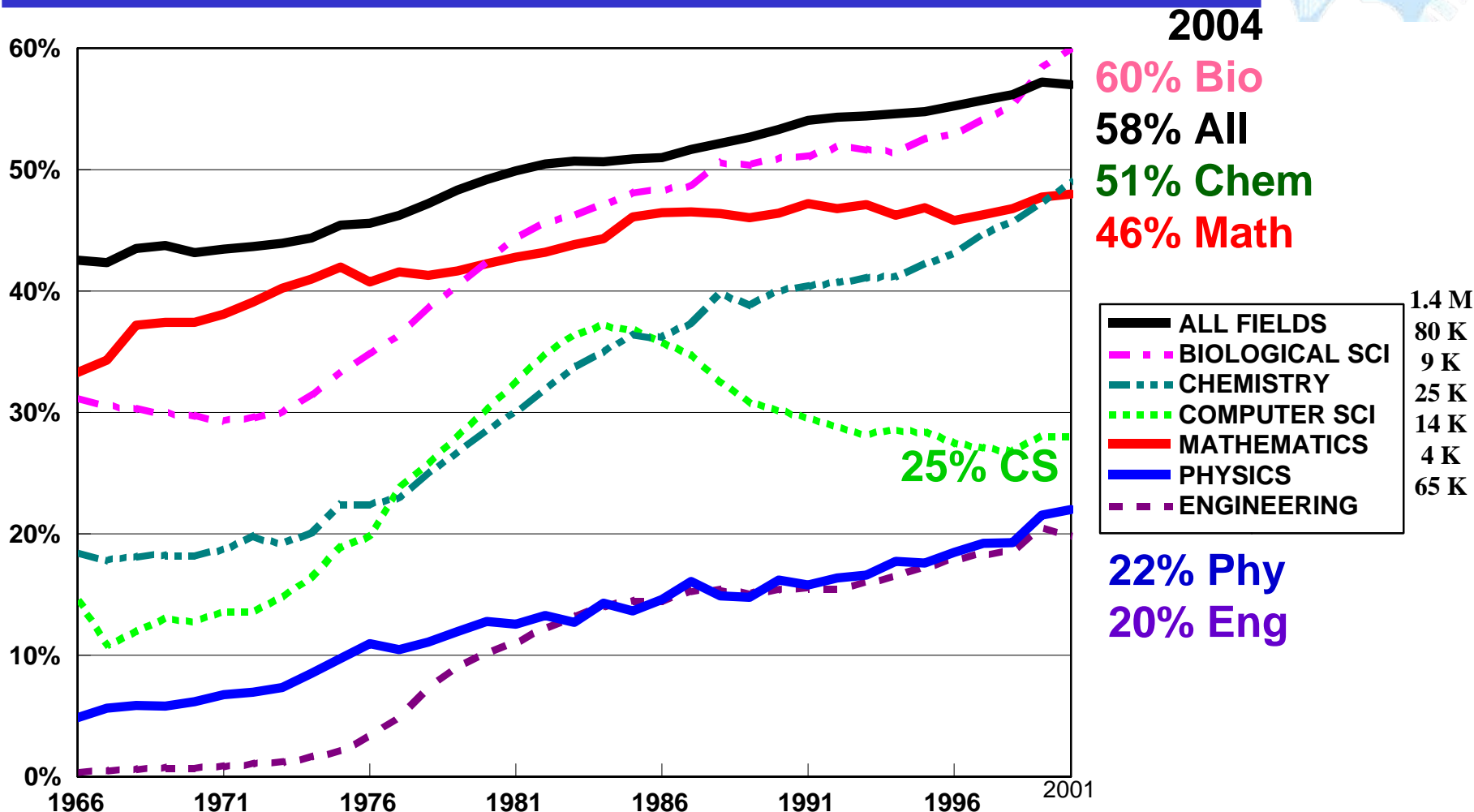
# Physics Needs **MORE** Women

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- Women bring ideas and approaches that enrich and advance physics. Yet . . .
  - They are **SCARCE**.
  - Senior women are **VERY SCARCE**.
- Some woman has to be the **FIRST ONE** in each department, subfield, program committee, directorship, *etc*
- **A classically forbidden state,**
- **Often meeting colossal resistance**

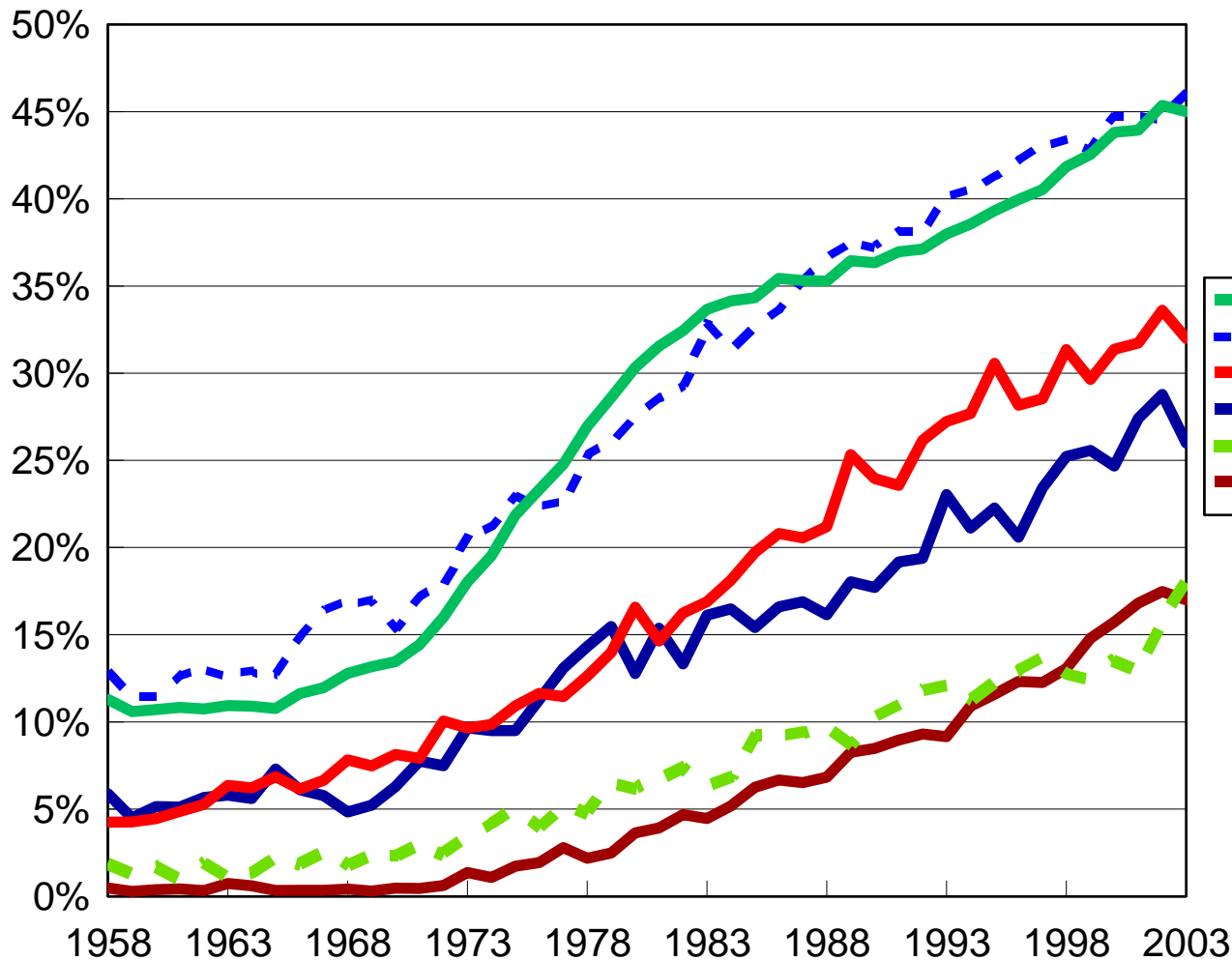
# Percent of Bachelor's Degrees Earned by US Women is Rising, but Physics Trails the Pack (1966-2001)



Source: National Center for Education Statistics. Data for Academic Year 1999 were not available.

