

Building Capacity for Training and Supporting Physics Teachers

Trevor I. Smith

Issam Abi-El-Mona, Patrick Chestnut, Philip La Porta,
and Karen Magee-Sauer



AAPT Winter Meeting
January 7, 2018



PhysTEC Team



Karen Magee-Sauer
Physics



Trevor Smith
Physics
Education



Patrick Chestnut
Physics (TIR)



Philip La Porta
Physics



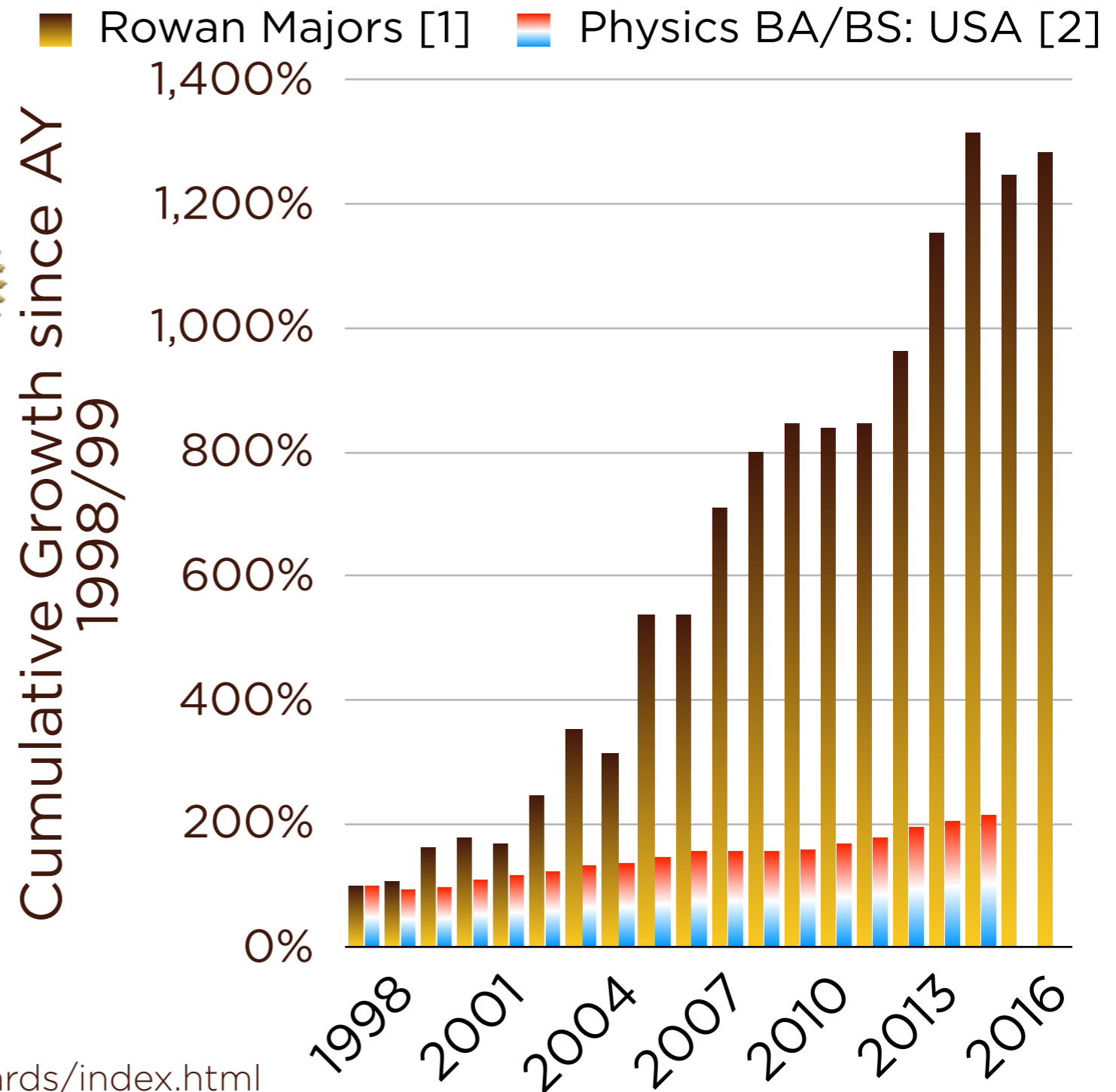
Issam Abi-El-Mona
Education



Reiner Schmidt
Glassboro HS (TIR)

Background about Rowan

- Historic focus on teacher preparation
- 5+ club: 3 years running
- 18,484 students (15,401 undergrads) 
- 167 Physics Majors
- Huge growth in recent years
- Many research opportunities
 - Strong summer program
 - Physics course credit for individual research



[1] <http://www.rowan.edu/president/asa/dashboards/index.html>

[2] <https://ncesdata.nsf.gov/webcaspar/>

Strong Student Community

- Community spaces for studying and socializing
- Physics Club
 - Demo shows at local schools
 - Homecoming events
- Astronomy Club
 - Observatory open houses
 - Planetarium shows

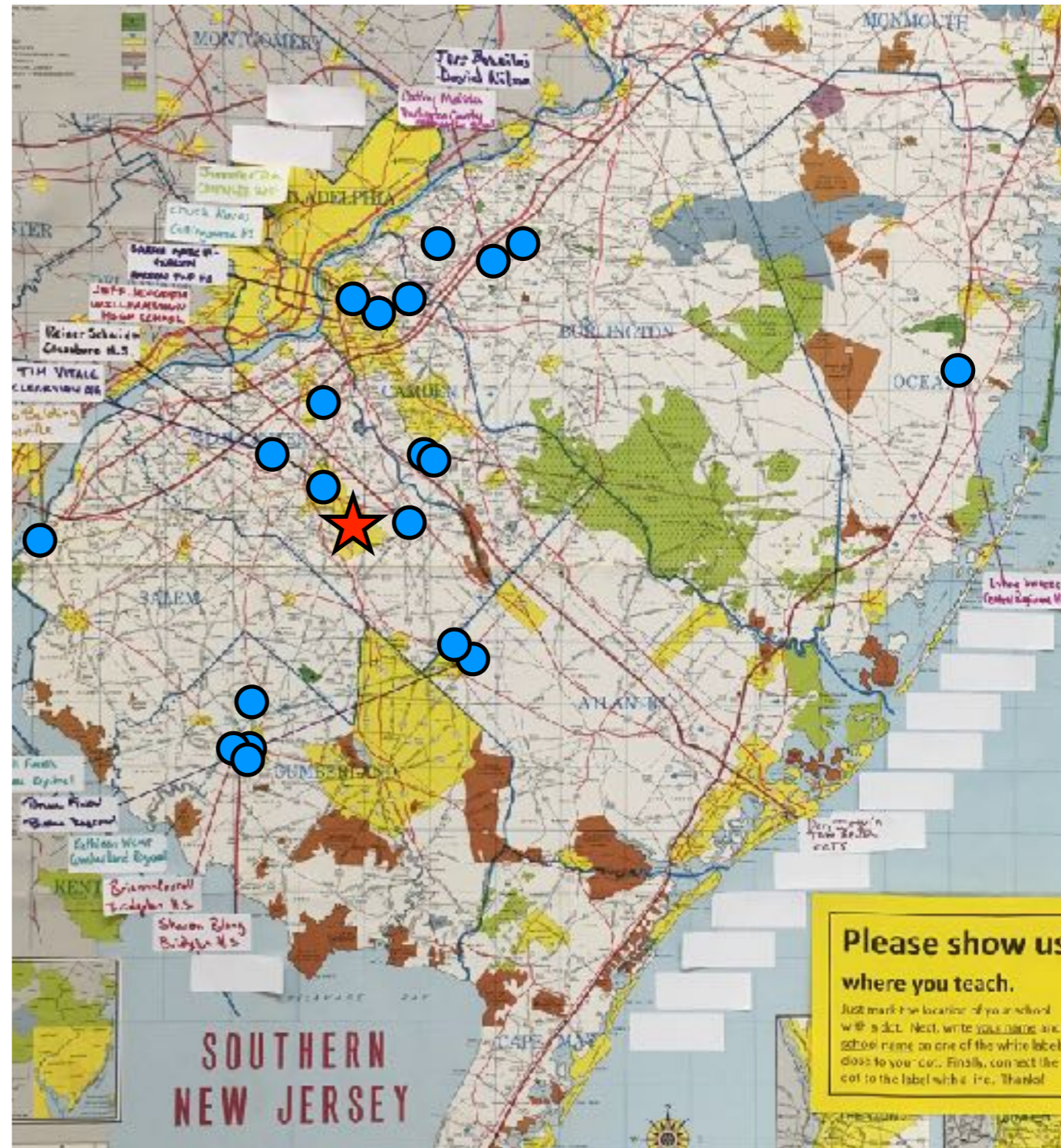


PhysTEC Components

- Learning Assistant (LA) Program
- PER opportunities for undergrads (particularly those interested in teaching)
- Rowan Area Physics Teachers (RAPT) network
- Two part-time Teachers in Residence – TIRs
- Faculty member with joint appointment in College of Education

Rowan Area Physics Teachers: RAPT

- Creating a network of physics teachers in South Jersey
- Two meetings each semester (~30 people each time)
 - Professional Development
 - Socializing
 - Many regulars (but not all)
- Community Manager created online home
 - Sharing lesson ideas
 - Information repository and communication forum



Physics Education Research

- Part of College of Science & Mathematics Summer Undergraduate Research Program
 - 5-week session
 - Four on-campus presentations
 - Five national presentations (AAPT/PERC)
 - Two papers (PERC Proceedings)
- Continuing research during the academic year for course credit

Learning Assistants

- 18 LAs in Rowan intro physics classes
- 1-2 LAs at Glassboro High School (with a PhysTEC Teacher in Residence - TIR)
- Weekly meetings with another PhysTEC TIR
- Weekly content meetings with course faculty



Research on LA Program

- How does having LAs in the classroom affect student learning?
- How does being an LA affect someone's understanding of physics?
- How does being an LA impact someone's dispositions toward teaching?

The Future

- Sustaining the RAPT network
 - More online communication
 - In-person meetings have become more community led
- Sustaining LA program
 - Now a college-wide initiative across several departments (including some funding)
 - Encouraging students to earn course credit rather than a stipend
 - Developing an interdisciplinary LA pedagogy course
- Scholarships for STEM teachers
 - NSF Robert Noyce Teacher Scholarship grant
 - \$30,000 for one-year master's program to earn teacher certification