

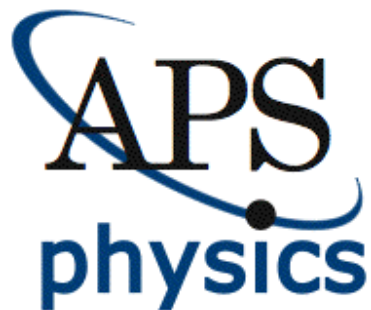


# PhysTEC RFP Webinar

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*18 October 2010*

## *2010 Request for Proposals: PhysTEC*



*Theodore Hodapp*  
Director of Education and Diversity  
American Physical Society

# Need for High School Physics Teachers

## Relative Demand by Field

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

Severe/Profound Disabilities (Spec. Ed.)	4.47
<b>Mathematics Education</b>	<b>4.46</b>
<b>Physics</b>	<b>4.39</b>
Multicategorical (Spec. Ed.)	4.39
Mild/Moderate Disabilities	4.37
<b>Chemistry</b>	<b>4.35</b>
Mental Retardation (Spec. Ed.)	4.34
Emotional/Behavioral Disorders (Spec. Ed.)	4.31
Bilingual Education	4.31
Learning Disability (Spec. Ed.)	4.28
Visually Impaired	4.24
Dual Certificate (Gen./Spec.)	4.23
Hearing Impaired	4.23
Speech Pathology	4.21

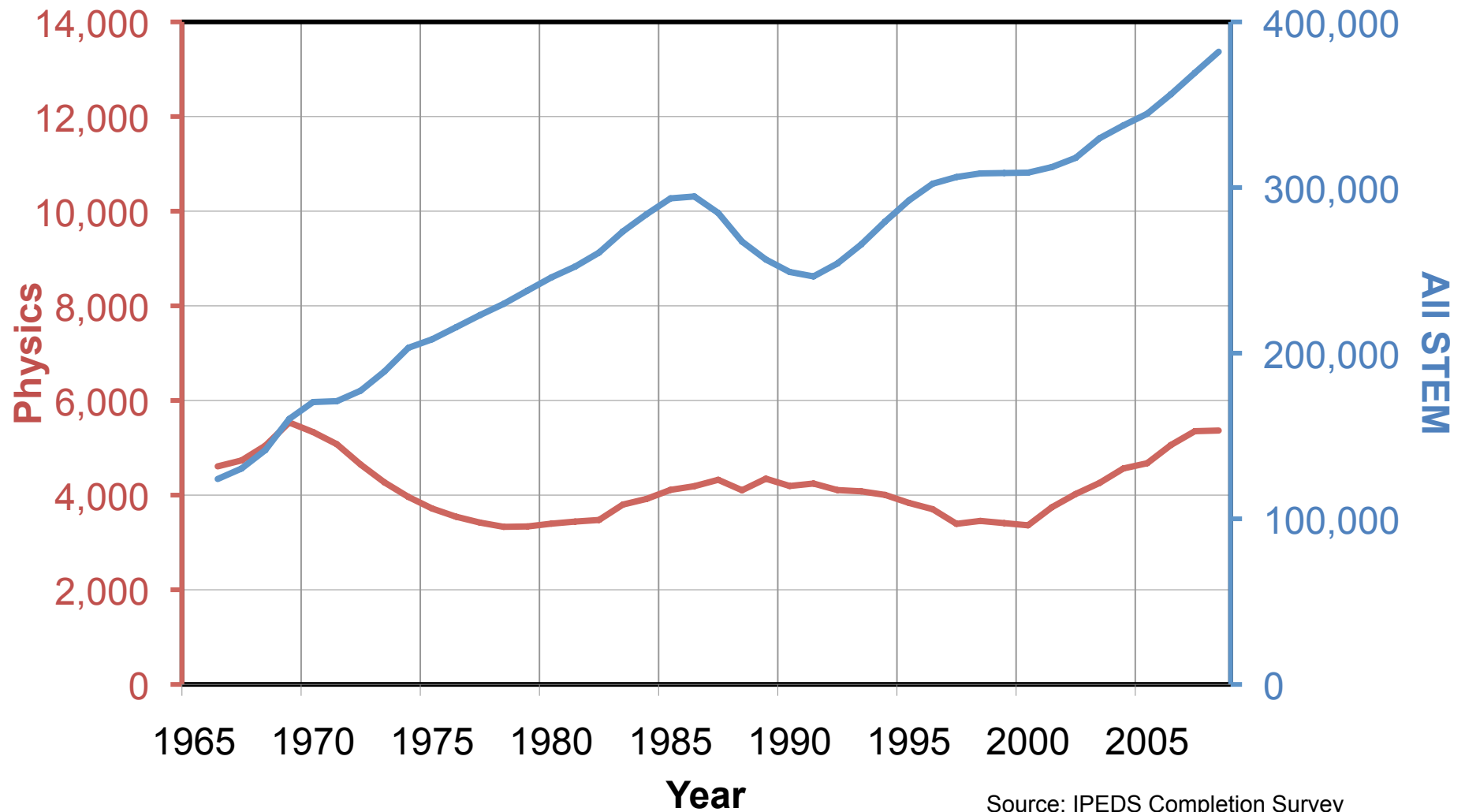
2008 AAEE (*American Association of Employment in Education*)  
Educator Supply and Demand in the United States Report

