Dr. Justin Schwartz, Chancellor
University of Colorado Boulder

Justin Schwartz began his service as the 12th Chancellor of the University of Colorado Boulder on July 1, 2024. The state’s public flagship university and keystone of the four-campus CU System, CU Boulder enrolls more than 37,000 students and employs more than 19,000 individuals. The only American Association of Universities member in the Rocky Mountain region, the university is known for its strengths in climate/energy/sustainability, physics, aerospace engineering, biosciences, music, English and creative writing, psychology, and mental health and wellness, drawing more than $684 million in research funding last fiscal year. Ranked fifth in the nation for startup creation in 2023, CU Boulder had an estimated economic impact of $4.3 billion across Colorado in 2023 and is rapidly developing as a hub for quantum science and technology.

Prior to joining CU Boulder, Justin Schwartz served as the Executive Vice President and Provost (EVPP) at the Pennsylvania State University. Penn State is a longstanding member of the AAU and is consistently ranked among the nation’s top public universities with highly ranked programs in a broad spectrum of academic disciplines. With over 6,500 full-time faculty and ~88,000 students at 24 physical campuses across the state and Penn State’s World Campus, Penn State is amongst the nation’s largest and most complex universities. Schwartz served as Penn State’s Chief Academic Officer with direct responsibility for about a $2 billion budget supporting all sixteen academic colleges and schools, nineteen commonwealth campuses, World Campus, Student Affairs, University Libraries, Penn State Sustainability University Health Services, Penn State Global, the Schreyer Honors College, and the Offices of Educational Equity, Faculty Affairs, Affirmative Action, and Planning, Assessment and Institutional Research. Schwartz worked closely with President Neeli Bendapudi and her leadership team to set university priorities across Penn State.

A highly visible, engaging and transparent leader, Schwartz built a diverse leadership team and launched efforts to diversify faculty, close demographic gaps in student success to diversify Penn State’s graduating classes, and to integrate student curricular and co-curricular experiences to provide holistic student experiences. Schwartz’s tenure as EVPP afforded him leadership experiences during a transformational period in Penn State history and in an era of unique challenges facing higher education across the United States. Schwartz played a key role in developing and implementing a new university-wide budget allocation model and served as executive co-sponsor of an initiative to restructure support services across the university for organizational excellence. Schwartz led conversations within Penn State related to First Amendment rights and the requirements of Title VI, addressing campus safety concerns triggered first by speakers hosted by Penn State student organizations and more recently by events related to the war in Israel and Gaza. As Provost, Schwartz charged a university-wide task force to create and implement a Visitor Rights and Responsibilities policy, codifying Penn State’s behavioral expectations for all campus visitors.

Prior to his transition to EVPP, Schwartz served as the Harold and Inge Marcus Dean of the College of Engineering. With over 400 faculty, 400 staff, 10,000 undergraduate and graduate students, and over $180 million in research expenditures and about $300 million in total expenditures, the College of Engineering is Penn State’s largest, most comprehensive college.

During his tenure as Dean of the College of Engineering, Schwartz transformed the foundations of the college. The College’s strategic plan was built upon four cornerstones: excellence, equity, social mobility, and sustainability. These cornerstones guided changes to the College’s promotion and tenure criteria, which had not been updated in over two decades. Recognizing that cultural change only succeeds in academia via faculty participation, Schwartz engaged the College’s faculty by using a novel “open source” approach to writing the new promotion and tenure guidelines, giving all faculty in the College an
opportunity to contribute directly to the writing of the new criteria. The resulting criteria explicitly recognize the challenges associated with bias in various forms of faculty evaluations.

Through Schwartz's leadership, Penn State emerged as a national engineering leader through the Engineering Equity Initiative. Schwartz set comprehensive goals for the College’s equity culture and demographics, embodied in the College’s Equity Action Plan, a roadmap to actualize the College’s goals. The EAP is a detailed call to action, with clearly defined responsibilities and metrics for success. Schwartz was a leader amongst the national engineering community, co-leading his Big10+ decanal colleagues in an effort to request that ABET require equity education in engineering accreditation. To prepare the community for new accreditation requirements, he sponsored a national workshop on “Integrating Diversity, Equity, and Inclusion into Undergraduate Engineering Programs.”

Under Schwartz’s leadership, the College of Engineering diversified its tenure-line faculty, nearly doubling the number who identify as African-American/Black, doubling the number identifying as Latino/a, increasing the number of faculty who identify as female by over 75%, while recruiting the college’s only faculty member who identifies as female Pacific Islander. Through his initiatives, the College expanded its interdisciplinary connections with Penn State’s major research institutes, as well as many University Park colleges and Commonwealth Campuses, the College of Medicine, and the Applied Research Laboratory.

Schwartz provided a vision for impactful research at Penn State. Under his leadership, external research awards grew by over 50%, including significant increases in industry funding, and the graduate student population grew by 25%. The impact of his research vision extended beyond engineering, as he worked with colleagues to create new multidisciplinary research centers covering topics such as biodevices, artificial intelligence, and neurotechnology in mental health research. Schwartz played a key role in establishing Penn State’s Global Building Network, a formal partnership with the United Nations, establishing Penn State’s global leadership in building energy efficiency, human health, and social justice.

As Dean of Engineering, Schwartz focused on student success and well-being for all Penn State engineering students. The College modernized entrance-to-major processes and launched Engineering Connect, a program addressing the biggest hurdles faced by first-year students. Schwartz created the Project Drawdown Research Experience for Undergraduates program bringing students from across the U.S. to Penn State for summer research within six different Colleges, focusing on climate change action.

Schwartz led the College through a fundraising campaign which raised $250 million, nearly doubling the College’s total endowment. Gifts include the largest single gift to the College, $15.5 million from the Clark Foundation to create the Clark Scholars Program, and a $7 million gift to name the Ken and Mary Alice Lindquist Department of Nuclear Engineering, the only named nuclear engineering department in the U.S. Schwartz advanced the College’s relationships with alumni by restructuring the Industrial and Professional Advisory Committee and cultivating strong engagement with the Penn State Engineering Alumni Society and the Engineering Development Council.

Schwartz is a Fellow of the National Academy of Inventors, AAAS, IEEE, and the ASM-International. He is the recipient of the IEEE Council on Superconductivity Award for Significant and Sustained Contributions to Applied Superconductivity and the TMS John Bardeen Award. He has given plenary and keynote addresses at United Nations events and around the globe.
CURRICULUM VITAE

Education
Ph.D., Nuclear Engineering, Massachusetts Institute of Technology, 1990
B.S., Nuclear Engineering, University of Illinois at Urbana, 1985 (Highest Honors and Bronze Tablet)

Professional Experience

University of Colorado Boulder
● 07/24 – present: Chancellor

Pennsylvania State University
● 04/24 – 06/24: Special Advisor to the President
● 04/23 – 04/24: Executive Vice President and Provost
● 08/22 – 04/23: Interim Executive Vice President and Provost
● 08/17 – 08/22: Harold and Inge Marcus Dean of Engineering
● 08/17 – 06/24: Professor, Department of Engineering Science & Mechanics
● 08/17 – 06/24: Professor, Department of Materials Science & Engineering (courtesy appointment)

North Carolina State University
● 08/09 – 08/17: Department Head and Kobe Steel Distinguished Professor, Department of Materials Science & Engineering
● 09/11 – 08/17: Affiliated Professor, Department of Physics
● 09/11 – 08/17: Affiliated Professor, Department of Nuclear Engineering
● 06/12 – 12/13: Interim Director, Analytical Instrumentation Facility, College of Engineering

Florida State University
● 04/05 – 08/09: Jack E. Crow Professor of Engineering
● 08/01 – 12/02: Senior Research Advisor to the Vice President for Research
● 08/99 – 04/05: Professor of Mechanical Engineering
● 12/93 – 08/99: Associate Professor of Mechanical Engineering
● 12/93 – 08/09: Leader, HTS Magnets and Materials Conductor Development Group, NHMFL

University of Illinois at Urbana
● 8/92 – 12/93: Assistant Professor of Mechanical and Industrial Engineering
● 2/90 – 12/93: Assistant Professor of Nuclear Engineering

National Research Institute for Metals, Superconducting Materials Research Group, Japan
● 2/90 – 8/90: Visiting Scientist under Dr. H. Maeda

Entrepreneurial Experience
Lupine Materials & Technology, Founder and CEO
Eagle Power Technologies, Co-Founder and CTO

ACADEMIC LEADERSHIP ACCOMPLISHMENTS

Pennsylvania State University
● Executive Vice President and Provost
  o Chief Academic Officer for over 8,000 academic faculty (6,500 full-time) and ~88,000 students
  o Led sixteen academic colleges and schools at University Park, nineteen Commonwealth Campuses, Hershey College of Medicine, Penn State Dickinson Law, World Campus, Student Affairs, Penn State Sustainability, Schreyer Honors College, University Libraries, Penn State
Global, and the Offices of Educational Equity, Faculty Affairs, Affirmative Action, and Planning, Assessment, and Institutional Research

- Implemented a university-wide policy of Visitor Rights and Responsibilities to enable Penn State to protect its values while fully supporting First Amendment rights and Title VI protections for all university stakeholders.
- In collaboration with Faculty Senate, launched Joint Standing Committees on Artificial Intelligence and Faculty Safety
- Launched Provost’s Endorsement Program to provide faculty with credentialed professional development opportunities
- Launched Provost’s Post-doctoral Fellowship Program to diversify Penn State Post-docs and faculty
- Launched high-DFW task force to address student persistence and close demographic achievement gaps
- Elevated equity and inclusion expectations across Penn State, including the use of *Equity Moments* at the beginning of every leadership meeting and new faculty search guidelines

● **Led Penn State College of Engineering (2017-2022)**
  - 13 academic departments
  - Over 400 faculty and 400 staff
  - Over 10,000 students at University Park and World Campus
  - ~$300 million in annual expenditures
  - Over $420 million endowment
  - Over 110,000 living alumni

● **Organizational impact – College of Engineering**
  - Diversified College tenure-line faculty, nearly doubling the number who identify as African-American/Black, doubling the number identifying as Latino/a, and increasing the number of faculty who identify as female by over 75%
  - Grew College endowment by over $200 million, including one of the largest gifts in the College’s history ($15.5 million) to establish the Clark Scholars Program
  - Grew College research expenditures and awards by over 50% over five years
  - Led development and implementation of College Strategic Plan, building on four cornerstone themes: *Excellence, Equity, Sustainability, and Social Mobility*
  - Led development and implementation of College Facilities Master Plan, leading to two new buildings providing 395,000 square feet of new academic, research and student support space, transforming the College’s footprint on campus. The $313 million projects are on-mission, on-time and under budget.
  - Led transformation of the College Promotion and Tenure Criteria using an open-source process engaging all College tenure-line faculty. The new criteria focus on faculty impact and motivate faculty to focus on their impact and to aim for the highest levels of achievement.
  - Led College rebranding and transformation of marketing and communications, focusing our attention on engineering’s role in impacting the world through university-wide multidisciplinary research and education
  - Led successful ABET accreditation with 19 programs and no shortcomings or weaknesses
  - Led tenure-line faculty co-hiring initiatives, including co-hires with the Applied Research Laboratory, School of International Affairs, Penn State Law, and between various departments in the College of Engineering. These initiatives establish the College of Engineering as a campus-wide leader while reducing barriers to inter-college faculty collaborations.

● **Engineering Equity Initiative**
  - Led the development and implementation of a College-wide Equity Action Plan, a holistic effort targeting significant and sustainable changes in College culture and demographics through cultural transformations and operational modalities, including alignment with new College
promotion and tenure criteria and creating a broad definition of inclusion that goes beyond traditional minoritized groups in engineering

- Created and successfully recruited new Associate Dean for Equity and Inclusion position, as a tenured role, elevating the importance of E&I to the highest level within the College
- Diversified college leadership with first African-American Associate Dean, first Latino Department Head, first Latino Assistant Dean, first LGBTQ+ Department Head
- Transformed college leadership and faculty hiring processes and protocols; established one of the most diverse and inclusive leadership teams of any R1 college of engineering in the U.S.
- Led Penn State into the Partnership for Faculty Diversity program, creating a pipeline of post-doctoral researchers from minoritized groups and mentoring them to tenure-line faculty careers
- Launched equity-centric faculty search process, resulting in expanded diversity in our faculty applicant pool and significant increased success in underrepresented faculty recruitment
- Created Impact Scholars program, transforming our scholarship awarding protocols, significantly improving female and under-represented minority yield
- Created Allies program to engage entire college population as equity partners

**Clark Scholars Program**

- Secured $25 million endowment ($15 million gift from the A. James and Alice B. Clark Foundation and $10 million from Penn State) to support 40 full-time undergraduate students
- Clark Scholars are a visible, cohesive cohort who have shown a drive to succeed academically and a willingness to seize opportunities in their lives and their schooling.

**Interdisciplinary initiatives**

- Co-created Law, Policy and Engineering Initiative, bringing together faculty from the College of Engineering, Penn State Law, and Penn State School of International Affairs
  - Developed integrative academic degree programs for undergraduate, graduate and professional students, including Master’s of Engineering in Engineering, Law and Policy, and multiple Integrated Undergraduate-Graduate degree programs with the School of International Affairs
  - Establish research and scholarly collaborations across engineering disciplines
- Led partnership with the United Nations to renew and expand the Global Building Network
- Expanded Center for Neuroengineering in partnership with the Huck Institutes for Life Science
- Strengthened relationships with College of Medicine, College of Health and Human Development, and Eberly College of Science through multiple, strategic faculty co-hires
- Launched Project Drawdown-Penn State Partnership
- Launched College of Engineering Sustainability Council as part of the Penn State Sustainability Institute campus-wide initiative

**College undergraduate success initiatives and transformations**

- Transitioned entrance-to-major from four semesters to two semesters
- Launched “Exposure to Major” Initiative, including video content to inform students and parents of high school and early-career undergraduate students about the impact of engineering disciplines
- Launched Engineering Connect pilot program with an aim to address the largest obstacles to success for incoming engineering undergraduates at University Park and the Commonwealth Campuses throughout their first year
- Initiated Return to Intern internships program to serve international undergraduate students
- Launched transformation of 1st/2nd year engineering curriculum
  - Engage all engineering students in hands-on engineering design
  - Expose all engineering students to the breadth of the engineering discipline
  - Infuse equity, diversity and inclusion into undergraduate curricula

**College research growth initiatives and transformations**

- Launched seed grant programs to
- Re-engage mid-career faculty with low research output
- Encourage highly successful faculty to expand into higher-risk, higher-payoff areas
- Encourage faculty to pursue large interdisciplinary research centers such as the NSF ERC and STC programs
- Increase collaborations with the College of Medicine
- Increase interdisciplinary research
- Advance commercialization of faculty IP towards commercialization
  - Established processes to quantify seed grant return-on-investment
  - Restructured College’s Corporate and Industry Engagement
    - Concierge relationship-building to support research, philanthropy and career services
    - Expanded College Industry and Professional Advisory Committees via matrix structure to continue department-centric committees while also engaging in college-wide initiatives
  - Launched and seeded new interdisciplinary research centers/consortia
    - Consortium on Integrated Energy Systems
    - Center for Radar Engineering, Science, and Technology
    - Center for Gas Turbine Research, Education, and Outreach
    - Center for Biodevices
    - Center for Artificial Intelligence Foundations and Engineered Systems
    - Center for Neurotechnology in Mental Health Research
- College commitment to defense research, development, and education
  - Created and hired inaugural College of Engineering Defense Liaison position
  - Reinvigorated College relationship with the Applied Research Laboratory
    - Launched new tenure-line faculty co-hire program and recruited two new tenured faculty
    - Growing collaborative research
    - Streamlining Affiliate status and graduate standing in CoE for ARL faculty
- University service
  - Global Academic Leadership Council
  - Chair, Council of Academic Deans (2020-22)
  - Strategic Budget Task Force
  - Executive Committee, Institutes for Energy and the Environment
  - Executive Committee, Huck Institutes for Life Science
  - Executive Committee, Institute for Computational and Data Sciences
  - Chair, Senior Vice President for Research Search Committee
  - Academic Leadership Forum Planning Committee
  - Corporate Relations Committee
  - Conflict of Interest Committee

North Carolina State University
- Lead NCSU MSE department of 28 FTE tenure/tenure-track faculty, 35 technical and non-technical staff, and ~300 students
- Grew NCSU MSE faculty by 47%, including significant diversification
  - Fourteen tenured/tenure-track faculty additions (74% success rate)
  - Eleven successful retentions of faculty with outside offers (100% success rate)
  - Increased under represented group faculty from 10% to 30%
  - Six Assistant Professors combined to win eight NSF CAREER and DoD YIP awards
- Grew graduate program by 95% while increasing student quality and percentage of domestic students
- Grew undergraduate program by 200%, while increasing female population to >30%
- Improved graduate program ranking from 31 to 15
● Improved undergraduate program ranking from >25 to 16
● Grew departmental endowment by >100%
● Grew research awards and expenditures over 100% over four years
● Co-led inter-college Cluster Hire in Carbon Electronics
● Established Distinguished Lecture Series; hosted speakers including John Cahn and Mildred Dresselhaus
● Launched new M.S. Nano Engineering program
● Successfully led ABET review, receiving full accreditation
● Expanded undergraduate program to include a biomaterials concentration; nanomaterials concentration currently under development
● Revamped undergraduate laboratories into a departmental “showpiece”
● Led the Analytical Instrumentation Facility, a shared user facility with 10 FTE staff, through an organizational transition
● Expanded NCSU AIF capabilities with over $6 million in new equipment acquired with federal, state and university funds

Florida State University
● Led Cluster Hire Initiative in Materials Processing, Growth and Characterization, a multidisciplinary initiative that added four new faculty members specializing in materials research; two of the four hired are female. New faculty hired with appointments in Physics, Chemical Engineering, Mechanical Engineering and Industrial Engineering
● Led initiative with NHMFL educators and high school teachers to develop and implement a secondary school curriculum in superconductivity

AWARDS AND HONORS
● Distinguished Alumni Award, University of Illinois Urbana-Champaign, Department of Nuclear, Plasma, and Radiological Engineering, 2024
● National Academy of Inventors, 2023
● Academic Ally Award, Impact.Engineered, ASME, 2021
● John Bardeen Award, TMS Functional Materials Division, 2018
● Commencement Speaker, Penn State University Graduate College, May 2018
● Douglas D. Osherhoff Distinguished Lecturer, Universidad Autonoma Cuidad Juarez, Instituto De Ingenieria Y Tecnologia, Mexico, November 2017
● Plenary Speaker, IEEE International Conference on Applied Superconductivity and Electromagnetic Devices, Shanghai, China, 2015
● Fellow, ASM International, “For the advancement of high temperature superconductors and their applications as well as supporting the fledgling superconducting materials technology industrial base, and for advancing diversity in materials science and engineering,” 2015
● Fellow, American Association for the Advancement of Science (AAAS), “For distinguished contributions to the field of applied superconductivity, particularly for the advancement of high magnetic fields and for the integration of experiment and computation,” 2015
● IEEE Council on Superconductivity Award for Significant and Sustained Contributions to Applied Superconductivity, 2014 (highest award from the IEEE Council)
Justin Schwartz, Chancellor, University of Colorado Boulder

- NCSU Alumni Association Outstanding Research Award for 2012-13 (awarded in 2014)
- Papers selected as a Superconductor Science & Technology Highlight six times from 2013-2016
- Plenary Speaker, IEEE International Conference on Applied Superconductivity and Electromagnetic Devices, Beijing, China, 2013
- North Carolina State University Diversity Award, 2011
- Plenary Speaker, 20th International Conference on Magnet Technology (IEEE Conference), 2007
- Special Award for Exceptional Service, FAMU - FSU College of Engineering, 2007
- Engineering Research Award, FAMU - FSU College of Engineering, 2005
- Fellow, IEEE, “for contributions to high temperature superconductors and magnet systems,” 2004; one of youngest Fellows in IEEE history
- Engineering Research Award, FAMU - FSU College of Engineering, 2001
- Plenary Speaker, Korean Superconductivity Society, KSS2000, South Korea, 2000
- Roger W. Boom Award, Cryogenic Society of America, 1998
- Developing Scholar Award, Florida State University, 1996
- Nuclear Engineering Students Award for Undergraduate Teaching, 1991
- NSF/Science and Technology Agency of Japan/JSPS Fellowship, 1990

**PROFESSIONAL SERVICE ACTIVITIES - EXTERNAL**

- Invited panelist, United Nations Economic Commission for Europe Cyber Monday Virtual Panel on High Performance Buildings, April 2021
- Invited panelist, MIT Forum for Equity: Equity in Engineering Education, February 2021
- Co-leading Big10+ Deans effort to infuse equity and inclusion in engineering curricula via collaboration with ABET and ASEE, 2020-2022
- ASEE International Committee, 2019 - 2022
- Advisor, Project Drawdown, 2018 - 2020
- Department reviewer, Dept. of Materials Science and Engineering, University of Virginia, 2021
- Department reviewer, Dept. of Materials Science and Engineering, University of Central FL, 2019
- Department reviewer, Dept. of Materials Science and Engineering, University of Florida, 2016-2017
- Invited Speaker and Panelist, TMS Diversity Summit, 2016
- Advisory Board, Superconductor Science & Technology, 2015-2018
- Scientific Program Committee, International Conference on Magnet Technology, Korea, 2015
- Board of Visitors, Army Research Office, Materials Science Division, May 2013; Chair, May 2015
- Chair, Graduate Program Review, Dept. of Materials Science and Engineering, Virginia Tech, 2013
- Chair, Workshop on Ethnic Diversity in Materials Science & Engineering, December 2012
- CERN, Academic Training Instructor on Applied Superconductivity, June 2012
- Advisory Board member, Department of Materials Science and Engineering, Virginia Tech, 2012-2016
- University Materials Council
  - Executive Committee, Elected At-large member, 2011-2013
Justin Schwartz, Chancellor, University of Colorado Boulder

- Vice-Chair, 2013-2014
- Chair, 2014-2015
- Gender Equity Committee, 2010 – 2017

- **IEEE**
  - Council on Superconductivity, Fellows Committee, Vice-Chair, 2013-2014; Chair, 2015-2018
  - International Steering Committee, 2015 ASEMMD
  - Representative of the Council on Superconductivity to the Board of Trustees of the Federation of Materials Societies, 2007 – 2011
  - Member of the Council on Applied Superconductivity Executive Committee, 1998 – present
  - Chair, Van Duzer Prize Selection Committee, 2006 – 2012
  - Distinguished Lecturer Committee (Chair), 2001–2002

- **Applied Superconductivity Conference, Incorporated (a 501(c)(3))**
  - Chairman of the Board and Conference Chairman, 2002–2004
  - Board of Directors Executive Committee, 1999–2004
  - Board of Directors, 1996 - 2008

- **Materials Research Society**
  - MRS Medal Selection Committee, 2014 – 2018
  - Broadening Participation Subcommittee, 2015– 2018
  - Co-Chair, Acta Materialia Gold Medal Forum: Frontiers in Thin-Film Epitaxy and Nanostructured Materials, 2011 Spring Meeting

- **MS&T 2011**, co-Chair, Acta Materialia Gold Medal Symposium, Columbus, Ohio, USA, October 16-20, 2011

- **ASM Honorary Membership Committee**, 2009 – 2011

- **International Advisory Board, 6th International Conference "Science and Engineering of Novel Superconductors" of the 5th Forum on New Materials**

- **Review Panel Member, Naval Research Laboratory, Advanced Functional Oxides**, 2007

- **European Conference on Applied Superconductivity**
  - International Advisory Board, 2012 - 2013
  - Board of Directors, 2002 - 2008

- **Review Panel Member, Director’s Review of the Fermilab High Field Superconducting Magnet Program**, 2006

- **U.S.-Japan Workshop on High-Tc Superconductors**
  - Chair, U.S. Delegation, 1996-1999; Workshop Chair, 1997; Proceedings Editor, 1997

- **International Advisor to the 2007 International Conference on Magneto Science**


- **Proposal reviewer for the National Science Foundation, U.S. Department of Energy, ARPA-E**
PROFESSIONAL SERVICE ACTIVITIES – NCSU AND FSU

● Women and Minority Engineering Programs National Advisory Board, NCSU College of Engineering, 2017
● Eastman Chemical Center of Excellence Research Steering Team, 2012 - 2017
● Reactor Safety and Audit Committee, 2012-2017
● Council on the Status of Women, 2011-14
● Biomedical Engineering Graduate Program Review Committee, 2011
● Vice Chancellor’s Task Force on Shared Facilities for Materials Research, 2010-12
● Physical Environment Committee, 2010-12
● FSU GAP Committee, 2005-2009
● NHMFL Fellowship Committee, 2004–2005
● Panel Member, Council on Research and Creativity Grant Writing Workshop, 2004
● Mechanical Engineering Faculty Search Committee, 2002-2003; Co-chair 2003–2004
● Co-Chair, Magnet Science & Technology Steering Committee, 2003
● Magnet Science & Technology Director Search Committee, 2003
● Co-Chair, Committee on Expanding Corporate Research Support, 2002–2003
● Liaison on research to the Mechanical Engineering Advisory Committee, 2002–2004
● Chair, Center for Advanced Power Systems Research Committee, 2002–2004
● Center for Advanced Power Systems Budget Committee, 2002–2003
● Senior Research Advisor to the Vice President for Research, 2001-02
● Biomedical Activities Committee, 2001–2003
● Committee on Future Research Directions, 2001–2002

RESEARCH AND GRADUATE ADVISING ACCOMPLISHMENTS

Professor Schwartz’s primary research focus is on the underlying science that drive performance and system integration of superconducting magnets, optical fiber distributed sensors, and magnetic and multiferroic materials. His research focuses on system-issues that advance new discoveries into viable new technologies and is thus cross-disciplinary, integrating physics and chemistry of novel materials with mechanical, electrical, magnetic, thermal, and systems issues. His research has impact on systems important to defense, energy, medicine, and basic science.

Some specific research accomplishments include:

● Established world record for highest magnetic field generated by a superconducting magnet
● First to use magnetic fields to texture oxides during thermal processing
● Recognized world leader in understanding quench behavior in high temperature superconductors
• First to quantify slow normal zone propagation in HTS conductors and quench-induced failure
  o First to develop experimentally validated, multiscale, quench model that links microstructural behaviors to macroscopic behavior and conditions
  o First to identify thermally-conducting electrical insulator as key to enhanced quench protection; worked closely with small business to effectively develop such an insulator
  o First to identify and develop Rayleigh-scattering interrogated optical fibers (RIOF) as sensors for quench detection. RIOF is now recognized as the best option for protecting HTS magnets.
• Coupled mechano-thermo-electro-magneto failure issues that limit performance & lifetime
  o Developed real-time imaging of crack initiation and propagation, and its relationship to quench propagation, via magneto-optical imaging
  o First to identify axial compression failure mode in Bi$_2$Sr$_2$Ca$_2$Cu$_3$O$_{10}$ superconducting tapes
  o First to explain microstructural causes of quench-induced failure in HTS conductors
• Tailoring defects and structure to enhance functional properties
  o First to incorporate carbon nanotubes and oxide nanoparticles into a ceramic matrix
  o First to irradiate doped Bi$_2$Sr$_2$CaCu$_2$O$_{8+}$ and HgBa$_2$CuO$_2$ superconductors for controlled defects and enhanced magnetic flux pinning
• Advanced oxide thin film heterostructures
  o First to use chemical solution deposition to achieve NiFe$_2$O$_4$ films with random orientation, uniaxial texture and epitaxy, with properties as good or better than vacuum-deposited films

**RESEARCH FUNDING**

Professor Schwartz has received over $23 million in research funding from the U.S. Army, Navy, Air Force, Department of Energy, ARPA-E, National Science Foundation, National Institutes for Health, and from industry.

**RESEARCH AND SCHOLARLY PRODUCTS**

**Patent activities**

**Issued**


Pending

Book Chapters

Educational Materials/Curricula
   A high school curriculum package comprised of a thirteen-activity teacher guidebook and a package of manipulatives with which to conduct the activities. The first English version was completed in October 2004 and was translated into Italian and German in 2005.

Commentaries and Viewpoints

Peer-Reviewed Journal Publications

1988 – 1990

1991 – 1995


**1996 – 2000**


41. S. Nakamae and J. Schwartz, “Magnetoresistivity of Ag Tape Co-Processed with Bi$_{1.4}$Pb$_{0.6}$Sr$_2$CaCu$_2$O$_y$ Superconductor,” *Cryogenics* **36**(5), 395-397 (1996)


44. Ch. Wolters, K.M. Amm, Y.R. Sun, and J. Schwartz, “Synthesis of (Hg,Re)Ba2Ca1n,1Cu,nOy Superconductors,” Physica C 267, 164-172 (1996)


65. P.V.P.S.S. Sastry and J. Schwartz, “Synthesis and Processing of Doped Hg$_{0.8}$Re$_{0.2}$Ba$_2$Ca$_2$Cu$_3$O$_{8+x}$ Superconductor,” *Journal of Superconductivity* 11(5) 595-602 (1998)

66. A. Goto, T. Shimizu, P.V.P.S.S. Sastry, and J. Schwartz, “Magnetic scaling in the underdoped superconductor, Hg$_{0.8}$Re$_{0.2}$Ba$_2$Ca$_2$Cu$_3$O$_{8+x}$ studied by $^{63}$Cu NMR,” *Physical Review B* 59 14269-14172 (1999)


77. S. Nakamae, J.E. Crow, and J. Schwartz, “Neutron irradiation effect on magnetization and thermal conductivity of (Hg$_x$Bi$_{1-x}$)Ba$_2$Ca$_2$Cu$_3$O$_y$ superconductor,” *IEEE Transactions on Applied Superconductivity* 9(2) 2300-2303 (1999)


80. N.M. Hamdan, H. El-Ghanem, and J. Schwartz, “Effect of La\(^{3+}\) substitution for Sr\(^{2+}\) on the phase formation, structure and properties of (Tl\(_{0.5}\)Pb\(_{0.5}\))Sr\(_2\)Ca\(_2\)Cu\(_3\)O\(_y\) compounds,” *IEEE Transactions on Applied Superconductivity* **10**(1) 1174-1177 (2000)


2001 – 2005


87. J. Su, P.V.P.S.S. Sastry, and J. Schwartz, “Growth of Hg\(_{0.8}\)Pb\(_{0.2}\)Ba\(_2\)Ca\(_2\)Cu\(_2\)O\(_y\) thick films on Ag using a modified process route,” *IEEE Transactions on Applied Superconductivity* **11**(1) 3118-3121 (2001)


92. J.H. Su, P.V.P.S.S. Sastry, and J. Schwartz, “Synthesis and characterization of (Hg\(_{0.8}\)Re\(_{0.2}\))Ba\(_2\)Ca\(_2\)Cu\(_2\)O\(_y\) thick films on Ag obtained by a two-step dip-coating/rolling method,” *Physica C* **361** 292-299 (2001)


97. D.C. van der Laan, M.W. Davidson, B. ten Haken, H.H.J. ten Kate, and J. Schwartz, “Magneto-
Optical Imaging study of the crack formation in superconducting tapes caused by applied strain,”
of the critical current in Bi2Sr2Ca2Cu3Ox tape conductors as parallel weak-link and strong-link paths,”
100. A. Goto, W.G. Clark, P. Vonlanthen, K.B. Tanaka, T. Shimizu, K. Hashi, P.V.P.S.S. Sastry and J.
Schwartz, “Origin of the enhanced copper spin echo decay rate in the pseudogap regime of the
Kumakura, and J. Schwartz, “Microstructure and critical current density of Bi2212 tapes grown by
magnetic melt-processing” Physica C 382(1) 33-37 (2002)
102. N.M. Hamdan, P.V.P.S.S. Sastry, and J. Schwartz, “Magnetic Properties of Fluorinated Pb-doped
Hg-1223 High T, Superconductors,” IEEE Transactions on Applied Superconductivity 12(1) 1132-
1135 (2002)
Watanabe, and M. Motokawa, “Effect of magnetic field strength in melt-processing on texture
development and critical current density of Bi-oxide superconductors,” Physica C 386 115-121
(2003)
104. J.H. Su, P.V.P.S.S. Sastry, and J. Schwartz, “Fabrication and morphology of (Hg,Re)-1212 thin
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F. Trillaud, U. P. Trociewitz, and J. Schwartz, “Development of a 5 T HTS Insert Magnet as part of
107. J.H. Su, P.V.P.S.S. Sastry, and J. Schwartz, “Surface Morphology of (Hg,Re)Ba2CaCu2Oy Thin
Films Prepared by Pulsed Laser Deposition,” IEEE Transactions on Applied Superconductivity 13(2)
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of Neutron Irradiated and Doped MgB2 Superconductors,” IEEE Transactions on Applied
Superconductivity 13(2) 3320-3323 (2003)
Microstructures of Thick Monocore Bi2212 Tapes Grown in High Magnetic Fields,” IEEE
Transactions on Applied Superconductivity 13(2) 3339-3342 (2003)
of Processing Defects on Stress-Strain-Ic for AgMg Sheathed Bi-2212 tapes,” IEEE Transactions on
Applied Superconductivity 13(2) 3522-3525 (2003)
Effects in High Temperature Superconductors Investigated with Magneto-Optical Imaging,” IEEE
Transactions on Applied Superconductivity 13(2) 3534-3539 (2003)
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123. B. Xu, J.H. Su and J. Schwartz, “Dependence of transport critical current of magnetic field processed Bi2Sr2Ca2Cu3O8/AgMg tapes on the background magnetic field and magnetic field direction,” *Superconductor Science & Technology* **18** 503-507 (2005)


2006 – 2010


159. X.T. Liu and J. Schwartz, “On the influence of magnetic field processing on the texture, phase assemblage and properties of low aspect ratio Bi$_2$Sr$_2$CaCu$_2$O$_x$/AgMg wire,” *Science and Technology of Advanced Materials* **10** 014605 (2009)


174. A.L. Mbaruku, Q.V. Le, H. Song and J. Schwartz, “Weibull analysis of the electro-mechanical properties of AgMg sheathed Bi$_2$Sr$_2$CaCu$_2$O$_{8+δ}$ round wires and YBa$_2$Cu$_3$O$_{7-δ}$ coated conductors,” *Superconductor Science & Technology* **23** 115014 (8 pp) (2010)


2011 – 2015


190. L. Ye, F. Hunte and J. Schwartz, “Effects of high magnetic field on the low-temperature quench behavior of Bi$_2$Sr$_2$CaCu$_2$O$_{x}$ coils,” *Superconductor Science & Technology* **26** 055006 (8 pp) (2013) (selected as a SuST Highlight of 2013)


2016 – 2020


2021 – present


In review


**Published Conference Proceedings (some peer-reviewed)**


**RESEARCH AND SCHOLARLY PRESENTATIONS**

Plenary and Keynote Addresses
7. “Knowledge and Action: Universities for a Sustainable Age,” Enniscorthy Forum Building Action Coalition 2024 Summit, April 8, 2024

Invited Lectures — Conferences and Workshops
3. “High-Tc Magnets From Powder-in-Tube Tapes,” 3rd World Congress on Superconductivity, Munich, Germany (September 1992)
4. “PIT Processing: Hot-Rolling and High Strength Sheaths,” 4th International Conference of the World Congress on Superconductivity, Orlando (June 1994)
5. “BSCCO Conductors for High Field NMR Applications,” NYSIS Seventh Conference on Superconductivity and Applications, Buffalo (September 1994)
8. “High Temperature Superconductivity and High Magnetic Fields: Research at the National High Magnetic Field Laboratory,” 7th U. S.-Japan Workshop on High-Tc Superconductivity, Tsukuba, Japan (October 1995)
13. “Improvements in Bi$_2$Sr$_2$CaCu$_2$O$_x$ by Dopants,” 1997 TMS Annual Meeting, Orlando (February 1997)
14. “Synthesis Studies of (Hg,X)Ba$_2$Ca$_2$Cu$_3$O$_x$ Superconductors,” International Workshop on Tl and Hg Based Superconducting Materials, Cambridge, United Kingdom (May 1997)
15. “Improved Flux Pinning in Bi$_2$Sr$_2$CaCu$_2$O$_x$, Powders and Powder-in-Tube Tapes Via BaO$_2$ and MgO Additions,” 1997 International Workshop on Superconductivity, Hawaii (June 1997)
16. “Conductor Development Activities at the NHMFL,” 8th U.S.-Japan Workshop on High-T$_c$ Superconductivity, Tallahassee (December 1997)
17. “High Field HTS Coil Development at the NHMFL,” The HTS/LTS for HEP Workshop, Napa (March 1998)
20. “Progress in High Field BSCCO Insert Coils,” 9th U.S.-Japan Workshop on High-T$_c$ Superconductivity, Yamanashi, Japan (October 1999)
29. “10 Things I Hate about Coated Conductors,” MURI Coated Conductor Workshop, Madison, WI (June 2003)
34. “Effects of Magnetic Field Processing on the Microstructure and Properties of $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_8$ Superconducting Tapes,” International Workshop on Materials Analysis & Processing in Magnetic Fields, Tallahassee, FL (March 2004)
35. “Superconductivity,” Project Superconductivity Teacher-Scientist Workshop, Jacksonville, FL (October 2004)
37. “Quench Behavior in Coated Conductors,” AFOSR Coated Conductor Program Review, Orlando, FL (January 2005)
38. “Experimental Studies of Normal Zone Behavior in Coated Conductors,” Quench Protection Workshop, Orlando, FL (January 2005)
41. “Quenching and Fatigue in As-Synthesized and Damaged YBCO Coated Conductors or Understanding Failure is the Path to Success!” Stanford-Wisconsin Workshop on Coated Conductors, Palo Alto, CA (April 2006)
43. “Relationships Between Conductor Damage, Quenching & Electromechanical Behavior in YBCO Coated Conductors (and Bi2212 too),” 2006 Applied Superconductivity Conference, Seattle (August 2006)
44. “Superconductivity,” Project Superconductivity Teacher-Scientist Workshop, Seattle, WA (September 2006)
45. “Quench Propagation Behavior & Other Failure Issues in Bi2212,” Bi2212 Workshop/LTSW, Tallahassee, FL (November 2006)
46. “Next Generation Superconductors for Accelerator Magnets,” 2007 Particle Accelerator Conference, Albuquerque, NM (June 2007)
49. “$\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_x$ Coils: Past and Present (and Future!),” Pioneering High Magnetic Fields Symposium, Tallahassee, FL (March 2008)
50. “The Next Generation of High Field Magnets at the National High Magnetic Field Laboratory & Magnetic Field Processing of $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_x$,” 3rd International Workshop on Materials Analysis and Processing in Magnetic Fields, Tokyo, Japan (May 2008)
52. “The Role of the Nanoscale in the Success of Large-Scale High Temperature Superconductors,” International Symposium on Advances in Nanostructured Materials and Applications, Materials Science & Technology, Columbus (October 2011)
53. “HTS for High Field HEP Magnets: Are we half-way there yet?” Low Temperature High Field Superconductor Workshop, Providence, Rhode Island (November 2011)
54. “Quench in HTS Magnets” Workshop on Accelerator Magnet, Superconductor Design and Optimization, CERN, Geneva, Switzerland (January 2013)
56. “High Field Magnets using High Temperature Superconductors: Progress and Challenges,” 2013 European Conference on Applied Superconductivity, Genova, Italy (September 2013)
57. “Ag-Al alloys: An Enabling Technology for Bi$_2$Sr$_2$CaCu$_2$O$_x$ Superconducting Wires,” IEEE International Conference on Applied Superconductivity and Electromagnetic Devices, Beijing, China (October 2013)
58. “Understanding Degradation and Failure in Bi$_2$Sr$_2$CaCu$_2$O$_x$ Conductors through Experiment and Computation,” Spring Meeting of the Materials Research Society, San Francisco (April 2014)
61. “Optical Fibers for Quench Detection,” 3rd Workshop on Accelerator Magnets in HTS (WAMHTS-3), Lyon, France (September 2015)
63. “Rayleigh-scattering Interrogated Optical Fibers (RIOF) for HTS Quench Detection & Other Sensing Needs,” U.S. Magnet Development Program Workshop, Napa, CA (February 2017)
64. “Rayleigh-scattering Interrogated Optical Fibers (RIOF) for Quench Detection,” The 2017 Low Temperature/High Field Superconductor Workshop LTSW/HFSW2017, Santa Fe, NM (March 2017)
69. “Penn State College of Engineering: Engineering Equity Initiative,” Engineering CAS Member Summit, virtual delivery (July 2021)

Seminars
1. “High Field Superconducting Magnets for Fusion,” University of Illinois at Urbana, Department of Nuclear Engineering (September 1989)
2. “A Superconducting Tour of Japan – Applied Superconductivity Research in Japanese Government, Private and University Research,” University of Illinois at Urbana, Department of Nuclear Engineering (October 1990)
4. “Superconducting Magnetic Levitation (MAGLEV) – High Speed Transportation for the Year 2000,” Champaign County Chamber of Commerce, Transportation Committee (December 1991)
5. “Effects of Li Doping on Bi$_2$Sr$_2$CaCu$_2$O$_y$,” National Research Institute for Metals, Tsukuba, Japan (March 1992)
6. “Progress and Directions in High-T, Superconducting Materials and Magnets,” Florida State University, Department of Mechanical Engineering and the National High Magnetic Field Laboratory (December 1992)
7. “The Superconductivity Revolution - Are We Near The Promised Land or Tales from the Front,” Los Alamos National Laboratory, Superconductivity Technology Center (July 1993)
8. “High-T$_c$ Superconductivity at the National High Magnetic Field Laboratory,” National Research Institute for Metals, Tsukuba, Japan (March 1994)
9. “Superconductivity Research at the National High Magnetic Field Laboratory,” American Institute of Chemical Engineers, (September 1994)
10. “Towards a Practical High-T, Superconducting Conductor,” Florida State University Materials Research and Technology Center, (February 1995)
11. “Bi$_2$Sr$_2$CaCuO and HgBaCaCuO Research at the National High Magnetic Field Laboratory,” Argonne National Laboratory, Energy Technology Division (July 1995)
12. “The Worst (Best) Talk You’ll Ever Hear (Give) ... The Dos and Don’ts of a Scientific Seminar,” National High Magnetic Field Laboratory, Florida State University (December 1995)
13. “Applied HTS Research and Development Activities at the National High Magnetic Field Laboratory,” National Research Institute for Metals, Tsukuba, Japan (October 1997)
17. “MOI of YBCO, TBCCO and HBCCO w/ and w/out strain,” AFOSR Coated Conductor Review, Madison (May 2002)
20. “What We Did Over Our Summer Vacation, or ... How to Break World Records with High Field HTS Insert Magnets,” Department of Electrical Engineering, FAMU-FSU College of Engineering (November 2003)
22. “Superconductivity,” REU & RET Colloquium, National High Magnetic Field Laboratory (June 2005)
24. “High Temperature Superconductors: How they fail, and how they might yet succeed,” Rensselaer Polytechnic Institute, Department of Mechanical, Aerospace and Nuclear Engineering (August 2005)
27. “High Temperature Superconductors: How they fail, and how they might yet succeed,” Polytechnic University (Brooklyn), Department of Mechanical Engineering (March 2006)
28. “What Limits the Performance & Lifetime of Superconducting Materials & Systems?” Georgia Institute of Technology, Department of Electrical and Computer Engineering (September 2007)
29. “21st Century Challenges and Opportunities in Nuclear Engineering,” Purdue University, School of Nuclear Engineering (February 2009)
30. “Advanced Materials for a Sustainable Energy Future: How Advanced Oxides Are Helping to Create the 21st Century Smart Grid,” Virginia Commonwealth University, Department of Mechanical Engineering (February 2009)
31. “What Limits the Performance & Lifetime of Superconducting Materials & Systems?” Tulane University, Department of Physics and Engineering Physics (March 2009)
32. “What Limits the Performance & Lifetime of Superconducting Materials & Systems?” University of Delaware, Department of Mechanical Engineering (March 2009)
33. “What Limits the Performance & Lifetime of Superconducting Materials & Systems?” North Carolina State University, Department of Materials Science and Engineering (April 2009)
34. “What Limits the Performance & Lifetime of Superconducting Materials?” University of Twente (Netherlands), Low Temperature Division (June 2009)
35. “Understanding performance limiting issues of superconducting materials for high current, high magnetic field devices,” ASM International, Carolinas Central Chapter (September 2010)
36. “Understanding performance limiting issues of superconducting materials for high current, high magnetic field devices,” MRS Local Chapter meeting, Raleigh, NC (November 2010)
37. “Understanding performance limiting issues of superconducting materials for high current, high magnetic field devices,” Virginia Tech, Department of Materials Science and Engineering, Blacksburg, VA (November 2011)
38. “Quench detection and protection: the final hurdles to wide-spread implementation of HTS-based magnet systems,” University of Houston, Texas Center for Superconductivity at the University of Houston, Houston, TX (May 2013)
39. “25+ years of high temperature superconductivity: the long road from discovery to magnet systems,” Universite Paris Sud, Centre de Spectrometrie Nucleaire et de Spectrometrie de Masse, Paris, France (June 2013)
40. “25+ years of high temperature superconductivity: the long and winding road from discovery to magnet systems,” Drexel University, Department of Materials Science and Engineering, Philadelphia, PA (May 2014)
41. “25+ years of high temperature superconductivity: the long and winding road from discovery to magnet systems,” University of Texas, Texas Materials Institute, Austin, TX (September 2015)
42. “Redefining engineering in the modern age: a call to action,” University of South Florida, Eminent Scholar Distinguished Lecture Series, Tampa, FL (March 2018)
44. “Project Drawdown at Penn State University,” Science on Tap, State College, PA (September 2019)

RESEARCH SUPERVISION

Graduate Student Supervision (Major Professor), Graduated (forty-six students (sixteen female, seven underrepresented minorities); nineteen M.S. & thirty three Ph.D.)

- Earle E. Burkhardt, University of Illinois Urbana, Department of Nuclear Engineering
  - M.S. 05/93, “Superconducting Magnets for Small Scale Energy Storage Systems and Electrodynamic Magnetic Levitation Systems”
  - Ph.D. 03/98, “Stability of High-Tc Superconducting Conductors Using the Finite Element Method”

- James L. Hill, University of Illinois Urbana, Department of Nuclear Engineering
  - M.S. 12/93, “Analysis of the Modified Square Toroid, A Force-Reduced Electromagnet”

- Shiming Wu, University of Illinois Urbana, Department of Nuclear Engineering
  - Ph.D. 05/94, “Processing and Microstructural Characterization of Li Doped and Undoped Polycrystalline Bi2Sr2CaCu2Ox”

- Bruce C. Amm, University of Illinois Urbana, Department of Mechanical Engineering
  - M.S. 12/93, “Optimization of the Force-Reduced Modified Square Toroid Magnet Design”
  - Ph.D. 12/96, “An Optimized Superconducting Toroidal Magnet Using a Force-Reduced Winding Scheme”

- Jiyou Guo, University of Illinois at Urbana, Department of Materials Science and Engineering
  - M.S. 5/94, “Microstructural Development and Superconducting Properties of Hot-Rolled Ag and Ag(Cu)-Sheathed Bi2Sr2CaCu2Ox Tapes”

- Elizabeth A. Scholle (Carle), University of Illinois Urbana, Department of Nuclear Engineering
  - Ph.D. 3/95, “Impact of Vibration-Induced Disturbances on Superconducting Magnets”

- Kathleen Amm, Florida State University, Department of Physics
  - M.S. 8/96; Ph.D. 12/97, “Synthesis and Characterization of HgBa2CaCu2Ox Superconductors on Metallic Substrates”

- Sawako Nakamae, Florida State University, Department of Physics
  - M.S. 08/96; Ph.D. 12/98, “Magnetothermal Conductivity of Bi2Sr2CaCu2Ox Bulk Superconductors”

- Wangshui Wei, Florida State University, Department of Mechanical Engineering
  - Ph.D. 03/98, “Effects of Oxide Additions to Bi2Sr2CaCu2Ox: Phase Evolution and Flux Pinning”

- Li Ying, Florida State University, Department of Mechanical Engineering
  - M.S. 08/99, “Synthesis and Properties of Pb-Doped HgBa2Ca2Cu3Ox Superconductors”

- Ulf Trociewitz, Aachen University of Technology, Applied Physics
  - Ph.D. 05/01, “The Impact of Chemically Active Additions on Phase Formation and Superconducting Properties of Partial Melt Processed Bi2Sr2CaCu2Ox”

- Hiranmayi Palanki, Florida State University, Department of Mechanical Engineering
  - M.S. 12/02, “Critical Current Variability and Thermal Quench Studies on High Temperature Superconducting Tapes”

- Daniel C. van der Laan, University of Twente, Applied Physics & Low Temperature Division
Justin Schwartz, Chancellor, University of Colorado Boulder

- Ph.D. 01/04, “Flux Pinning and Connectivity in Polycrystalline High-Temperature Superconductors”

- Oscar Castillo, Florida State University, Department of Mechanical Engineering
  - M.S. 03/04, “Microstructural and Superconducting Properties of V-doped MgB2 Bulk and Wires”

- Jianhua Su, Florida State University, Department of Mechanical Engineering
  - Ph.D. 03/04, “Growth and Characterization of Mercurocuprate Superconductors on Silver”

- Bin Xu, Florida State University, Department of Mechanical Engineering
  - M.S. 06/04, “Study of the Magnetic Field Dependence of the Critical Current of Bi2Sr2CaCu2O8+x and (Bi,Pb)2Sr2Ca2Cu3O10+x Superconducting Tapes”

- