

2012-2018

**APEX DIRECTORY
OF PHYSICS
TEACHER
SCHOLARS**



**ALLIANCE FOR PHYSICS EXCELLENCE (APEX)
NATIONAL SCIENCE FOUNDATION MSP PROJECT
ALABAMA A&M UNIVERSITY**

ALLIANCE FOR PHYSICS EXCELLENCE (APEX)

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ALABAMA A&M UNIVERSITY



DR. ANDREW HUGINE, JR.
President, Alabama A&M University

Alabama A&M University has a stellar record of producing graduates in the STEM disciplines, particularly physics. Alabama A&M University is ranked among the top universities in the nation in granting doctoral degrees to minorities in physics. This commitment to excellence in physics education extends to the public schools of Alabama. Through the innovative Alliance for Physics Excellence (APEX) Program and its related workshops, Alabama is also becoming a leader in transforming high school physics instruction. Thus, we are extremely proud to be the host of the APEX program. The program represents the dedication of those here at Alabama A&M University and the other APEX affiliated organizations that have put forth tremendous efforts toward the development, success, and the execution of APEX. The program has earned the high regard and gratitude of this university and its administration. The administration of AAMU is committed to its students, both present and future, and it supports APEX and those who make it happen.

The future university students of Alabama are being prepared for a higher education in physics through the tools and skills gained by secondary education teachers participating in this program. Teacher preparation is critical to ensure that the opportunities for students are not lost in the fields of science and physics due to the lack of proper training in the critical years of high school education. The APEX Program addresses the need for proper teaching tools, pedagogies, and classroom engagement of the students. Further, APEX affords Alabama educators the valuable opportunity to acquire those skills through the workshops tailored to the often difficult to teach subject of physics. Alabama students, high school teachers, and in the future, higher education instructors will feel the positive impact of this forward-thinking approach to physics. It is hoped that APEX will serve as a model for educators in other educational fields as well.

Dr. Daniel Wims



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As the 2016-17 academic year approaches to a close, I would like to thank the APEX team for all their hard work, dedication and commitment exhibited throughout the last five years. Our goal was to implement a Mathematics & Science Partnership (MSP) project to transform secondary physics education in Alabama. High School Physics teachers are now better equipped to impact student learning by acquiring a deeper knowledge of physics content and employ more effective pedagogical strategies based on physics education research. Alabama A&M University has been given the opportunity to promote a new instruction model, where preliminary results are showing quantitative and definitive qualitative changes in attitudes, beliefs, and actions of in-service secondary teachers of physics in Alabama. Through this initiative, we are successfully preparing highly qualified physics teachers to enter and remain in the STEM pipeline. APEX's efforts in training physics teachers to be more creative problem solvers with breadth and depth, ultimately reaffirms the University's mission of concentrating on instruction by combining the classic goal of intellectual development with applied and interactive educational experiences.

I am immensely proud of APEX and its contribution to the next generation of science teachers, as we collectively work with certified physics trainers, two and four year educational institutions, private industry, and evaluators to make a significant contribution to the STEM field.

Dr. Chance Glenn



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I would like to thank APEX for your service to the College of Engineering, Technology and Physical Sciences, as well as the impact it has made by providing quality professional development for high school physics teachers in the state of Alabama. More importantly, I would like to acknowledge its impact on student performance in the classroom. The National Science Foundation entrusted the University to lead the efforts of transforming physics education in Alabama by providing funding that also contributes to Alabama A&M University's mission of providing the best, most rigorous, and most intellectually exciting professional development in the country.

Experiential learning infused with technology and research are cornerstones of the APEX project. This innovative pairing allows teachers to develop and navigate curricular that allows students to engage more fully in the learning process. APEX continues to be one of Alabama A&M University's notable achievements that promotes the University's reputation for excellence in merging the field of education, science, technology, engineering, and mathematics (STEM).

As we implement the sixth year of the APEX project, I want to commend the APEX team for their success and encourage everyone to remain steadfastly committed to improving what and how we teach and better prepare our students to achieve their goals and excel in their career fields of choice.

SPECIAL POSTHUMOUS DEDICATION



DR. MOSTAFA DOKHANIAN (1957-2014)

Dr. Mostafa Dokhanian, Professor of Physics, in the AAMU Dept. of Physics, Chemistry & Mathematics, spearheaded the penmanship of the APEX program at Alabama A&M University. His tireless dedication was instrumental in bringing about the success of the proposal for the grant and the program's implementation.

Dr. Dokhanian's devotion to the program, as the Principal Investigator (PI) for APEX, was paramount to the success of its various activities and workshops. He died on the job after working late on one of the program's workshops on January 26, 2014. Dr. Dokhanian was PI and Co-PI for various grants, including AAMU-REU, (PS)², and HBCU-UP.

For 22 years, Dr. Dokhanian taught many undergraduate and graduate students and worked on research projects in physics specializing in optics. As an academic advisor, he greatly influenced the education and lives of many undergraduate students, and also as an advisor or co-advisor to twelve M.S. and five Ph.D. students.

Dr. Dokhanian's dedication to Alabama A&M University, its Physics Department, the many students he taught or helped to fund, his friends, and family led to his being highly valued, respected, and revered by all who knew him.

APEX OVERVIEW

The Alliance for Physics Excellence (APEX) is a Math & Science Partnership (MSP) Targeted project awarded and funded by the National Science Foundation for \$8 million over a six-year period. The overall goal of APEX is to transform secondary physics education in Alabama by enabling physics teachers to acquire a deeper knowledge of physics content and employ more effective pedagogical strategies based on physics education research, enabling students to achieve higher gains.

APEX is serving as a comprehensive agent of change by successfully integrating cutting edge teaching practices into all secondary physics programs, directly impacting 25% of the physics teachers (with 41,000 students) throughout all Alabama school systems. APEX is led by Alabama A&M University and includes as core partners the University of Alabama at Tuscaloosa, Drake State Community & Technical College, American Association of Physics Teachers/Physics Teaching Resource Agents and Huntsville City School System. The partnership also includes supporting partners from the eleven Alabama Math Science & Technology Initiative regional in-service centers, Madison County schools, Scottsboro City schools, Madison City schools, and the Alabama State Department of Education.



APEX GOALS

- ❑ Increase the quantity of highly qualified pre and in-service physics teacher
- ❑ Enhance the quality of Alabama secondary physics education
- ❑ Establish an environment in which Alabama high school leadership (superintendents, principals, science coordinators) promotes research-based physics education in Alabama secondary school systems
- ❑ Identify and document successful pedagogical models and methods for teacher preparation and for in-service development of physics teachers
- ❑ Evaluate the implementation impact of APEX on teachers and students in their classrooms



PHYSICS TEACHER INSTITUTE (PTI)

More high school graduates need a physics background for the 21st Century workplace. However, over the past decade the number of highly-qualified physics teachers has not kept pace with the demand. The PTI is a three-year experience that offers participants a coherent program of study to deepen their physics Discipline Content Knowledge (DCK), Pedagogical Content Knowledge (PCK), and Technological Pedagogical Content Knowledge (TPACK). Each year the Physics Teacher Institute will consist of a two-week summer institute followed by three two-day workshops during the academic year (see table on next page for specifics). These two-day sessions will include:

- ☐ Nationally renowned educators on various topics of pedagogy
- ☐ Additional DCK and TPACK content
- ☐ Feedback and reflection on classroom application of summer workshop materials (research)



ALLIANCE FOR PHYSICS EXCELLENCE (APEX)

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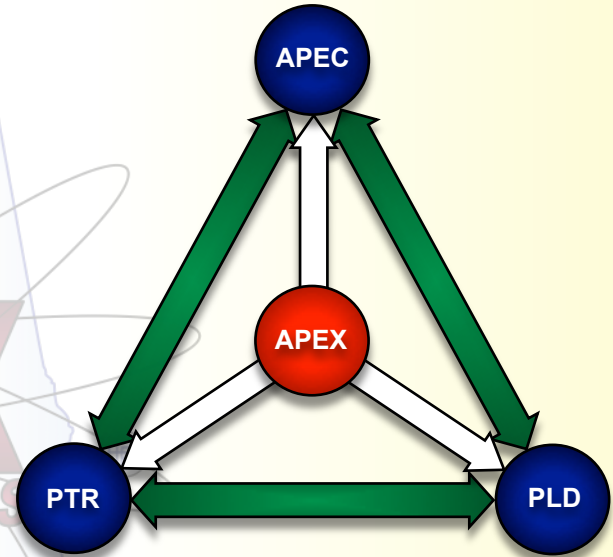
Physics Teacher Institute Professional Development Program			
	First Year	Second Year	Third Year
DCK	Kinematics	Fluid Mechanics	Electromagnetism
	Newton's Laws of Motion	Temperature & Heat	Waves
	Work, Energy, Power	Thermodynamics	Sound
	Impulse & Momentum	Electrostatics	Geometrical Optics
	Circular Motion & Rotation	Conductors & Capacitors	Physical Optics
	Oscillations & Gravitation	Electric circuits	Atomic Physics
	Projectile Motion	Magnetic Fields	Nuclear Physics
PCK	Misconceptions & Ideas	Misconceptions & Ideas	Misconceptions & Ideas
	Effective Teaching Strategies	Metacognition	Assessment Methods
	Learning Environments	Collaborative Learning	Constructivist Epistemology
TPACK	Class Management Systems	Social Media	Audio Podcasting
	Blackboard	Groupware	Video Podcasting
	Computer Modeling	Class Presentation Tools	Visualization Tools



NATIONAL SCIENCE FOUNDATION MSP PROJECT
ALABAMA A&M UNIVERSITY

THREE COMPONENTS OF APEX

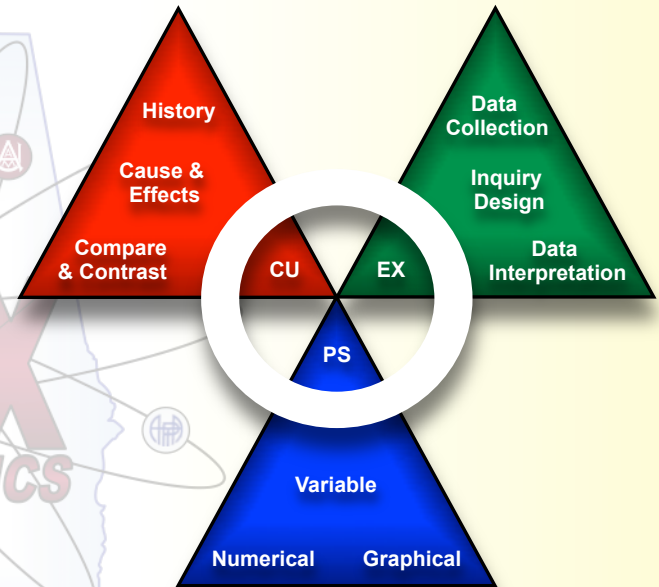
1. Alabama Physics Education Center (APEC) - comprised of two components:
 - i. Physics Teacher Institute (PTI) - a multi-year experience offering participants a coherent program of study to deepen their DCK, PCK and increase their TPACK
 - ii. Physics Resource Enhancement Program (PREP) - a central clearinghouse for dissemination of best teaching practices
2. Physics Leadership Development (PLD) – aimed at involving teachers in every stage of policy-making affecting the physics curriculum
3. Physics Teaching Research (PTR) - establishes and sustains project outcomes in teaching and learning through development of a research priority, using a community of researchers focusing on physics education by action research



DISCIPLINE CONTENT KNOWLEDGE (DCK)

The primary goal of DCK is to raise awareness that 21st century physics courses must integrate components of exploration (EX), conceptual understanding (CU), and problem solving (PS) within a single unit of study.

- ❑ EX will include training in PASCO equipment, safety issues, and development of graphing analysis using computer programs such as Excel and Logger Pro.
- ❑ CU will introduce teachers to resources for conceptual questions that can be used through peer instruction methods.
- ❑ PS will address the development of reading and communication skills for problem solving.



Teachers will see a variety of approaches (graphical, numerical, analytical, and verbal) that may be used to solve the same problem. The AAPT/PTRA teacher resource guides will act as a model for this effort. When completed, teachers will have a ready set of resources appropriate for their teaching situation

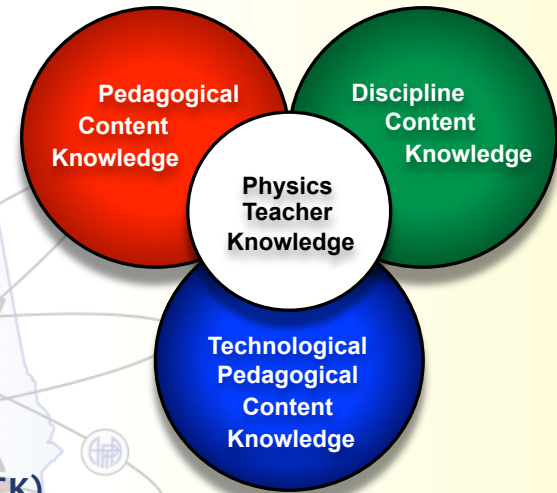


PEDAGOGICAL CONTENT KNOWLEDGE (PCK)

PCK is defined as a special amalgam of content and pedagogy that is uniquely the providence of teachers. PCK is the teacher's comprehension of how to help students understand specific subject matter. It includes knowledge of particular subject matter topics, problems, and issues to be organized, represented and adapted to the diverse interests and abilities of learners.

TECHNOLOGY PEDAGOGICAL CONTENT KNOWLEDGE (TPACK)

TPACK builds on PCK and attempts to capture some of the essential qualities of knowledge required by teachers for technology integration in their teaching, while addressing the complex multifaceted and situated nature of teacher knowledge. Teachers shall be exposed to a systematic introduction into the use of technology as it pertains to pedagogics. Topics include presentation tools, simulations, visualization tools, podcasting, Wikis, blogs, groupware, and social media.



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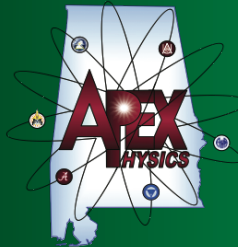
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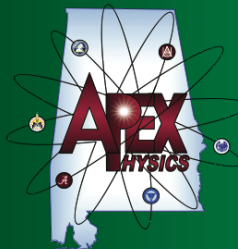
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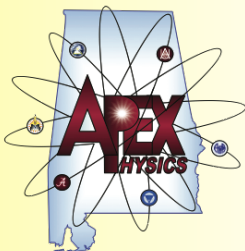
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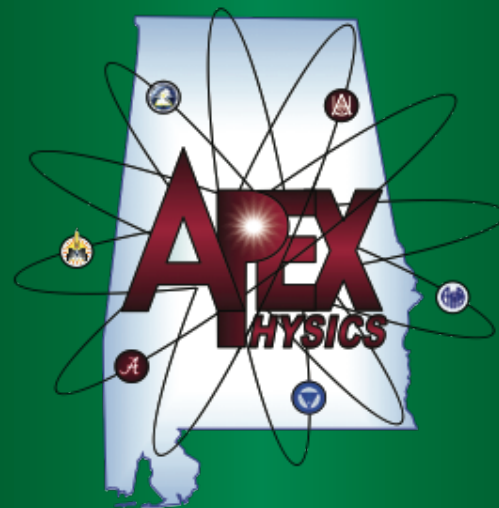
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Robin Chestnutt	20	Eric Lambert	24
Jason Cole	21	Carla McPeters	24
Julie Covin	21	Tommy Morgan	25
Kelly Ford	22	Dan O'Halloran	25
Charles "Chuck" Hanke	22	Bill Ossenfort	26
Stan Hart	23	Christina Steele	26

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Rocky Elmore	28	Khyana Price	29
Kathryn Foster	28	Tara Ray	30
Kwyntero Kelso	28	Christina Sciaroni	30
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Kaitlyn Marlowe	29	Marilyn Stevens	30



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APEX IMPACT OBSERVATIONS:

I now incorporate the four-step method into my workshops when appropriate.

Robin Chestnutt



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APEX IMPACT OBSERVATIONS:

Teachers in my district who have attended APEX use many of the activities in their classrooms and express that the activities and teaching strategies have improved their physics teaching and their students' learning.

Jason Cole



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EXPERIENCE:

Twenty-two years: Teacher

APEX IMPACT OBSERVATIONS:

I've very much enjoyed the strategy of white boarding as a formative assessment tool. The four-step method for analyzing graphical data is also extremely useful in helping students gain a better understanding of the relationship between variables. I love the Diagnoser.com website! I am using it as a formative assessment tool in my teacher trainings.

Kelly Ford



ASIM Physics Specialist
Athens State University

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EXPERIENCE:
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APEX IMPACT OBSERVATIONS:
(No reply)

Charles “Chuck” Hanke



ASIM Physics Specialist
University of Montevallo

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EDUCATION:
Master of Education in Secondary Education
Bachelor of Science in Physics, Education & Computer Information
Science

EXPERIENCE:
Twenty years: Physics Teacher; nine years: Physics Specialist ASIM

APEX IMPACT OBSERVATIONS:
I have seen my teachers implementing APEX training and more
confidently implement new and revised lab experiences in their
classrooms.

Stan Hart



APEX Physics Specialist
University of Alabama at Birmingham

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EDUCATION:

Master's, University of Alabama at Birmingham
Bachelor's, Auburn University
Bachelor's, University of Alabama at Birmingham

EXPERIENCE:

2003-present: Science in Motion Physics Specialist, University of Alabama at Birmingham; teaching since 1993

APEX IMPACT OBSERVATIONS:

(No reply)

Elizabeth Tommi Holsenbeck



ASIM Physics Specialist
Alabama State University

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EDUCATION:

Bachelor of Science in Physics, Auburn University
Certification in General Science Secondary Education, University of Alabama

EXPERIENCE:

Nineteen years: Science Teacher, Jeff Davis High School-Physics, Chemistry, Physical Science, Principles of Technology, and Technology

APEX IMPACT OBSERVATIONS:

I am thrilled with the impact APEX can make on physics in Alabama. Teachers will break out of the "giving the information" mode, allowing students to discover and internalize concepts. Alabama Physics Teachers now have learning cycles, formative assessment, video analysis, graphing for a reason, resources from Science in Motion specialists and more.

Eric Lambert



ASIM Physics Specialist
University of Alabama at Birmingham

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EXPERIENCE:

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APEX IMPACT OBSERVATIONS:

(No reply)

Carla McPeters



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EDUCATION:

Master of Education in Mathematics, University of North Alabama
Bachelor of Science in Mathematics, Athens State University
Bachelor of Science in Comprehensive Science, Athens State University

EXPERIENCE:

Twenty-Four years: Teacher-High School Math and Science, Hazel Green High School (6 years), West Limestone High School (18 years); one year: ASIM Physics Specialist, Athens State University

APEX IMPACT OBSERVATIONS:

APEX has been one of the most useful professional development workshops I have ever attended. I can honestly say that if any workshop ever changed the way I approached teaching, it was this one. While carrying out labs with students, I feel as though I am more keenly aware of even the smallest details involved in questioning, student learning, and understanding of material. I am thankful for the resources, strategies, and professional Physics contacts I have made through APEX; they are invaluable. From a teacher perspective, Diagnoser and Elicitation Questions are both excellent means of formative assessment. The four step method and graphical analysis of data helps connect the mathematical and scientific worlds for students. And, whiteboarding serves as a means for students to condense, illustrate, calculate, and vocalize their discoveries to a larger group granting the student ownership of their own learning.

Tommy Morgan



ASIM Physics Specialist
Jacksonville State University

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EDUCATION:

Master of Science in Education, Jacksonville State University
Bachelor of Science in Chemistry, Auburn University
Associate of Science in Math, Gadsden State Community College

EXPERIENCE:

1994-present: ASIM Physics Field Specialist, Jacksonville State University.

APEX IMPACT OBSERVATIONS:

I have observed that APEX teachers now use more hand on activities to deliver lessons. White boarding and the four-step analysis of graphs are often used. Formative feedback from Diagnoser is VERY popular.

Dan O'Halloran



ASIM Physics Specialist
AMST Equipment Manager
University of Alabama at Huntsville

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EDUCATION:

Master's in Secondary Science Education, University of West Alabama
Bachelor of Science in Applied Physics, Auburn University
Bachelor's in Secondary Education, Auburn University

EXPERIENCE:

Fifteen years: Physics Specialist, Alabama Science in Motion; three years: High School Physics Teacher; PLD sessions participant, Alabama A&M University and University of Alabama at Huntsville regions

APEX IMPACT OBSERVATIONS:

The APEX grant has changed my approach to teaching and my perception of the role of laboratory activities in physics instruction. Prior to APEX, the primary use for labs was to verify concepts taught in class. Now, hands on activities are used to build upon and challenge student thinking. Also, formative assessment with regard to student thinking and misconceptions are a significant part of instructional planning. As a physics specialist, I have documented how the physics teachers in my region have changed their use of and frequency they hands-on activities in their classrooms.

William “Bill” Ossenfort



ASIM Physics Specialist
Troy University

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EDUCATION:

Master of Science in Physics, Naval Postgraduate School
Bachelor of Science in Physics, Auburn University

EXPERIENCE:

2012–present: Physics Specialist, Alabama Science in Motion; 2008–2012: High School Science Teacher, various schools; 1988–2008: Nuclear Submarine Officer, US Navy

APEX IMPACT OBSERVATIONS:

I keep getting to recruit teachers and communicate graphical analysis to my region. The modeling and graphical analysis has been a significant leap forward, especially for those teachers who have not had a strong background in physics.

Christina Steele



ASIM Physics Specialist
Auburn University

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EDUCATION:

Master of Education in Secondary Science, University of Montevallo
Bachelor of Science in Chemical Engineering, Oregon State University

EXPERIENCE:

Chemical Engineer, International Paper; Science Teacher-Physics and Chemistry, Holtville High School; Science Teacher, AP Physics C-Physics, and Chemistry, Prattville High School; Physics Specialist, Auburn University Science in Motion

APEX IMPACT OBSERVATIONS:

I serve several teachers that are participating in the APEX program. These teachers are very excited about the program. I have seen content growth and an increase in confidence.

Jeff Woods



ASIM Equipment Manager
Athens State University

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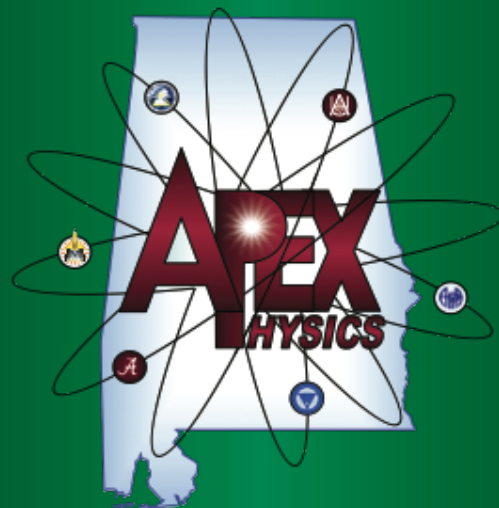
Master's, University of North Alabama
Bachelor's, Harding University

APEX IMPACT OBSERVATIONS:

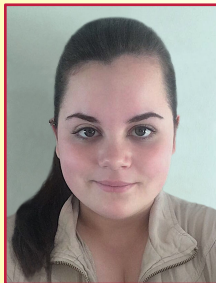
The best thing about the APEX program is that it is so practical. It is not costly, and the ideas and equipment utilized can easily be made part of any physics class. It follows a logical process of development of ideas that is easy to understand.

END OF SECTIONS:

ASIM SPECIALISTS & AMSTI EQUIPMENT MANAGERS



Sarah Campo



UA Pre-Service Scholar
Junior
Alabama A&M University

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MAJOR:
Physics & Mathematics Secondary Education

Rocky Elmore

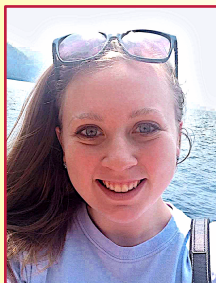


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Kathryn Foster



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Kwyntero Kelso



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Kaitlyn Marlowe



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Science Education

Ashley Owens



AAMU Pre-Service Scholar
Senior
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Khyana Price



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Alabama A&M University

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MAJOR:
Physics & Secondary Education

Tara Ray



UA Classroom Observer
Ph.D. Graduate Student
University of Alabama

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Christina Sciaroni



UA Pre-Service Scholar
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MAJOR:
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Marilyn Stevens



UA Pre-Service Scholar
Ph.D. Graduate Student
University of Alabama

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MAJOR:
Science Education

APEX COHART PTI IN-SERVICE TEACHERS

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Christina Marie Caldwell



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 District: Gadsden City
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 Superintendent: Dr. Ed Miller

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 ASIM Specialist: Tommy Morgan

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 Bachelor of Science in Secondary Education General Science,
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EXPERIENCE:

Ten years: Teacher-AP Physics and Physics, Gadsden City High School
 (four years); four years: Science Teacher-Physics, Emma Sansom High
 School

APEX IMPACT OBSERVATIONS:

APEX has been the most beneficial workshop I have ever attended. It has
 given me tools to reduce the time I lecture and increase students' hands-
 on activities, all while increasing their physics knowledge.

David L. Hall



Science Teacher
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 District: Sylacauga City
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 Superintendent: Michael Freeman

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 ASIM Specialist: Chuck Hanke

EDUCATION:

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 Bachelor of Science in Physical Science & Biology, Troy University

EXPERIENCE:

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APEX IMPACT OBSERVATIONS:

(No reply)

Mara Johnson



Science Teacher

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District: Midfield City Schools
Principal: Reggie Ware
Superintendent: Demica Sanders

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 ASIM Specialist: Stan Hart

EDUCATION:

Master of Education in Biology Education, Alabama State University
 Bachelor of Science in Biology, University of Montevallo

EXPERIENCE:

Fifteen years: Science Teacher-Chemistry, Physics, and Biology

APEX IMPACT OBSERVATIONS:

Before APEX, I only received professional development and training as a Physics Teacher via Alabama Science In Motion. Since participating in the APEX program, I have learned and experienced so many things that are assisting me in becoming a better teacher, especially in physics. I am so grateful for the opportunity to further explore the world of physics as a teacher through APEX.

Mark Maddox



Science Teacher

School: Sparkman High School
District: Madison County
Principal: Michael Campbell
Superintendent: Dr. David Copeland

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 ASIM Specialist: Dan O'Halloran

EDUCATION:

Master of Divinity, Southern Baptist Theological Seminary
 Bachelor's in Secondary Education (Majors: Physics & Math), Auburn University

EXPERIENCE:

Fifteen years: Teacher, public High School; five years: Teacher, College

APEX IMPACT OBSERVATIONS:

APEX has impacted my classroom by making me more hands-on conscious and giving me a plethora of new ideas for effective physics instruction.

Angela Michelle McLeod



Science Teacher

School: Pleasant Grove High School

District: Jefferson County

Principal: Wayne A. Byram

Superintendent: Dr. Craig Pouncey

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ASIM Specialist: Stan Hart

EDUCATION:

Master of Education in Secondary Science Education, University of Alabama at Birmingham

Bachelor of Science in Biology (Minor: Chemistry), University of Alabama at Birmingham

EXPERIENCE:

2005-present: Teacher-AP Chemistry & AP Physics, Jefferson County

APEX IMPACT OBSERVATIONS:

My teaching has completely changed. I have a student focused classroom as opposed to a teacher centered classroom. My students love physics class. We are always “doing things.” I believe my students really have a deeper understanding of physics concepts.

APEX has been the most beneficial workshop I have ever attended. It has given me tools to reduce the time I lecture and increase students’ hands-on activities, all while increasing their physics knowledge.

Angela Olguin



Science Teacher

School: Ashford High School

District: Houston County

Principal: James Odom

Superintendent: Tim Pitchford

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ASIM Specialist: Bill Ossenfort

EDUCATION:

Master’s in Comprehensive Science Education, Troy University

Bachelor’s in Comprehensive Science Education, Troy University

EXPERIENCE:

Five years: Physics Teacher; one year: Participant, ASIM

APEX IMPACT OBSERVATIONS:

My teaching has shifted to more inquiry learning and student-centered strategies as opposed to teacher lead, teacher centered.

Cynthia Phillips



AP Physics & Pre-Engg Academy COORD
 School: Demopolis High School
 District: Demopolis City
 Principal: Dr. Tony Speegle
 Superintendent: Dr. Al Griffin

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 ASIM Specialist: Julie Covin

EDUCATION:

Master of Arts in Science Comp., University of West Alabama
 Bachelor of Science in Biology & Environmental Science, University of West Alabama

EXPERIENCE:

Sixteen years: Physics Teacher, Demopolis High School (2007 Teacher of the Year); 2004-2014: Science Department Head; Organizer: local Science Fairs; Science Olympiad teams Sponsor, Tuscaloosa, AL

APEX IMPACT OBSERVATIONS:

The APEX program has completely changed the way I teach - no more lecture and PowerPoint presentations!! We do labs/activities to collect data and draw conclusions, and from this we derive formulas and make predictions. We love it! The kids struggle at first because it is a completely new way of thinking, but they realize that they are learning HOW to think instead of a mass of facts to memorize!

Rochelle Polnitz Williams



Science Teacher
 School: The Calhoun School
 District: Lowndes County
 Principal: Kenneth E. Fair
 Superintendent: Dr. Daniel Boyd

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 ASIM Specialist: Tommi Holsenbeck

EDUCATION:

Master of Education in Curriculum & Technology, Grand Canyon University
 Bachelor of Science in Biology (Minors: Chemistry & Physics), Troy University

EXPERIENCE:

Fifteen years: Teacher, The Calhoun School (for nine years)

APEX IMPACT OBSERVATIONS:

Being a participant of the APEX program has allowed me to become more of a facilitator in my students learning.

Timothy Williams



Science Teacher

School: Baker High School

District: Mobile County

Principal: Clem Richardson

Superintendent: Martha L. Peek

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ASIM Specialist: Robin Chestnutt

EDUCATION:

Bachelor of Science in Meteorology, University of South Alabama

EXPERIENCE:

2010-present: Science Teacher-Physics HR, Baker High School;

2006-2010: Vigor High School-various sciences, including Physical

Science, Physics, Earth/Space Science, Geology, and Meteorology,

Prichard, AL; 2005-2006 Marine weather forecaster, Alert Weather

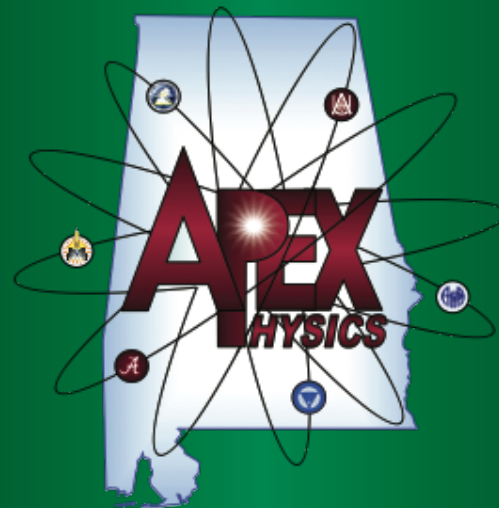
Services, Lafayette, LA

APEX IMPACT OBSERVATIONS:

The APEX program has taught me methods of teaching physics that I never realized existed. My students are challenged more and are able to really think about and discuss physics.

END OF SECTION:

CO-HORT 1 BIOGRAPHIES



Krista Agerton



Science Teacher
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 District: Dale County
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 Superintendent: Danny Bynum

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 ASIM Specialist: Bill Ossenfort

EDUCATION:

Bachelor of Science in Biology, Troy University

EXPERIENCE:

Eight years: Teacher

APEX IMPACT OBSERVATIONS:

I have implemented more hands on activities and greatly reduced my lecture time. I allow the students to investigate and discover more on their own.

Timothy Ashley



Science Teacher
 School: Stanhope Elmore High School
 District: Elmore County
 Principal: Dr. Samby McGowin
 Superintendent: Dr. Andre Harrison

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 Millbrook, AL 36054
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timothy.ashley@elmoreco.com
 ASIM Specialist: Christina Steele

EDUCATION:

Bachelor's, Auburn University

EXPERIENCE:

Eleven years: Teacher, Stanhope Elmore High School (currently); one year: Hazel Green High School; six years: John L. LeFlore High School

APEX IMPACT OBSERVATIONS:

APEX has changed my entire teaching philosophy.

Mary Kate Beane



Science Teacher

School: Theodore High School

District: Mobile County

Principal: Ronnie Rowell

Superintendent: Martha L. Peek

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ASIM Specialist: Robin Chestnutt

EDUCATION:

Bachelor of Science in Biomedical Science, University of South Alabama

EXPERIENCE:

Seven years: Teacher- currently Chemistry CP, Honors Physics CP, and AP Chemistry, Theodore High School

APEX IMPACT OBSERVATIONS:

It has completely changed my method of instruction in physics - lots of PTI activities, white boarding, ranking tasks, and discussions. I have also applied these methods to my other classes and employ white boarding in AP chemistry and physical science.

Meridith Chiaro



Science Teacher

School: Murphy High School

District: Mobile County

Principal: William S. Smith

Superintendent: Martha L. Peek

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ASIM Specialist: Robin Chestnutt

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EXPERIENCE:

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APEX IMPACT OBSERVATIONS:

(No reply)

Frances Coleman



Science Teacher

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ASIM Specialist: Dan O'Halloran

EDUCATION:

Bachelor of Science in Microbiology, University of Alabama

EXPERIENCE:

Six years: Physics Teacher; Participant: Career Technology Engineering STEM classes (current)

APEX IMPACT OBSERVATIONS:

APEX has deepened my content understanding and taught me how to deepen my students' ability to make learning connections.

Joan Crocker



Science Teacher

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ASIM Specialist: Tommi Holsenbeck

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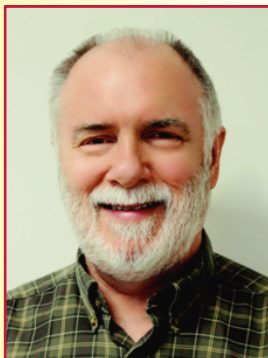
EXPERIENCE:

Five Years: Physics teacher

APEX IMPACT OBSERVATIONS:

Because of the APEX program, I have a different understanding of what is important about teaching physics from my previous understanding. I have been challenged to become a better teacher as a result of APEX. Now I understand that students not only need to be able to do calculations and graphs, but also exhibit graphing skills, be able to explain physics results in terms of graphs, communicate laboratory results to fellow students, and recognize they are part of the scientific community. I personally feel more confident that I have a better sense of the direction my physics class needs to take, and appreciate the opportunity the APEX program has provided.

David Frederick



Science Teacher

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District: Madison City Schools
Principal: Dr. Brian Clayton
Superintendent: Dr. Dee Fowler

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EDUCATION:

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 Master of Education in General Science, Alabama A&M University
 Bachelor of Science in Human Biology, University of Wisconsin

EXPERIENCE:

Six years: Teacher, High School-Physics, Pre-AP Physics, Astronomy, and Physical Science; one year: Teacher-Intro to Engineering Design and Aeronautical Engineering

APEX IMPACT OBSERVATIONS:

In my classroom, I've increased the amount of activity based learning that occurs. I've also improved in the quantity and quality of the formative assessment that we do.

Lee Grosenbach



Science Teacher

School: Brantley High School
District: Crenshaw County
Principal: Dodd Hawthorne
Superintendent: Terry Holley

CONTACT INFORMATION:

P. O. Box 452
 Brantley, AL 36009
Work: (334) 335-3331
Home/Cell: (251) 213-8378
lee.grosenbach@crenshaw-schools.org
ASIM Specialist: Bill Ossenfort

EDUCATION:

Bachelor of Science in Biology, Troy University

EXPERIENCE:

Five years: Teacher, Secondary Education science

APEX IMPACT OBSERVATIONS:

APEX flipped the role of teacher as a facilitator of learning, not director. It brought inquiry based learning and hands-on activities back to science classes in my school.

Lynne Renee Hammonds



Science Teacher

School: Oxford High School

District: Oxford City Schools

Principal: Chris Cox

Superintendent: Dr. Jeff Goodwin

CONTACT INFORMATION:

55 Sneh Street

Oxford, AL 36203

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lhammond.oh@oxford.k12.al.us

ASIM Specialist: Tommy Morgan

EDUCATION:

Master's in Secondary Education General Science, Jacksonville State University

Bachelor of Science in Physics, University of Cincinnati

EXPERIENCE:

Currently: Teacher--AP Physics, HR Physics, and Physics for Physical Science, Oxford High School

APEX IMPACT OBSERVATIONS:

APEX has impacted my teaching in several ways. First, it has taught me a way to teach and apply the four-step method for analyzing graphs that has greatly enhanced the understanding of data for the student. These understandings have linked over into understanding the science questions on the ACT as well. APEX has also given me teaching resources for making my class more hands-on. The students seem to get more knowledge out of an action-based class. Finally, APEX has broadened my subject or content knowledge, helping me with the topics that I have had a hard time understanding myself.

Deborah Harper



Science Teacher

School: Amelia L. Johnson High School

District: Marengo County

Principal: Lepoleon Peterson

Superintendent: Luther P. Hallmark

CONTACT INFORMATION:

3725 Circle 55

Thomasville, AL 36784

Work: (334) 627-3364

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dharper@marengo.k12.al.us

ASIM Specialist: Julie Covin

EDUCATION:

Master of Arts in Education in Curriculum & Instruction, University of Alabama in Birmingham

Bachelor of Science in Biology, University of Alabama

EXPERIENCE:

Eighteen years: Teacher & Substitute Teacher, Marengo County Schools, Georgia, Tennessee, New Mexico, Texas, Maryland, Alabama (Birmingham City Schools & Hoover City Schools), and Midfield City Schools; Member: ASIM Biology, Chemistry, and Physics, AMSTI-grades 7-8

APEX IMPACT OBSERVATIONS:

The greatest impact upon my teaching is that I am much more conscious of the value of questioning in my teaching. The care that is taken in the designing and direction of questions is paramount to conceptual learning.

Jill Harrison



Science Teacher

School: Wilson High School

District: Lauderdale County

Principal: Gary Horton

Superintendent: Jennifer Gray

CONTACT INFORMATION:

1812 Palmer Street

Florence, AL 35630

Work: (256) 764-8470

Home/Cell: (256) 810-0198

Jill.Harrison@LCSchools.org

ASIM Specialist: Doreen Brisendine

EDUCATION:

Master of Arts in Comprehensive Science Secondary Education,
University of North Alabama

Bachelor of Science in Comprehensive Science Secondary Education,
University of North Alabama

EXPERIENCE:

1995-present: Teacher-Physics, Chemistry, Physical Science, Earth Science, Environmental Science, Biology, Anatomy, and Physiology, Wilson High School; 1993-1995: Teacher-MS-Advanced Biology and Chemistry, Belmont High School; 1987-1993: Teacher-Physics, Chemistry, Biology, Environmental Science, Anatomy, Physiology, and Physical Science, West Morgan & Danville High Schools; 1987-1987: Intern Science Teacher, Hibbett Middle School

APEX IMPACT OBSERVATIONS:

APEX has given me a different approach to presenting material, developing lessons and evaluating student success.

Gus Hembree



Science Teacher

School: Pisgah High School

District: Jackson County

Principal: Mark Guffey

Superintendent: Kenneth Harding

CONTACT INFORMATION:

116 Circle 44

Section, AL 35771

Work: (256) 599-2438

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hembreeg@jackson.k12.al.us

ASIM Specialist: Dan O'Halloran

EDUCATION:

Master's in Secondary Science Education (Physics/Chemistry), Alabama A&M University

Bachelor of Science in Earth Science, Auburn University

EXPERIENCE:

2008-present: Teacher-Chemistry, Physics, and Forensic Science, Pisgah High School; 2003-2008: Teacher-Elementary School Science and English, Hollywood Elementary and Macedonia Elementary; 1992-2002: Teacher-Science, Skyline High; Teacher-Physics and Physical Science, Hatton High; Teacher-Physical Science, Douglas High; 1991-1992: Teacher-Indian Heritage, Stevenson Elementary/Middle School

APEX IMPACT OBSERVATIONS:

I can tell a noticeable difference in my teaching and the impact on my students due to APEX.

Phillip Herring



Science Teacher

School: Fairhope High School

District: Baldwin County

Principal: Jon Cardwell

Superintendent: Robbie Owen

CONTACT INFORMATION:

11025 County Rd 48

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pherring@bcbe.org

ASIM Specialist: Robin Chestnutt

EDUCATION:

Ph.D. in Educational Research, University of Southern Mississippi

Ed. Specialist in Educational Leadership, University of South Alabama

Master of Education in Science, University of South Alabama

Bachelor of Science in General Science, University of South Alabama

EXPERIENCE:

Nineteen years: Physics Teacher-currently: Physics and AP Physics C/ Mechanics

APEX IMPACT OBSERVATIONS:

The APEX program has allowed me to incorporate a broader range of hands-on activities in my classroom that time constraints do not allow me to develop on my own. As part of the APEX program, I am also provided the opportunity to work with other physics teachers. This is an enormous asset because we are usually isolated and we seldom have an opportunity to discuss physics topics and concepts with other teachers. Overall, the APEX program has had a positive impact on my students and me.

Kevin Horton



Physics Teacher

School: Etowah High School

District: Atalla City

Principal: Jeff Colegrove

Superintendent: David Bowman

CONTACT INFORMATION:

802 Case Avenue

Attalla, AL 35954

Work: (256) 528-8381

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khorton@attalla.k12.al.us

ASIM Specialist: Tommy Morgan

EDUCATION:

Master of Education in Secondary Science Education, Jacksonville State University

Bachelor of Education in Secondary Science Education, Jacksonville State University

EXPERIENCE:

Thirteen years: Teacher-Chemistry and Physics

APEX IMPACT OBSERVATIONS:

APEX has brought real science into my classroom. Instead of teaching a lesson, I am simply providing my students with the opportunity to investigate.

Timothy E. Horton



Science Teacher

School: Reeltown High School

District: Tallapoosa City

Principal: Tom Cochran

Superintendent: Joseph Windle

CONTACT INFORMATION:

409 Riverside Avenue

Tallasse, AL 39768

Work: (334) 257-1671

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thorton@tallapoosak12.org

ASIM Specialist: Christina Steele

EDUCATION:

Master's in Secondary Education, William Carey University

Bachelor of Science in Fishery Management, Mississippi State University

EXPERIENCE:

Sixteen years: Teacher

APEX IMPACT OBSERVATIONS:

APEX has impacted my classroom, school, and district in a positive manner

Sheri Humphrey



Science Teacher

School: Oak Mountain High School

District: Shelby County

Principal: Kristi Sayers

Superintendent: Randy Fuller

CONTACT INFORMATION:

2313 Woodland Circle

Birmingham, AL 35242

Work: (205) 682-5200

Home/Cell: (205) 902-0854

shumphrey@shelbyed.k12.al.us

ASIM Specialist: Chuck Hanke

EDUCATION:

Master of Education in General Science, University of Montevallo

Bachelor of Science in Pulp Paper Technology, North Carolina State University

EXPERIENCE:

2000-present: Science Teacher-General Physics, AP Physics C Mechanics, and AP Physics 1, Oak Mountain High School, Birmingham; 1982-1998:

Process Engineer, International Paper, Mobile, AL

APEX IMPACT OBSERVATIONS:

More labs, more inquiry, more discussion, more basic physics understanding, and more student-centered activities.

LaTisha Jackson



Science Teacher
 School: Cold Springs High School
 District: Cullman County
 Principal: Tim Burleson
 Superintendent: Dr. Craig Ross

CONTACT INFORMATION:
 31625 Alabama Highway 91
 Hanceville, AL 35077
 Work: (256) 287-1787
 Home/Cell: (256) 620-3047
 tjackson@ccboe.org
 ASIM Specialist: Jeff Woods

EDUCATION:

Master of Education in Biology, Alabama State University
 Bachelor of Science in Biochemistry, Auburn University
 Bachelor of Science in Medical Technology, Auburn University
 Bachelor of Science in Education, Athens University

EXPERIENCE:

Six years: Teacher

APEX IMPACT OBSERVATIONS:

APEX has allowed me to do more inquiry lab activities than I had done in previous year. My students figure concepts out for themselves and are able to build their own knowledge

Brandi Jones



Science Teacher
 School: Carver High School
 District: Montgomery Public Schools
 Principal: Gary Hall
 Superintendent: Margaret Allen

CONTACT INFORMATION:
 602 E. Edgemont Avenue
 Montgomery, AL 36111
 Work: (334) 269-3636
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 brandi.zeigler@mps.k12.al.us
 ASIM Specialist: Tommi Holsenbeck

EDUCATION:

Master of Education in Biology, Alabama State University
 Bachelor of Science in Chemistry, Miles College

EXPERIENCE:

2008-present: Teacher, Carver High School, Montgomery, AL; one year:
 Teacher, Bellingsrath Junior High School, Montgomery, AL; two years:
 Teacher, Calhoun High School, Lowndes County, AL

APEX IMPACT OBSERVATIONS:

The laboratory activities are great! My students have an opportunity to observe concepts in action instead of only reading about them or memorizing them. They compare their preconceived notions with real data. The labs allow my students to confront their misconceptions and form a foundation upon which to build even more knowledge.

Michael Joreski



Science Teacher

School: Samson High School

District: Geneva County

Principal: DeWayne Hamalton

Superintendent: Becky Birdsong

CONTACT INFORMATION:

1088 County Road 725

Enterprise, AL 36330

Work: (334) 898-2371

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joreskim@genevacoboe.org

ASIM Specialist: Bill Ossenfort

EDUCATION:

Master's in Math, Troy State University

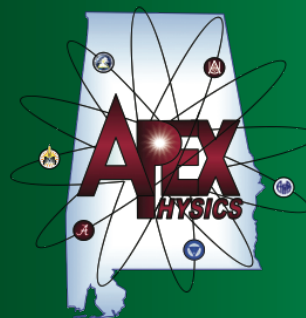
EXPERIENCE:

Fourteen years: Teacher-Math and Science (eight years); Certification-Math and General Science 6-12

APEX IMPACT OBSERVATIONS:

APEX has taught me how to allow students to self discover what they are otherwise merely told about. It leads to greater understanding of physics ideas.

Jessica Nicole King



Science Teacher

School: Baker High School

District: Mobile County

Principal: Clem Richardson

Superintendent: Martha L. Peek

CONTACT INFORMATION:

3532 Lyle Court

Semmes, AL 36575

Work: (251) 221-3000

Home/Cell: (251) 366-2336

jking@mcpss.com

ASIM Specialist: Robin Chestnutt

EDUCATION:

Bachelor of Science in Chemistry, University of Southern Mississippi

EXPERIENCE:

Fifteen years: Teacher; five years: Teacher, Mobile County Public Schools

APEX IMPACT OBSERVATIONS:

This is an AMAZING program that I would strongly suggest to anyone! I truly believe in their teaching methods, and the work behind the scenes is tremendous. APEX is by far the best professional development that I have ever participated in during my sixteen years of teaching! I only wish they had the same program for Chemistry! During workshops, we are the students! We do the labs and follow the teaching methods as students. I truly recommend this program to anyone teaching physics! I give them an A+ hands down! APEX needs to continue, and I encourage every Physics Teacher to participate!

Samantha McKissack



Science Teacher
 School: Pinson Valley High School
 District: Bibb County
 Principal: Terry Lawley
 Superintendent: Glenn Judd

CONTACT INFORMATION:

4713 Renwood Drive
 Pinson, AL 35126
 Work: (205) 379-5100
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smckissack@jefcoed.com
 ASIM Specialist: Stan Hart

EDUCATION:

Bachelor's in General Science Education, Auburn University

EXPERIENCE:

Four years: Teacher-Physical Science, Biology, Chemistry, Advanced Chemistry, and one class of Physics

APEX IMPACT OBSERVATIONS:

I taught the physics portion of physical science completely different than previous years because I used the things I learned here.

Rhonda Miller



Science Teacher
 School: Hartselle High School
 District: Hartselle City
 Principal: Jeff Hyche
 Superintendent: Dr. Paul Wilson

CONTACT INFORMATION:

847 Francis Road
 Hartselle, AL 35640
 Work: (256) 751-5615
 Home/Cell: (256) 565-3181
rhonda.miller@hcs.k12.al.us
 ASIM Specialist: Jeff Woods

EDUCATION:

Master of Science in Math and Comprehensive Science, Athens State University

Bachelor of Science in Math and Comprehensive Science, University of North Alabama

EXPERIENCE:

Twenty-six years: Teacher-AP Physics, AP Statistics, Pre AP Physics, and Pre AP Pre-Calculus

APEX IMPACT OBSERVATIONS:

APEX has provided me the tools to change the way in which students learn physics. My classroom has become student-centered, rather than traditionally teacher-centered. Students are actively discovering concepts through labs, commenting on these concepts in class discussions, and, last but not least, participating and presenting in group-centered activities. These APEX foundational concepts have led to tremendous gains in my students understanding of physics.

Jessica Moore



Science Teacher
 School: Walker High School
 District: District 7, Jasper City Schools
 Principal: Gary Boling
 Superintendent: Dr. Ann Jackson

CONTACT INFORMATION:
 1601 Highland Avenue
 Jasper, AL 35504
 Work: (205) 221-9277
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 jmoore@jasper.k12.al.us
 ASIM Specialist: Doreen Brisendine

EDUCATION:

Master of Arts in Education, Secondary Comprehensive Science,
 University of Alabama at Birmingham
 Bachelor of Science in Zoology, Auburn University

EXPERIENCE:

Five years: Teacher, Walker High School (presently); Sumiton Christian School-6th, 7th, and 8th grade sciences; two years: High School Biology, Chemistry, Zoology, and Environmental Science

APEX IMPACT OBSERVATIONS:

APEX has not only been a great resource for teaching methods, resources, and colleagues but also a source of encouragement. After participation in physics labs and discussions, I am incorporating more guided inquiry lab investigations in my classroom and challenging my students to sharpen their thinking processes.

Amy Martina Norton



Science Teacher
 School: Vestavia Hills High School
 District: Vestavia Hills City
 Principal: Tyler Burgess
 Superintendent: Sheilla Phillips

CONTACT INFORMATION:
 608 Dunmore Circle
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 nortonam@vestavia.k12.al.us
 ASIM Specialist: Chuck Hanke

EDUCATION:

Master of Art in Physics Education, University of Alabama at Birmingham
 Bachelor of Science in Biology, Louisiana State University

EXPERIENCE:

Thirty-two years: Teacher, Vestavia Hills High School

APEX IMPACT OBSERVATIONS:

We are doing more student-centered projects and activities to learn each concept before introducing mathematics to complete our mastery.

Wendy Roberts



Science Teacher
 School: Lincoln High School
 District: Talladega County
 Principal: Andy Keith
 Superintendent: Dr. Suzanne Lacey

CONTACT INFORMATION:
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 Work: (256) 315-5295
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 wroberts@tcboe.org
 ASIM Specialist: Chuck Hanke

EDUCATION:

Bachelor of Science in Chemistry, Jacksonville State University

EXPERIENCE:

Three years: Teacher, B.B. Comer High School; six years: Teacher, Lincoln High School

APEX IMPACT OBSERVATIONS:

The biggest impact I saw was in the deeper understanding of concepts my students gained from the APEX process. Combining the activities that Jane and Jim gave us with the elicitation activities and diagnostic quizzes from Jim was highly successful.

Justin Sanders



Science Teacher
 School: Huffman High School
 District: Birmingham City
 Principal: John Lyons
 Superintendent: Dr. Spencer Horn

CONTACT INFORMATION:
 4570 Haley Street
 Birmingham, AL 35235
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 mrsandersclass@gmail.com
 ASIM Specialist: Stan Hart

EDUCATION:

Master of Science in Electrical Engineering, University of Michigan at Ann Arbor

Bachelor of Science in Electrical Engineering, University of Michigan at Ann Arbor

EXPERIENCE:

Two years: Teacher-Career/Tech Pre-Engineering; three years: Teacher-Mathematics; two years: Teacher-Science

APEX IMPACT OBSERVATIONS:

APEX has opened my eyes to inquiry-based teaching. The methods I have learned have been helpful in getting students engaged in the learning process.

Brian Sexton



Science Teacher
 School: Hokes Bluff High School
 District: Etowah County
 Principal: Scott Calhoun
 Superintendent: Dr. Alan Cosby

CONTACT INFORMATION:
 1612 Rabbittown Road
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 brian_sexton@ecboe.org
 ASIM Specialist: Tommy Morgan

EDUCATION:

Master of Science in Secondary Education General Science, Jacksonville State University
 Bachelor of Science in General Education, Jacksonville State University
 Associate in Science, Gadsden State Community College

EXPERIENCE:

Science Teacher, Grades 9th-12th-Chemistry, Physics, Physical Science, and AP Chemistry

APEX IMPACT OBSERVATIONS:

APEX is one of the most helpful programs I have participated in ten years of teaching. Teacher education at the university level should be structured more around classroom activities instead of research and philosophy. I would strongly encourage every physics teacher to participate in a program like APEX.

Chere Smith



Chemistry & Physics Teacher
 School: Smith's Station High School
 District: Lee County
 Principal: Joaquin Richards
 Superintendent: Dr. Mac McCoy

CONTACT INFORMATION:
 2510 Lee Road 165
 Salem, AL 36874
 Work: (334) 664-4060
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 smith.chere@lee.k12.al.us
 ASIM Specialists: Christina Steele and DeWayne Riddle

EDUCATION:

Master's Graduate Student in General Science Education, University of Alabama
 Bachelor's in General Science Education, Auburn University
 Associate of Science, Southern Union State Community College

EXPERIENCE:

Fourteen years: Teacher

APEX IMPACT OBSERVATIONS:

APEX has provided my students with a variety of instructional strategies, activities, and assessment tools in the classroom. At our school, I am now working to provide students with the opportunity to take Physics yearly in a classroom setting, rather than online only. Our district is working with our school to provide opportunities to other teachers in our county while allowing me to continue the research.

Jennifer Talbot



Science Teacher

School: Brindlee Mountain High School

District: Marshall County

Principal: Bobby Buford

Superintendent: Cindy Wigley

CONTACT INFORMATION:

268 Stoney Mountain Road

Guntersville, AL 35976

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talbotj@marshallk12.org

ASIM Specialist: Dan O'Halloran

EDUCATION:

Bachelor of Science in Zoology, University of New Hampshire

EXPERIENCE:

Nine years: Teacher, Marshall County; five years: Middle School Teacher-7th & 8th grade science; three years: Participant, improving Physics & Chemistry teaching in Secondary Education (IMPACTSEED)

APEX IMPACT OBSERVATIONS:

The use of the four-step analysis has helped students realize where equations come from. New labs with hands on activities to teach and/or reinforce physics concepts.

Cynthia Thomas



Science Teacher

School: Shades Valley High School

District: Jefferson County

Principal: Mary B. Blankenship

Superintendent: Dr. Craig Pouncey

CONTACT INFORMATION:

1032 53rd Street South

Birmingham, AL 35222

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cynthiathomas@jefcoed.com

ASIM Specialist: Stan Hart

EDUCATION:

Bachelor's in Secondary Education Comprehensive Science, University of Alabama

National Board Certified Teacher AYA Science (Physics concentration)

EXPERIENCE:

Nineteen years: Teacher

APEX IMPACT OBSERVATIONS:

APEX has really helped provide lab investigation to introduce students to the concepts instead of simply confirming a concept. Four-Step Analysis ROCKS!

Brian Usry



Science Teacher

School: Gadsden High School

District: Etowah County

Principal: Dr. Miria King-Garner

Superintendent: Dr. Alan Cosby

CONTACT INFORMATION:

80 US Highway 411 South

Gadsden, AL 35901

Work: (256) 547-8828

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brian_usry@ecboe.org

ASIM Specialist: Christina Steele

EDUCATION:

Master of Science in Marine Science, NCST

Bachelor of Science in Geology, University of South Alabama

EXPERIENCE:

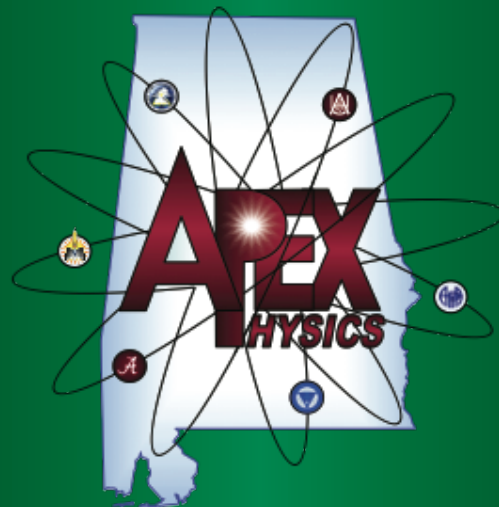
Ten years: Teacher

APEX IMPACT OBSERVATIONS:

My students were not attending class (absences were a problem) prior to implementing APEX activities, now they rarely miss and enjoy physics.

END OF SECTION:

CO-HORT 2 BIOGRAPHIES



Penny Bonds



Science Teacher
School: Dallas County High School
District: Dallas County
Principal: Todd Reece
Superintendent: Hattie Shelton

CONTACT INFORMATION:
106 Valley Street
Centerville, AL 35042
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bondsp@dallask12.org
ASIM Specialist: Tommi Holsenbeck

EDUCATION:

Master's of Art in Science Education, University of Alabama at Birmingham
Bachelor's of Art in Biology, Huntingdon College

EXPERIENCE:

Seventeen years: Teacher-Honors Anatomy & Physiology, Physics, Physical Science, and Earth and Space (one year: Hueytown High School; twelve years: Minor, formerly Bottenfield, Middle School-8th grade; four years: Dallas County)

APEX IMPACT OBSERVATIONS:

Having never taught physics before, this has deepened my understanding of concepts. It has also changed the way I address concepts in the classroom, allowing for more investigation from the students.

Jeremy Borchardt



Science Teacher
School: Foley High School
District: Baldwin County
Principal: Russ Moore
Superintendent: Edward Tyler

CONTACT INFORMATION:
708 Edinburgh Avenue
Foley, AL 36535
Work: (251) 943-2221
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jsborchardt@bcbe.org
ASIM Specialist: Robin Chestnutt

EDUCATION:

Bachelor of Science in Comprehensive Science Education, Troy University

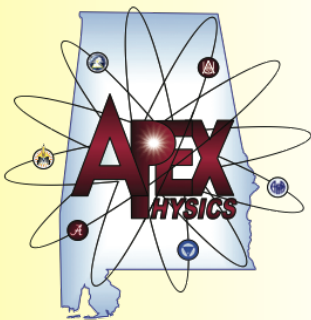
EXPERIENCE:

Ten years: Teacher-AP Physics 1, Earth and Space Science

APEX IMPACT OBSERVATIONS:

It has increased my depth of knowledge as well as my students. My students test scores have gone up versus the previous years. The APEX program has been used by myself and our counselors as a recruitment tool for our physics program.

Kristan Bryant



Science Teacher
 School:
 District: Autauga County
 Principal: Richard Dennis
 Superintendent: Spence Agee

CONTACT INFORMATION:
 369 Summertime Parkway
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 kyao001@auburn.edu
 ASIM Specialist: Tommi Holsenbeck

EDUCATION:
 (No information available)

EXPERIENCE:
 (No information available)

APEX IMPACT OBSERVATIONS:
 (No reply)

Ramona Cole



Science Teacher
 School: West Morgan High School
 District: Morgan County
 Principal: Keith Harris
 Superintendent: Billy Hopkins

CONTACT INFORMATION:
 3205 Co Rd 200
 Danville, AL 35619
 Work:
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 racole@morgank12.org
 ASIM Specialist: Kelly Ford

EDUCATION:
 Master's in Chemistry and Education; University of Alabama in Huntsville
 Bachelor of Science in Chemistry, University of North Alabama

EXPERIENCE:
 Nine years: Teacher, West Morgan High School

APEX IMPACT OBSERVATIONS:
 Apex has been a big help in teaching Physics.

Christian Collins



Science Teacher
School: Oak Mountain High School
District: Shelby County
Principal: Dr. Kristi Sayers
Superintendent: Randy Fuller

CONTACT INFORMATION:
209 Scarlet Court
Chelsea, AL 35043
Work: (205) 682-5200
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ccollins@shelbyed.org
ASIM Specialist: Chuck Hanke

EDUCATION:

Master's in Education, University of Alabama at Birmingham
Bachelor of Science in Biology, University of Alabama at Birmingham

EXPERIENCE:

Eight years: Teacher

APEX IMPACT OBSERVATIONS:

APEX has given me a better methodology for presenting physics concepts in class. It has made my overall teaching more meaningful which in turn makes the students learning more meaningful. I truly think students learning concepts (no matter the science) using the APEX model, have a more thorough understanding and better retention of key ideas than learning concepts through the traditional style of teaching.

Kenya Curry-Harbin



Science Teacher
School: B. C. Rain High School
District: Mobile County
Principal: Marlon Firle
Superintendent: Martha Peek

CONTACT INFORMATION:
7364 Willow Bridge Drive
Mobile, AL 36695
Work: (251) 221-3233
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kharbin@mcpss.com
ASIM Specialist: Robin Chestnutt

EDUCATION:

Master of Science in Physics, Alabama A&M University
Bachelor of Science in Physics, Alabama A&M University

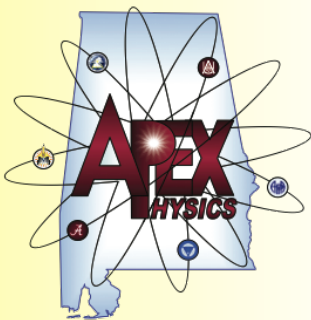
EXPERIENCE:

Sixteen years: Teacher-Physics, Physical Science, Forensics, Human A&P, Zoology, Marine Biology, and Biology, Dallas, TX and Mobile, AL

APEX IMPACT OBSERVATIONS:

My classroom has learn affected tremendously by APEX. My students show a letter understanding of physics concepts and enjoy learning through the numerous hands on activities. All physics teacher in the distract enjoy the use of instrctional labs which accelerate & ensure learning in the classroom.

Jennifer Daniels



Science Teacher

School: Stanhope Elmore High School

District: Elmore County

Principal: William Bergeron

Superintendent: Richard Dennis

CONTACT INFORMATION:

400 Main Street

Millbrook, AL 36054

Work: (334) 285-4263

Home/Cell: (334) 285-4263

jennifer.daniels@elmoreco.com

ASIM Specialist: Christina Steele

EDUCATION:

Master of Education in Educational Leadership, Auburn University
Bachelor of Science in Secondary Education General Science, Auburn University

EXPERIENCE:

Twenty years: Teacher-Honors Biology, AP Physics, Honors Chemistry, and Physical Science

APEX IMPACT OBSERVATIONS:

APEX has provided an interactive way for students to learn Physics.

Melanie Dimler



Science Teacher

School: Hewitt-Trussville High School

District: Trussville City Schools

Principal: Tim Salem

Superintendent: Dr. Patricia Neill

CONTACT INFORMATION:

8121 Truss Drive

Trussville, AL 35173

Work: (205) 228-2405

Home/Cell: (205) 577-2244

melanie.dimler@trussvillecityschools.com

ASIM Specialist: Tommi Holsenbeck

EDUCATION:

Master of Natural Science in Physics, Louisiana State University
Bachelor of Science in Mechanical Engineering, Louisiana State University

EXPERIENCE:

Six years: Teacher-Physics, AP Physics B, AP Physics 1, and PLTW Principles of Engineering (POE)

APEX IMPACT OBSERVATIONS:

As a result of my participation in the APEX program, my classroom has become a more student centered environment in which students learn science by doing science. Each unit begins with a collaborative discovery lab, through which students learn how to analyze scientific data graphically and mathematically, then verbally explain and justify experimental results through white-boarding (which we call "Board Meeting"). Apex has provided the Physics Department at Hewitt-Trussville High School with quality, research-based Physics pedagogy training and content resources.

Nicole Dumas



Science Teacher

School: Ramsay High School

District: Birmingham City School

Principal: Cassandra Fincher Fells

Superintendent: Dr. Larry Contri

CONTACT INFORMATION:

1112 19th Avenue NW

Birmingham, AL 35215

Work: (205) 231-7000

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nadumas19@gmail.com

ASIM Specialist: Stan Hart

EDUCATION:

Bachelor of Science in Chemistry, Fish University

EXPERIENCE:

Eight years: Teacher-Biology, Physical Science, Physics, Chemistry, and Anatomy, Huffman High School (2008-2011), Ramsay High School (2011-present)

APEX IMPACT OBSERVATIONS:

(No reply)

Leslie Freeman



Science Teacher

School: Southside High School

District: Etowah County School

Principal: Chris Winningham

Superintendent: Dr. Alan Cosby

CONTACT INFORMATION:

Address: 1515 Lasseter Road

Southside, AL 35907

Work: (256) 442-2172

Home/Cell: (256) 504-6159

leslie_freeman@ecboe.org

ASIM Specialist: Tommy Morgan

EDUCATION:

Master's in General Science Secondary Education, Jackson State University

Bachelor's in General Science Secondary Education, Jackson State University

Education Specialist in Secondary Education General Science

EXPERIENCE:

(No information available)

APEX IMPACT OBSERVATIONS:

(No reply)

Paul Furman



Science Teacher
 School: Thompson High School
 District: Alabaster City
 Principal: Dr. Wesley Hester
 Superintendent: Dr. Wayne Vickers

CONTACT INFORMATION:

2200 Chandabrook Drive
 Pelham, AL 35124
 Work: (205) 685-6700
 Home/Cell: (205) 901-6132
paul.furman@alabastercity.org
 ASIM Specialist: Chuck Hanke

EDUCATION:

Master of Art in Education in Secondary Mathematics, University of Alabama at Birmingham
 Bachelor of Science in Mathematics, Univ. of Alabama at Birmingham
 Certifications: Class A, Secondary (6-12) Mathematics, Class B, Secondary (6-12) Physics

EXPERIENCE:

Four years: Teacher-Physical Science, Pre-AP Physics, AP Physics 1, and AP Physics 2, Thompson High School ; Teacher-Mathematics, Point University

APEX IMPACT OBSERVATIONS:

APEX has been a valuable resource to me both as a new teacher in general as well as specifically helping me grow stronger in my Physics content so I can better communicate with my students and present topics and activities in a way that they will be able to better grasp. I have also developed a network of fellow Physics teachers via APEX, and that collaboration has proven to be invaluable. It is by far the best PD I have experienced in my teaching career.

Rhonda Johnson



Science Teacher
 School: Plainview High School
 District: DeKalb County
 Principal: Tony Richards
 Superintendent: Dr. Jason Barnett

CONTACT INFORMATION:

827 County Road 447
 Fort Payne, AL 35968
 Work: (256) 638-3510
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crjohnson2001@yahoo.com
 ASIM Specialist: Dan O'Halloran

EDUCATION:

(No information available)

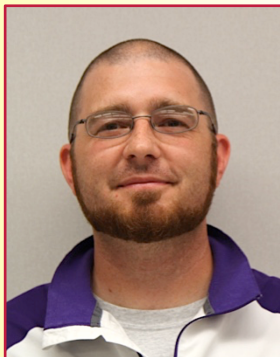
EXPERIENCE:

Twenty-five years: Teacher-Anatomy, Physiology, Chemistry, and Physics

APEX IMPACT OBSERVATIONS:

APEX has helped to deliver methods of teaching based on Next Generation Science Standards. Students are exposed to lab activities that reinforce and introduce topics. These activities have increased student interest in Physics.

Jonathan Ling



Science Teacher
 School: Daphne High School
 District: Baldwin County
 Principal: Meredith Foster
 Superintendent: Edward Tyler

CONTACT INFORMATION:
 9300 Champions Way
 Daphne, AL 36526
 Work: (251) 626-8787
 Home/Cell: (251) 654-3053
 jdling@bcbe.org
 ASIM Specialist: Robin Chestnutt

EDUCATION:

Master of Education in Physics, University of Alabama at Birmingham
 Bachelor of Science in Physics, Lipscomb University

EXPERIENCE:

2003-present: Teacher

APEX IMPACT OBSERVATIONS:

APEX has shown me a new way of teaching using inquiry. My students have a much better grasp of the principles covered in class and no longer rely on just plugging things into formulas.

Robyn Lowe



Science Teacher
 School: J. U. Blacksher High School
 District: Monroe County
 Principal: Donald Baggett
 Superintendent: Greg Shehan

CONTACT INFORMATION:
 37 Sellers Street
 Monroeville, AL 36460
 Work: (251) 862-2130
 Home/Cell: (334) 268-8546
 rlowe@monroe.k12.al.us
 ASIM Specialist: Robin Chestnutt

EDUCATION:

Bachelor of Science in Chemistry (Minor in Psychology), Troy University
 Alternate Bachelorette Certificate, Athens State University

EXPERIENCE:

Five years: Teacher-Math, Science, and Psychology

APEX IMPACT OBSERVATIONS:

APEX has allowed me to make my class more student- centered, inquiry-based, rigorous, and hands-on.

Kimberlee Mabry



Science Teacher

School: Opelika High School

District: Opelika City

Principal: Farrell Seymore

Superintendent: Dr. Mark Neighbors

CONTACT INFORMATION:

2923 McKinley Drive

Opelika, AL 36804

Work: (334) 745-9215

Home/Cell: (334) 559-1814

kathryn.madzar@opelikaschools.org

ASIM Specialist: Christina Steele

Master of Science in Secondary Science Education, Auburn University
Bachelor of Science in Bio-systems Engineering, MS

EXPERIENCE:

Six years: Teacher-Physics Honors, AP Physics, PLTW Principles of Engineering, Pre-AP Chemistry, and Physical Science

APEX IMPACT OBSERVATIONS:

More student engagement, deeper level of understanding, higher scores in class and on AP exam.

Kathryn Madzar



Science Teacher

School: West Blocton High School

District: Mobile County

Principal: Terry Lawley

Superintendent: Martha Peek

CONTACT INFORMATION:

20461 Hephzibah Church

McCala, AL 35111

Work: (334) 745-9715

Home/Cell: (334) 559-1814

mabryk@bibbed.org

ASIM Specialist: Charles Hanke

EDUCATION:

(No available information)

EXPERIENCE:

(No available information)

APEX IMPACT OBSERVATIONS:

(No reply)

Rhonda Major



Science Teacher
 School: Central High School
 District: Phoenix City
 Principal: Thomas Vickers
 Superintendent: Randy Wilkes

CONTACT INFORMATION:
 1870 Pierce Road
 Phoenix City, AL 36867
 Work: (256) 241-3166
 Home/Cell: (256) 276-9944
 rmajor@pcboe.net
 ASIM Specialist: Tommy Morgan

EDUCATION:

Master of Science in Chemical Engineering
 Bachelor of Science in Chemistry

EXPERIENCE:

Fifteen years: Teacher-High School

APEX IMPACT OBSERVATIONS:

I have changed the spoon fed traditional Power Point lectures, problem solving the use lab to convince to allowing the students to take charge of their own learning by starting with a lab and allowing them to figure out what the maintenance for the day.

Shelby Mann



Science Teacher
 School: Lamar County High School
 District: Lamar County
 Principal: Scott Walker
 Superintendent: Vance Herron

CONTACT INFORMATION:
 710 Clearman Road
 Vernon, AL 35592
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 Home/Cell: (561) 676-3264
 smann@lamar.k12.al.us
 ASIM Specialist: Julie Covin

EDUCATION:

Bachelor of Science, University of Montevallo
 Master of Science, Nova Southeastern University

EXPERIENCE:

(No information available)

APEX IMPACT OBSERVATIONS:

The APEX has been a rewarding challenge for me. I did not have a Physics class this year, but I will be teaching Physics this coming year. This program has helped give me a firm foundation. I found the kinematics learning with hands-on investigations a motivating approach to solving problems. I look forward to incorporating the white board as a tool for successful cooperative learning.

Kathleen Moon



Science Teacher
 School: Deshler High School
 District: Tuscumbia City Schools
 Principal: Russell Tate
 Superintendent: Darryl Aikerson

CONTACT INFORMATION:
 124 Heritage Place
 Tuscumbia, AL 35674
 Work: (256)389-2910
 Home/Cell: (256) 856-6884
kmoon@tuscumbia.k12.al.us
 ASIM Specialist: Doreen Brisendine

EDUCATION:

Master of Science in Chemistry, Vanderbilt University
 Bachelor of Science in Chemistry, Murray State University

EXPERIENCE:

Eight years: Teacher-Science, Deshler High School (7 years), Shoals Christian School, Florence, AL (1 year); one year: Teacher-Chemistry, Brazoswood High School, Lake Jackson, TX; six years: Adjunct Professor-Chemistry, Northwest-Shoals Community College, Muscle Shoals, AL; twelve years: Graduate Teaching Assistant, Vanderbilt University, Nashville, TN

APEX IMPACT OBSERVATIONS:

(No reply)

Eldred Pierce



Science Teacher
 School: Ardmore High School
 District: Limestone County
 Principal: Glenn Bryant
 Superintendent: Dr. Thomas Sisk

CONTACT INFORMATION:
 607 Springwood Circle
 Huntsville, AL 35803
 Work: (256)423-2685
 Home/Cell: (256)714-5559
lee.pierce@lcsk12.org
 ASIM Specialist: Kelly Ford

EDUCATION:

Bachelor of Science in Biology, Jacksonville State University
 Bachelor of Science in Microbiology, University of Tennessee in Knoxville

EXPERIENCE:

(No information available)

APEX IMPACT OBSERVATIONS:

I have increased the number of labs I do with physics students. I also use some of the activities from APEX in my physical science classes.

Michael Poe



Physics Teacher
 School: B. B. Comer Memorial High School
 District: Talladega County
 Principal: Judson Warlick
 Superintendent: Dr. Suzanne Lacey

CONTACT INFORMATION:

1523 Brooks Road
 Sylacauga, AL 35150
 Work: (256) 315-5400
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mpoe@tcboe.org
 ASIM Specialist: Chuck Hanke

EDUCATION:

Bachelor of Science, Jacksonville State University
 Master's, Auburn University

EXPERIENCE:

Four years: Teacher-Physical Science, Chemistry, Physics, ACT Prep, and AP Chemistry

APEX IMPACT OBSERVATIONS:

(No reply)

Leslie Royer



Science Teacher
 School: Carroll High School
 District: Ozark City
 Principal: Sean Clark
 Superintendent: Richard McInturf

CONTACT INFORMATION:

141 Eagle Way
 Ozark, AL 36360
 Work: (334) 774-4915
 Home/Cell: (256) 856-7211
lroyer@ozarkcityschools.net
 ASIM(Specialist: Bill Ossenfort

EDUCATION:

Master of Education in Science Curriculum & Instruction, Concordia University
 Bachelor of Science, Middle Tennessee State University

EXPERIENCE:

Thirteen years: Teacher-Middle School Science, High School Biology, Anatomy & Physiology, Physical Science, Physics, and Chemistry

APEX IMPACT OBSERVATIONS:

Apex has help me show students how to determine their own results and interpret results into the laws of Physics.

Andrew Shaw



Science Teacher
School: Alexandria High School
District: Calhoun County
Principal: Mack Holley
Superintendent: Joseph Dyar

CONTACT INFORMATION:
198 Clinton Drive
Alexandria, AL 36250
Work: (256) 741-4434
Home/Cell: (256) 452-5806
ashaw.ah@ccboe.us
ASIM Specialist: Tommy Morgan

EDUCATION:

Master of Education in Secondary Education General Science,
Jacksonville State University
Bachelor of Education in Secondary Education General Science,
Jacksonville State University

EXPERIENCE:

Twenty-six years: Teacher-Physics and Physical Sciences, Alexandria High School

APEX IMPACT OBSERVATIONS:

Using the APEX Model I have the tools to better educate my student on the concepts of physics. Additionally, I have greatly improve my content knowledge, teaching skills and evaluation methods of my students.

Nicholas Sourvelis



Science Teacher
School: Oakman High School
District: Walker County
Principal: Patrick Gann
Superintendent: Dr. Jason Adkins

CONTACT INFORMATION:
574 Summerville Lane
Jasper, AL 35504
Work: (205) 622-3381
Home/Cell: (205) 522-7207
sourvelisn@wclsive.com
ASIM Specialist: Doreen Brisendine

EDUCATION:

Master of Arts in Education, University of Alabama at Birmingham
Bachelor of Science in Biology, Samford University
Associate of Science, Beville State Community College

EXPERIENCE:

(No available information)

APEX IMPACT OBSERVATIONS:

APEX teaches Science Teachers how to put students in the driver seat on the path to scientific discovery. Science education has a history of being polar to scientific discovery. Traditionally, information is transferred, not discovered. APEX, in contrast, provides a framework for teachers to give students the opportunity to discover the natural phenomenon of the world first hand, as scientist do. The impact APEX has had on my approach to science instruction has been significant. There have been three major components of great value. In my classroom discovery always comes first. APEX has provided me with the tools needed to demonstrate to my students the power and practicality of mathematical tools typically viewed as abstract and useless by students. The laboratory experience my students have gained from this experience has been paramount. My students have been challenged and enjoyed every moment of it.

Rachel Tawbush



Science Teacher
 School: Pell City School
 District: Pell City
 Principal: Dr. Tony Dowdy
 Superintendent: Dr. Michael Barber

CONTACT INFORMATION:
 586 Murphrees Valley
 Springville, AL 35146
 Work: (205) 338-2250
 Home/Cell: (205) 516-2120
rachael.tawbush@pellcityschools.net
 ASIM Specialist: Jason Cole

EDUCATION:

Master of Education in Secondary Education General Sciences, University of Alabama at Birmingham
 Education Specialist in Teacher Leadership, University of Alabama at Birmingham
 Certified Genetic Technologies in Alabama Classrooms (GTAC), Hudson Alpha

EXPERIENCE:

Nine years: Teacher-Forensic Science, Project Lead the Way Principles of Biomedical Science; Environmental Scientist-Biologist, and Accident Reconstructionist

APEX IMPACT OBSERVATIONS:

Apex allows students to experience Physics first hand! Apex pulls the students away from their textbooks and into hands-on inquiry based labs. These hands-on labs encourage the students to provide evidence to support their views and have been shown to drastically increase student assessment scores.

Erica Thompson



Science Teacher
 School: Lee High School
 District: Huntsville City
 Principal: Anne Jobe
 Superintendent: Dr. Matthew Akin

CONTACT INFORMATION:
 1713 Pennylane SE
 Decatur, AL 35601
 Work: (256) 428-8150
 Home/Cell: (256) 683-8774
erica.thompson@hsv-k12.org
 ASIM Specialist: Dan O'Halloran

EDUCATION:

Bachelor of Science in Biology (minor: Secondary Education), University of Alabama in Huntsville
 Class B Certification, Secondary General Science Education

EXPERIENCE:

One year: Teacher-Chemistry, Physics, and AP Physics, 7th and 8th grade

APEX IMPACT OBSERVATIONS:

APEX has positively influenced my classroom. This is the first year of training for me.

Amanda Wells



Science Teacher
 School: Fort Payne High School
 District: Fort Payne City
 Principal: Patrick Barnes
 Superintendent: James Cunningham

CONTACT INFORMATION:
 771 Carmichael Road
 Valley Head, AL 35989
 Work: (256) 845-0535
 Home/Cell: (251)996-5873
 awells@ftpayk12.org
 ASIM Specialist: Dan O'Halloran

EDUCATION:

Master's in Secondary Education & General Science, Jacksonville State University
 Bachelor's in Physics (Minor: Mathematics), Berry College

EXPERIENCE:

Teacher-Science and Engineering, Instructor-Project Lead the Way (Engineering)

APEX IMPACT OBSERVATIONS:

(No reply)

Robert Workman



Science Teacher
 School: Tuscaloosa County High School
 District: Tuscaloosa County
 Principal: Dr. Cynthia Simpson
 Superintendent: Dr. Walter Davie

CONTACT INFORMATION:
 14991 Prewitt Loop Road
 Northport, AL 35475
 Work: (205) 342-2670
 Home/Cell: (205) 344-1107
 rworkman@tcss.net
 ASIM Specialist: Julie Covin

EDUCATION:

Master of Art in Educational Administration, University of Alabama
 Bachelor of Science in Chemistry, University of West Alabama

EXPERIENCE:

Teacher-Honors Physics, Pre-AP Physics, AP Physics 1, Earth & Space Science

APEX IMPACT OBSERVATIONS:

(No reply)

APEX EVENTS & ACTIVITIES

DIAGNOSER

APEX collaborated with Facet Innovations, LLC (FI), a consulting firm, on the APEX project. FI provides APEX teachers with technical support for administration and use of assessment and instruction tools accessible through Diagnoser.com (online research-based physics education tool). Assistance is provided via email, phone and/or screen sharing to address issues. Diagnoser assists teachers in online collection of research data relevant to the APEX teachers' action research projects that incorporate use of Diagnoser Tools, assist in interpreting assessment data that has been collected online and in making instructional decisions based on results of automated analysis.

APEX WEBSITE: <http://Alapex.org>

An Apex website has been developed by Dr. Marius Schamschula, Co-investigator of this NSF MSP project. The home page has been kept up to date with current content. This website also has wiki and lots of information for the users, including Alabama High School teachers from Cohorts 1, 2 and 3 for Summer Professional Development Physics Teacher Institutes held at Alabama A&M University.

APEX T-SHIRTS

A Reflection of the Participants' Sentiments



EQUIPMENT CONTRIBUTION TO ALABAMA SCIENCE IN MOTION (ASIM) FOR SUSTAINABILITY

In order to sustain the efforts of the APEX grant and continue to impact physics teachers and students once the APEX grant has ended, APEX will contribute the equipment to the Alabama Department of Education Alabama Science in Motion (ASIM), an AMSTI initiative. This initiative will allow Physics APEX teachers and non APEX teachers access to equipment and experimental laboratories that were used during the APEX grant project.

The 11 ASIM Specialists throughout the state of Alabama will distribute the equipment to teachers upon request and provide laboratory support to implement the experiments for their classrooms. The first contribution is underway in the amount of \$213,475.50.

Additionally, the 11 APEX specialists will meet to update the laboratory experiments in the Alabama Course of Study to reflect both ASIM and APEX strategies and techniques.



TRANSFORM PHYSICS EDUCATION IN ALABAMA

❑ *What is the impact on institutional resources that form infrastructure?*

APEX funding provides support to the institution in the form of telecommunication support (radio and TV) to distribute CD/DVDs and advertise the APEX program, renovation of laboratory to accommodate a larger number of teachers and to install new technology. Other infrastructure support is the maintenance of the APEX website by University personnel.

❑ *What is the impact on information resources that form infrastructure?*

The APEX websites at Alabama A & M University, University of Alabama and J. F. Drake Technical College are used to disseminate information, not only about APEX, but other offerings for these academic institutions, such as academics, special events, etc. to attract more students to their campuses.

❑ *What is the impact on society beyond science and technology?*

APEX will impact society at large by producing a more sophisticated and prepared workforce. This will be the natural result of highly qualified teachers preparing students in physics classes to better understand our physical universe.



“ALLIANCE FOR PHYSICS EXCELLENCE (APEX) AT ALABAMA A&M UNIVERSITY”

The three minute video submitted in the “NSF Teaching and Learning Video Showcase: Improving Science, Math, Engineering, and Computer Science Education” highlights aspects of the APEX PTI activity through interviews with the in-service teacher participants and one of the Alabama Science in Motion Specialists. The Video Showcase is available on-line at:

<http://resourcecenters2015.videohall.com/presentations/546>

<http://alapex.org>

www.aamu.edu/physics

“THE FOUR STEP ANALYSIS OF ACTIVE LEARNING”

A three minute video was created dealing with the The Four Step Analysis of Active Learning: (1) Statement in complete sentence form of the goal of the experiment; (2) Record what you measured or observed during an experiment; (3) Analysis of data collected; (4) Conclusion. View the APEX Four Step Analysis video at:

<http://stemforall2016.videohall.com/presentations/780>

<http://www.teachertube.com/video/alliance-for-physics-excellence-four-step-active-learning-in-alabama-high-schools-439061>

“ELICITATION QUESTIONS AS PART OF APEX”

<http://videohall.com/p/953>

APEX PROGRAM WEBSITE AND VIDEOS

<http://alapex.org>

<http://www.teachertube.com/video/alliance-for-physics-excellence-apex-at-alabama-aampm-university-390244>

<https://www.youtube.com/watch?v=TduacYOSYQg>



- M. D. Aggarwal, Vernessa Edwards, Marius Schamschula, Barbara Cady, Dianne Kirnes, and Sheral Carter, 2012-2017 APEX Directory of Physics Teacher Scholars, APEX Directory, Physics Teacher Scholars Bios, Photos, and APEX Impact Observations for Cohort 1 and Cohort 2 (2015).
- R. S. Fontenot, C. A. Owens, , W. A. Hollerman, and M. D. Aggarwal, “Magnesium tetrakis dibenzoylmethide triethylammonium: a novel blue emitting phosphor,” Material Letter, 146 (5), 9 (2015).
- Kyle D. Rose, Sr., M. D. Aggarwal, A. K. Batra, and Dennis Wingo, “Design and fabrication of transportable hybrid solar and wind energy system,” Advanced Science, Engineering & Medicine, 7 (3), 200 (2015).
- Kyle Rose, M. D. Aggarwal, Ashok Batra, and Dennis Wingo, “Development of a low cost, portable solar hydrogen generation device,” Proc. of SPIE, 9176, 917806-1 (2014).
- R. S. Fontenot, K. N. Bhat, C. A. Owens, W. A. Hollerman, and M. D. Aggarwal, “Effects of added dibutyl phosphonate on the luminescent properties for europium tetrakis dibenzoylmethide triethylammonium,” J. of Luminescence, 158, 428 (2014).
- R. S. Fontenot, W. A. Hollerman, K. N. Bhat, M. D. Aggarwal, and B. G. Penn, “Incorporating strongly triboluminescent europium dibenzoylmethide triethylammonium into simple polymers,” Polymer Journal, 46 (2), 111 (2014).
- M. D. Aggarwal, Barbara Cady, Marius Schamschula, Vernessa Edwards, Dianne Kirnes, Jim Nelson, and Jane Nelson, “An innovative statewide model of improving physics education in secondary schools in Alabama,” The Physics Teacher, Submitted (2014).
- K. N. Bhat, R. S. Fontenot, R. Surabhi, W. A. Hollerman, M. D. Aggarwal, and T. R. Alapati, “The triboluminescent properties for europium and samarium dibenzoylmethide triethylammonium,” Electron. Mater. Letters, 10 (6), 1149 (2014).



APEX PRESENTATIONS

- “Results of APEX (alliance for physics excellence) professional development project,” Session, Teacher Preparation Committee and Research in Physics Education Committee, 2017 AAPT Winter meeting held at Atlanta, GA, February 18-21, 2017.
- James H. Nelson, Sheri Humphery, Dan O’Halloran, and Martina Norton, “What has APEX done for teachers and students in Alabama?” APEX Statewide Professional Development Project, Santa Fe College, Gainesville, FL (2017).
- Jim Minstrell, “APEX formative assessment and responsive teaching: online implementation and results,” Facet Innovations, Seattle, WA (2017).
- Dennis S. Sunal, James W. Harrell, and Marilyn Stephens, “Classroom Effects of Physics Focused Professional Development,” University of Alabama Tuscaloosa AL (2016).
- Vernessa Edwards, M. D. Aggarwal, Marius Schamschula, Barbara Cady, and Dianne Kirnes, “Preliminary results of Alliance for Physics Excellence (APEX) at Alabama A&M University,” 2015 Conference of the National Society of Black Physicists-Revisioning the Future of Scientific Leadership, Baltimore, MD (2015).
- M. D. Aggarwal, Vernessa Edwards, Marius Schamschula, Barbara Cady, and Dianne Kirnes, “Alliance for Physics Excellence (APEX) at Alabama A&M University,” NSF 2015 Teaching and Learning Showcase, video and poster, May 11-15, 2015, <http://researchcenters> (2015).
- Mohan D. Aggarwal, Vernessa Edwards, Marius Schamschula, Barbara Cady, and Dianne Kirnes, “A collaboration between Alabama A&M University and high schools in preparing physics teachers: Alliance for Physics Excellence,” 92nd Annual Meeting of the Alabama Academy of Science, University of West Alabama, Livingston, AL (2015).
- D. Sunal, J. Dantzler, C. Sunal, M. Simon, D. Turner, M. Wooten, J. W. Harrell, and M. D. Aggarwal, “Teaching in our physics classrooms: what students, teachers and classroom observers report,” 2015 Annual Meeting of American Educational Research Association, Chicago, IL (2015).
- D. Sunal, C. Sunal, J. Dantzler, D. Turner, J. W. Harrell, M. Stephens, and M. D. Aggarwal, “Teaching physics in our high school classrooms,” 2015 Annual Meeting of National Association for Research in Science Teaching (NARST), Chicago, IL (2015).
- D. Sunal, J. Dantzler, C. Sunal, D. Turner, M. Simon, and J. W. Harrell, “The 21st century physics classroom: what students and classroom observers report,” National Association for Research in Science Teaching (NARST), Pittsburgh, PA (2014).
- John Reutter, Mostafa Dokhanian, and Barbara Cady, “Advancing successful STEM education through the Alliance for Physics Excellence in Alabama secondary schools,” 2014 Mega Conference for College/Work /Adulthood in the 21st Century, Mobile, AL (2014).
- Barbara Cady, Marius Schamschula, Vernessa Edwards, and M. D. Aggarwal, “Alliance for Physics Excellence (APEX) at Alabama A&M University,” 2014 American Association of Physics Teachers (AAPT) Summer Meeting, Minneapolis, MN (2014).



APEX ALLIANCE PARTNERS



Alabama Agricultural & Mechanical University



American Institute of Research (External Evaluator)



Alabama Math, Science & Technology Initiative (AMSTI)



Alabama State Department of Education



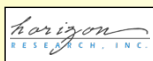
American Association of Physics Teachers (AAPT)



J. F. Drake State Community & Technical College



Huntsville City School System



Horizon Research (External Evaluator)



National Science Foundation (NSF)



University of Alabama, Tuscaloosa

ALLIANCE FOR PHYSICS EXCELLENCE (APEX)

