

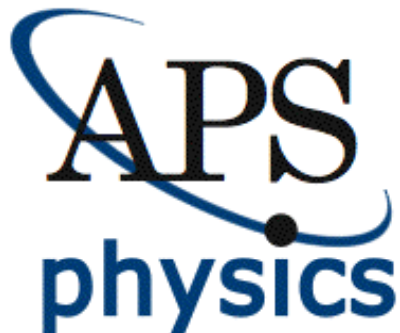


# NSF Noyce PI Conference

*July 3, 2009*

*Washington, D.C.*

## ***Teacher Recruitment: Strategies from the Physics Teacher Education Coalition***



*Dr. Monica Plisch*

Assistant Director of Education  
American Physical Society



# Need for High School Physics Teachers

## Relative Demand by Field

### Fields with Considerable Shortage (5.00 - 4.21)

Multicategorical (Spec. Ed.)	4.56
Severe/Profound Disabilities (Spec. Ed.)	4.52
<b>Mathematics Education</b>	<b>4.48</b>
Emotional/Behavioral Disorders (Spec. Ed.)	4.42
Mild/Moderate Disabilities	4.42
<b>Physics</b>	<b>4.40</b>
<b>Chemistry</b>	<b>4.39</b>
Mental Retardation (Spec. Ed.)	4.38
Learning Disability (Spec. Ed.)	4.38
Visually Impaired	4.38
Bilingual Education	4.28
Dual Certificate (Gen./Spec.)	4.28

2007 AAEE (*American Association of Employment in Education*)  
Educator Supply and Demand in the United States Report

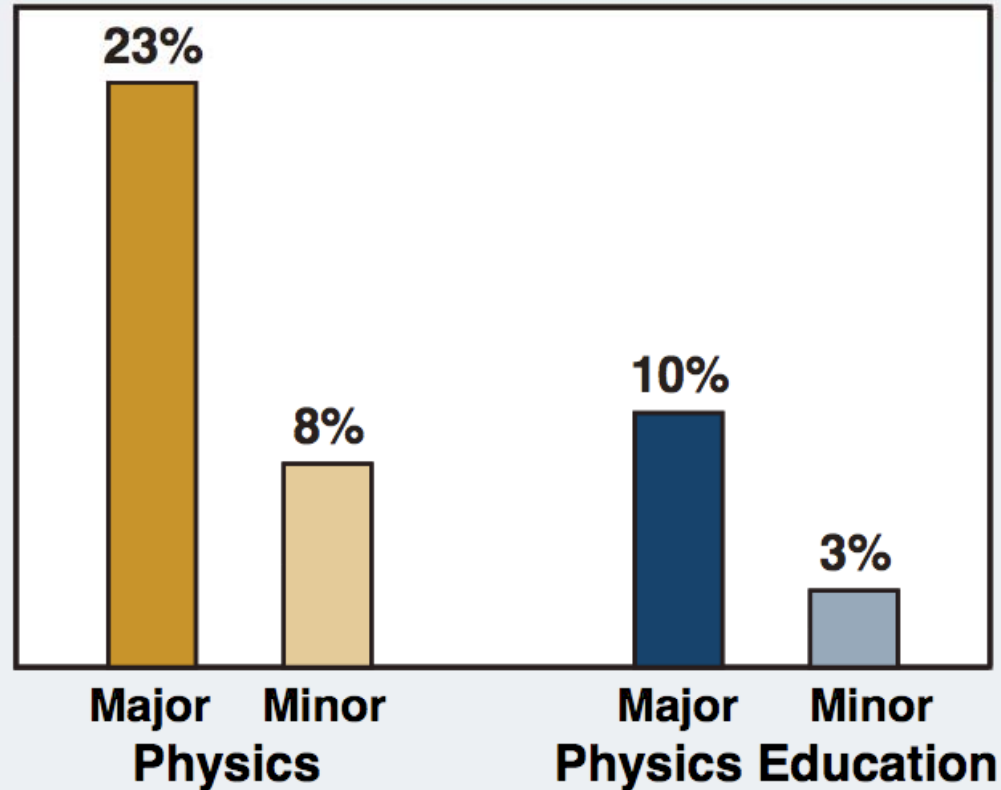


## Public School Teachers with Certification and Major in Main Assignment Field, 1999-2000

Discipline	Grades 5-8	Grades 9-12
English	45%	76%
Social Science (including history)	52%	79%
Mathematics	33%	73%
Physical Science	<b>13%</b>	<b>42%</b>
Biology-Life Science	44%	60%
Chemistry		<b>42%</b>
Geology-Earth/Space Science		<b>31%</b>
Physics		<b>42%</b>