- Rising Above the Gathering Storm:

**Action A-1:** *Annually recruit 10,000 science and mathematics teachers by awarding 4-year scholarships and thereby educating 10 million minds.*

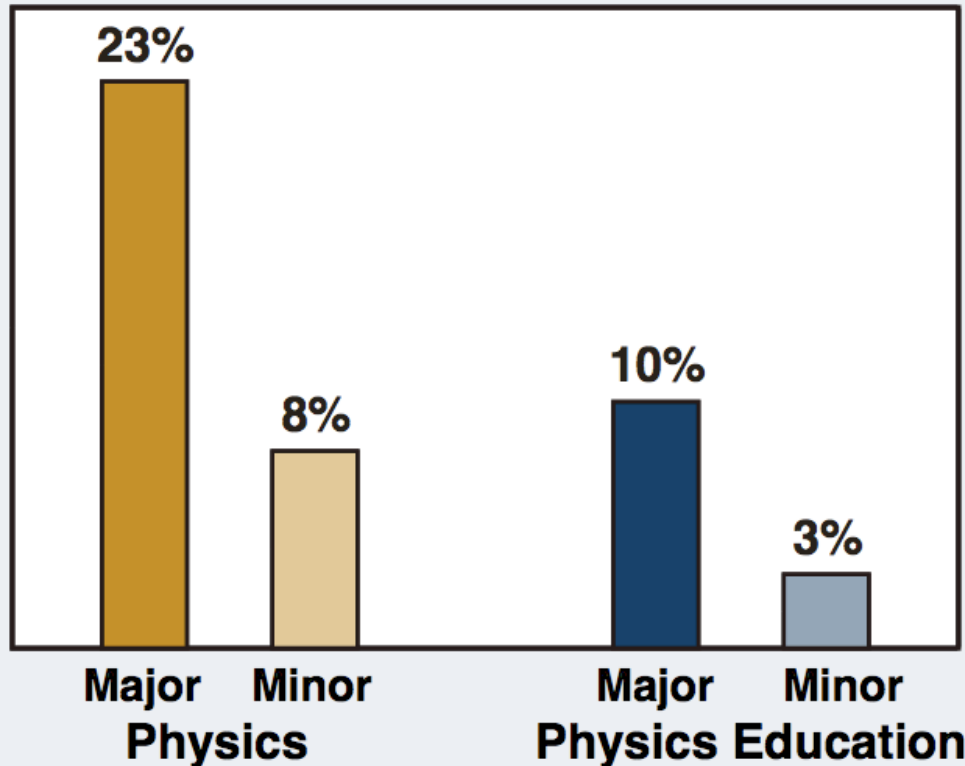
**Action C-1:** *Increase the number and proportion of US citizens who earn physical-sciences, life-sciences, engineering, and mathematics bachelor's degrees by providing 25,000 new 4-year competitive undergraduate scholarships each year to US citizens attending US institutions.*

# Bachelor's Degrees Awarded 1966 – 2008



Source: IPEDS Completion Survey

# Physics Teacher Education



For comparison,  
secondary teachers with a  
major in the field (2004):

Science (all) 77%

Math 61%

English 76%

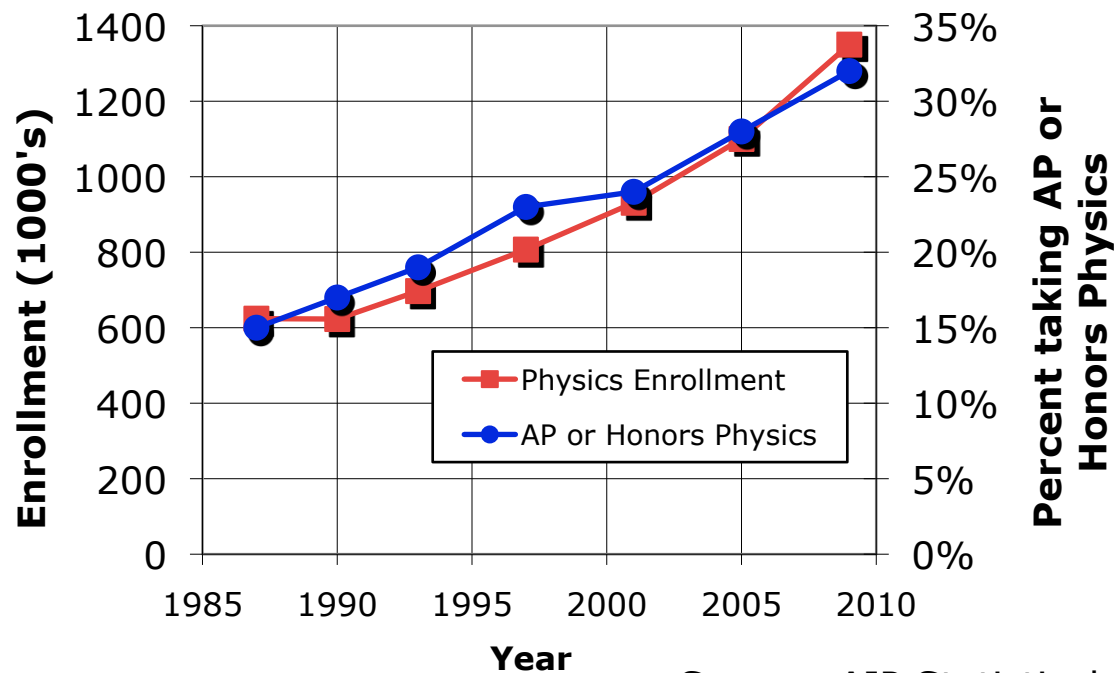
Social Studies 79%

Source: Schools and staffing survey,  
National Center for Education Statistics

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

# Demographics of High School Physics Teachers

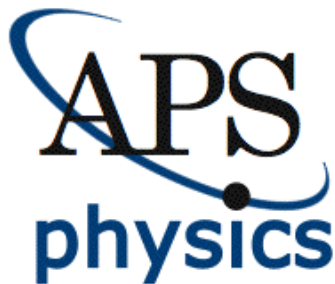
- 23,000 Physics Teachers Nationwide
- 1,200 new physics teachers each year
- ~ 400 of these have a physics major or minor



- Number taking physics growing by 1% per year

Source: AIP Statistical Research Center

- National Science Foundation: PHY; DUE (MSP, ATE, CCLI, Noyce); DMR
- APS Campaign for the 21st Century



21<sup>st</sup> Century Campaign

A SCIENCE EDUCATION INITIATIVE



# PhysTEC Project Goals

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1. Demonstrate successful models for:
  - a) Increasing the number of highly-qualified high school physics teachers
  - b) Improving the quality of K-8 physical science teacher education
2. Spread best-practice ideas throughout the physics teacher preparation community
3. Transform physics departments to engage in preparing physics teachers

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## National Coalition

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- National Conference
- Recognized Programs
- Community Leaders
- Sharing Innovative Ideas
- Broad Dissemination
- 191 member institutions

## Demonstration Projects

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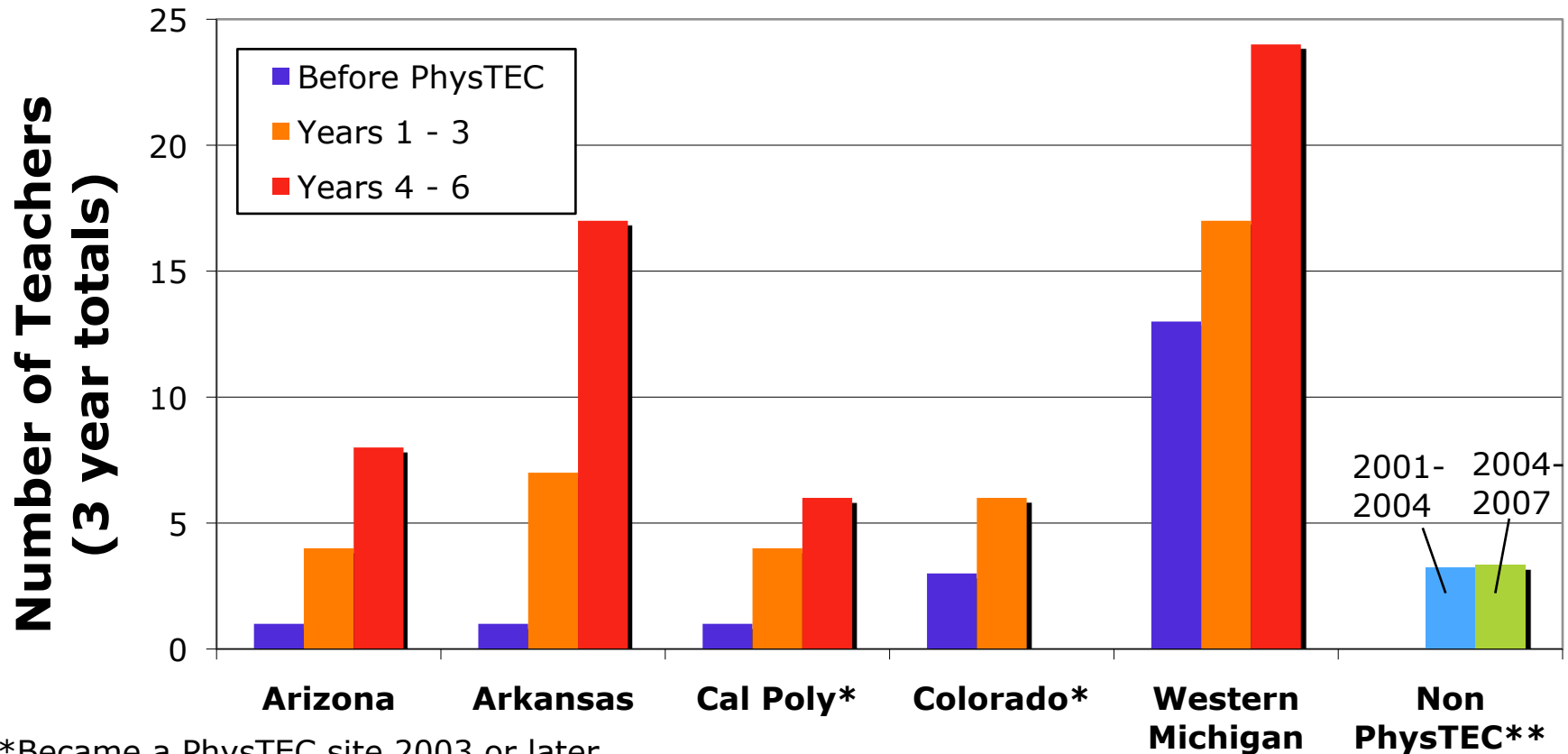
- Comprehensive (< \$100k/yr)
  - All key elements
  - Teacher in Residence
- Targeted sites (< \$25k/yr)
  - Innovative ideas
  - Possible: TYC, LAs, TIRs
- National models
- Institutional support

## Key Components

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- Recruitment
- Early teaching experience
- Learning Assistants
- Course transformation
- Induction and mentoring
- Collaboration (physics, education, schools)
- Teacher-in-Residence (Master Teacher)
- Teacher Advisory Groups
- Sustainability
- Assessment

# Increase in Physics Teachers Educated at PhysTEC Institutions

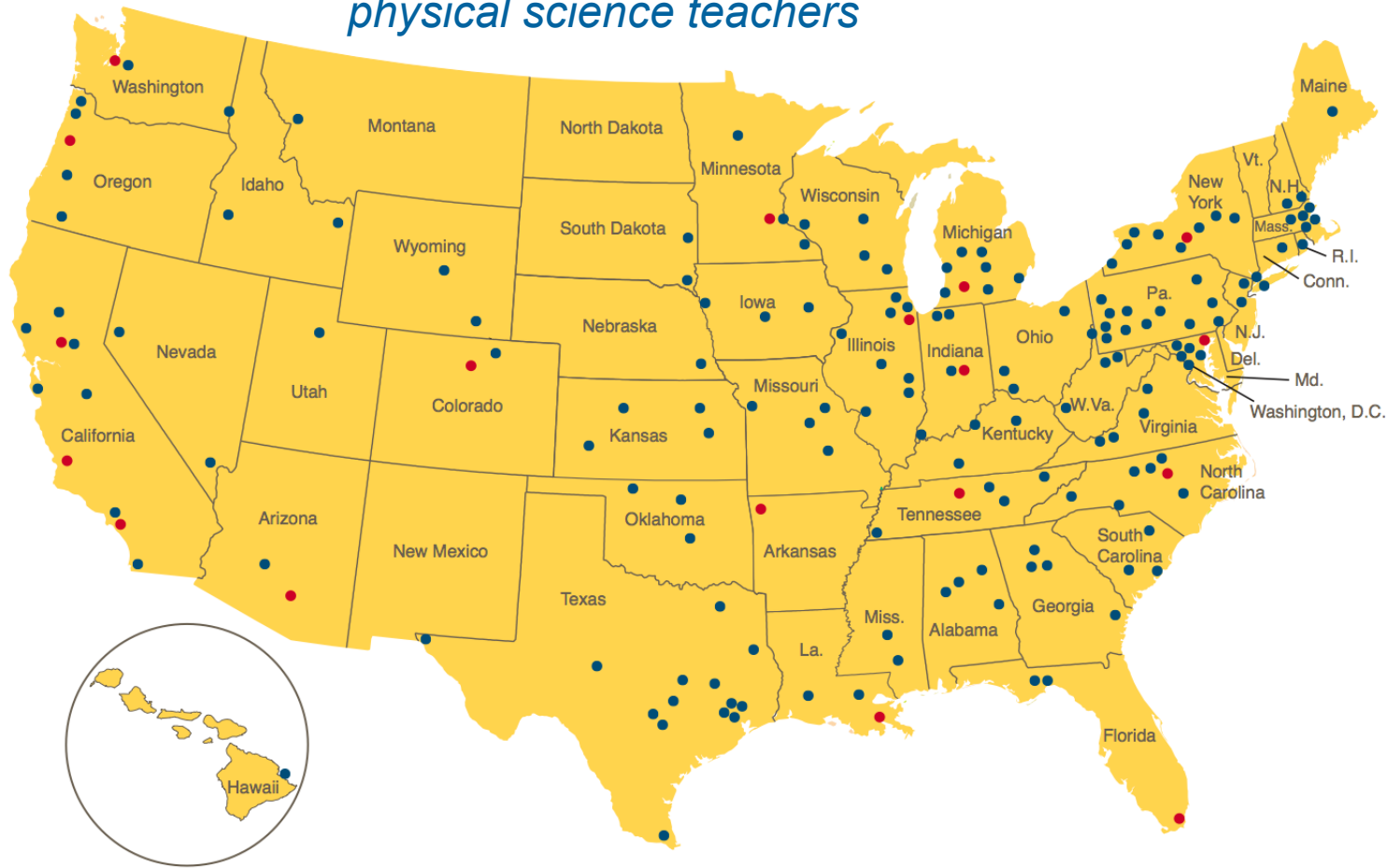


\*Became a PhysTEC site 2003 or later

\*\*Number of physics certifications averaged over 319 institutions in 15 states. Note that all PhysTEC teachers are more highly qualified than the minimum standards in most states.

# PhysTEC Member Institutions

*...committed to improving the education of physics and physical science teachers*



- Ball State University
- Cal Poly, San Luis Obispo
- California State University, Long Beach
- Chicago State University
- Cornell University
- Florida International University
- Middle Tennessee State University
- Seattle Pacific University
- Towson University
- University of Arizona
- University of Arkansas
- University of California, Davis
- University of Colorado, Boulder
- University of Minnesota
- University of North Carolina, Chapel Hill
- Western Michigan University

- Site Types (Targeted, Comprehensive)
- Funding (*up to* \$25k, \$100k/yr for 3 years)
- National models
- Key components
- Expectations (reporting, data, meetings)
- Review process
- Timeline
  
- **<http://www.phystec.org/solicitation>**

- Introduction / Summary (state type of proposal)
- Goals of project
- Profile of department / setting
- Existing program
- Local personnel
- How you will implement PhysTEC key components

## Budgetary Information

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- Maximum amount: \$25k/year or \$100k/year
- Choose funding that will be sustainable, appropriate to startup at your institution
- TIR a major expense for Comprehensive Projects
- Overhead rate: 24.73% (no indirect on TIR or Participant Support lines)
- Fringe: 33%
- Matching funds

- Potential to increase number of pre-service HS physics teachers
- Implement PhysTEC key components
- Become a national model
- Appropriate team, leadership
- Institutional support
- Improve diversity

- RFP: October
- 2-3 page pre-proposal: 5 November
- Full (9/15 page NSF style) proposal: 14 January
- Proposal review (late January)
- Funding decision: April
- Project Start: August 2011
- PhysTEC 2011 Meeting: 23-25 May (held in tandem with UTeach Institute)
- **<http://www.phystec.org/solicitation>**