Compiled by AIP Statistical Research Center. 2004 data from NSF 07-315.

# Rising Female Percentage of Ph.D.s in STEM: Physics is at the Low End (1958-2003)



**2005**

**47% Bio**

**45% All**

**34% Chm**

— All Fields	43 K
- - - Biological Sciences	7.4 K
— Chemistry	2.1 K
— Mathematics	1.2 K
- - - Physics	1.3 K
— Engineering	6.4 K

**27% Math**

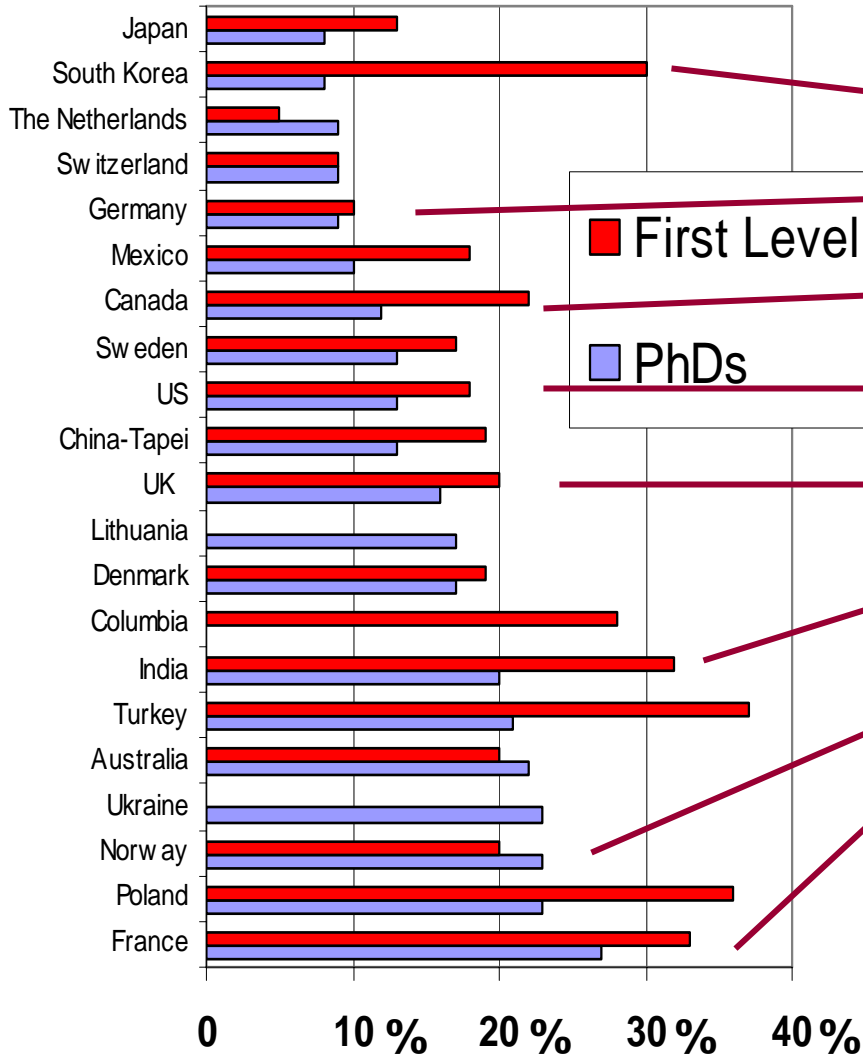
**18% Eng**

**16% CS**

**15% Phy**

National Science Foundation. Data compiled by AIP Statistical Research Center. & NSF 07-315

# Large International Variability in Percentage of Physics Degrees to Women



- **Korea**
- **Germany**
- **Canada**
- **USA**
- **United Kingdom**
- **India**
- **Norway**
- **France**

From R. Ivie et al "Women Physicists Speak" (2002), in Women in Physics, AIP Conf. Proc. 628

# A "Glass Ceiling" in All Countries



Source: *Economist* 7/05

- Very few women in leadership positions
- Very few women professors
- Some assistant and associate professors
- Several post-docs
- More graduate students
- Even more undergraduates
- **Efforts by women & men are helping some women through the glass ceiling into leadership in some countries**

# IUPAP's Women in Physics Conferences:

## I Paris, 2002; II: Rio, 2005



**Paris 2002**  
~300 physicists from  
65 countries; 15% men



**Rio 2005**  
~150 physicists from  
~40 countries; 7% men



# Women in Physics: The Third IUPAP International Conference

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- **Seoul, Korea: October 8-11, 2008**
- **Goal: >300 participants in >3-person teams from 70 countries; (15%-20% men)**
- **Multiply diverse U.S. delegation is forming, led by**
  - **Zhenya Zastavker, Olin College**
  - **Luz Martínez-Miranda, University of Maryland, CP**
  - **Renee Horton, University of Alabama**
- **Application deadline May 15, 2008**
- **Fundraising underway to support travel from US & developing countries: sponsors needed!**

International web site: [icwip2008.org](http://icwip2008.org) ; US web site: [uswip.org](http://uswip.org)



# Our Distinguished Panel

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- **Arthur Bienenstock**, Stanford & APS President, *The APS 2007 Meeting on Gender Equity in Physics*
  - **Barbara Sandow**, Freie Universität Berlin; Chairperson IUPAP Working Group on Women, *Promoting Positive Images of Women in Physics*
  - **Laura H. Greene**, University of Illinois, U-C, *She's a Physicist!?*
  - **Ling-An Wu**, Chinese Academy of Sciences, *Women in Physics in a Rapidly Changing China*
  - **Dalia Satkovskiene**, Vilnius University, Lithuania, *Women in Physics in the Baltic States Region: Problems and Solutions. Marshak Lectureship Talk*
  - **Q&A and panel/audience discussion; & raffle drawing**
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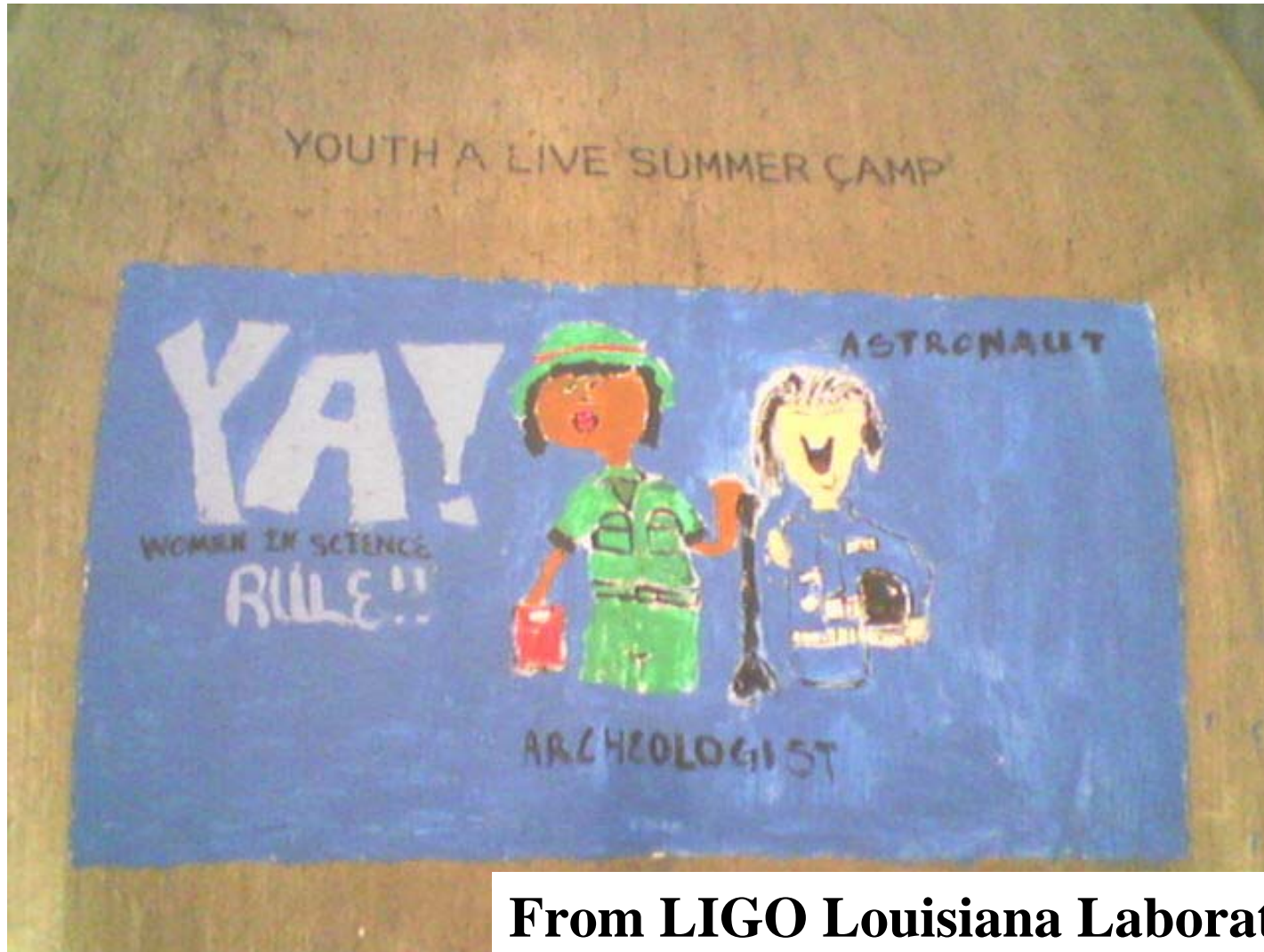
# Some Resources

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- B. K. Hartline & D. Li, eds: Women in Physics, AIP Conf Proceedings 628, 2002. **Available for free download at:**  
<http://proceedings.aip.org/proceedings/confproceed/628.jsp>
- B. K. Hartline & A. Michelman-Ribeiro, eds: Women in Physics 2, AIP Conf Proceedings 795 (November 2005) in Press. **Available for free download at :**  
<http://proceedings.aip.org/proceedings/confproceed/795.jsp>
- Committee on Equal Opportunity in Science and Engineering (CEOSE), Broadening Participation in America's Science and Engineering Workforce (June 2005). **Available for free download at:**  
<http://128.150.4.107/od/oia/activities/ceose/reports/ceose2004report.pdf>
- **CEOSE 2006 Biennial Report**, **Available for free download at:**  
[http://www.nsf.gov/pubs/reports/2006\\_biennial\\_report.pdf](http://www.nsf.gov/pubs/reports/2006_biennial_report.pdf)
- "*Women, Minorities, and Persons with Disabilities in Science and Engineering*," NSF-07-315 (Feb '07) see <http://www.nsf.gov/statistics/wmpd>

# Enthusiastic Student Mural: "Women in Science RULE!!!"



From LIGO Louisiana Laboratory, USA