National Center for Education Statistics. Qualifications of the Public School Teacher Workforce: Prevalence of Out-of-Field Teaching 1987-1988 to 1999-2000. Washington, DC: US Department of Education, 2003.

# Content Preparation of Physics Teachers



AIP Statistical Research Center: 2004-05 High School Physics Survey

***“..that's all well and good, but who is going to provide the 75 physics teachers I need next year?”***

*--Judy Jeffrey, Director, Iowa Department of Education*

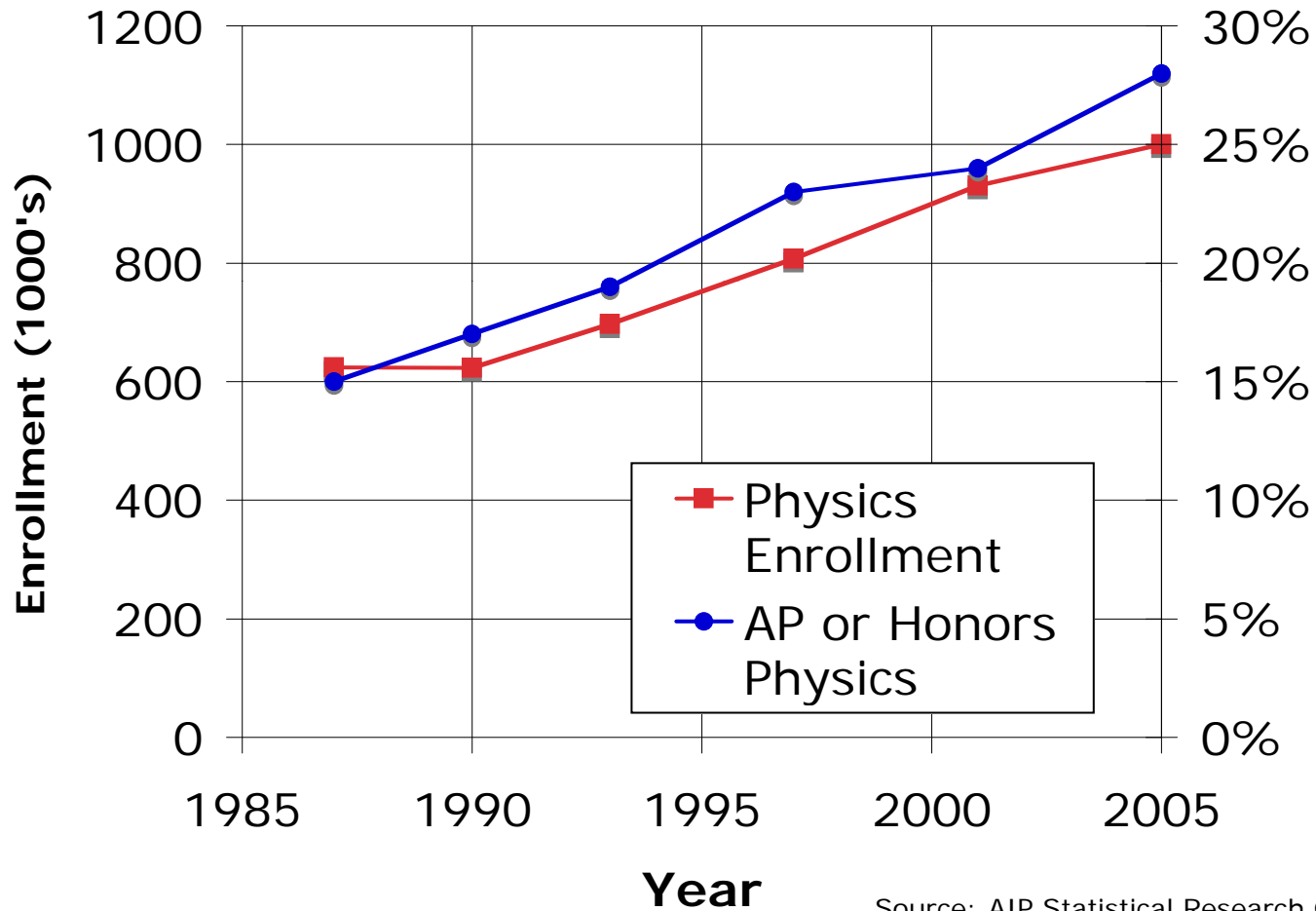
***“Think about this: in the past four years, our 15 schools of education at the University of North Carolina turned out a grand total of three physics teachers. Three.”***

*--Erskine Bowles, President, University of North Carolina*

***“In Georgia, out of 25,000 public college graduates in 2006, just three became high school physics teachers. Nine accepted jobs as chemistry teachers.... By 2010, Georgia will need more than 4,500 middle and high school math and science teachers...”***

*--The Brunswick News, March 13, 2008*

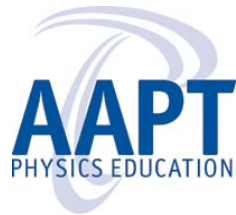
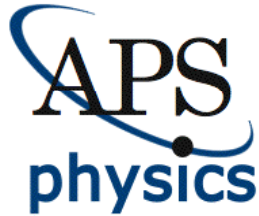
# Need for High School Physics Teachers



Source: AIP Statistical Research Center



# Physics Teacher Education Coalition (PhysTEC)



APS (Theodore Hodapp, PI)  
AAPT (Warren Hein, co-PI)  
AIP (Jack Hehn, co-PI)

Monica Plisch, PTEC Leadership  
Gabe Popkin, Project Management  
Paul Hickman, Teacher-in-Residence Program  
David Meltzer, Assessment Consultant  
Ed Lee, APS Staff Support



21<sup>st</sup> Century Campaign  
A SCIENCE EDUCATION INITIATIVE

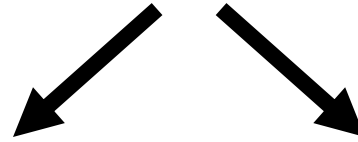


[www.PTEC.org](http://www.PTEC.org)

[www.PhysTEC.org](http://www.PhysTEC.org)



# PhysTEC Project



## National Coalition (PTEC)

- 137 member institutions
- National conference
- Broad dissemination
- Advocacy

[www.PTEC.org](http://www.PTEC.org)

## Demonstration Project (PhysTEC)

- 12 supported institutions
- Engage physics departments
- Comprehensive programs
- Share innovative ideas

[www.PhysTEC.org](http://www.PhysTEC.org)



# PhysTEC Institutions

Ball State University

Cal Poly San Luis Obispo

Cornell University

Florida International  
University

Seattle Pacific University

Towson University

University of Arizona

University of Arkansas

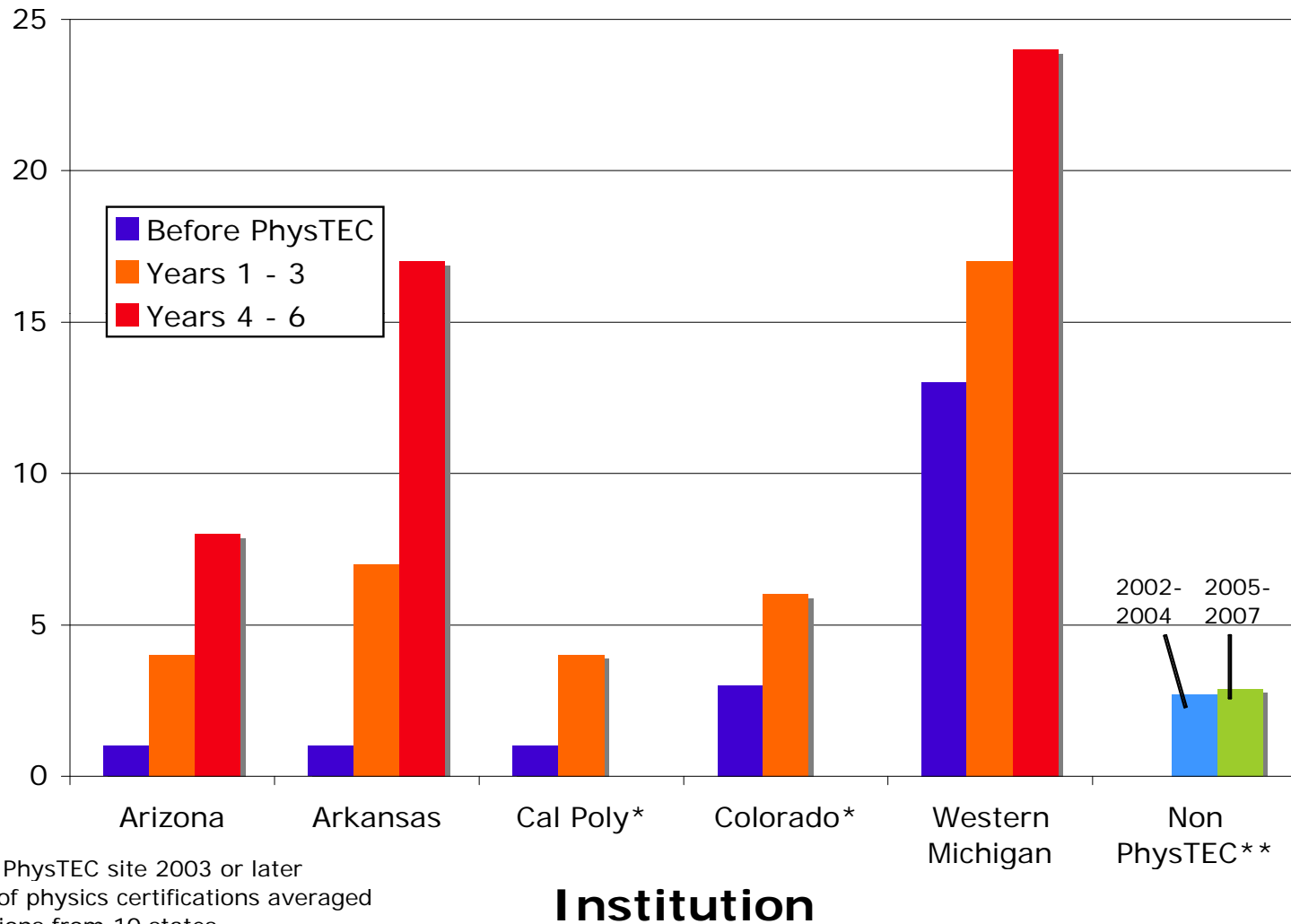
University of Colorado -  
Boulder

University of Minnesota

University of North Carolina  
- Chapel Hill

Western Michigan  
University

# Recruiting More Physics Teachers



\*Became a PhysTEC site 2003 or later  
 \*\*Number of physics certifications averaged over institutions from 10 states



# Key Components of PhysTEC Programs

## Continuum Collaboration Culture Shift

- Recruiting
  - Introductory course reform
  - Early teaching experience
  - Advising
  - Mentoring and induction
- 
- Teacher-in-Residence (TIR)
  - Bridges between key groups (physics, education, school districts)
  - PTEC is a resource



## Panelists

**Jon Anderson**, Teacher-in-Residence, University of Minnesota

**Eric Benzel**, Noyce Scholar, University of Colorado

**Belinda Hendley**, Noyce Scholar, University of Arkansas

**Laird Kramer**, Physics, Florida International University

**Valerie Otero**, Education, University of Colorado

**Annie Venturo**, Noyce Scholar, University of Colorado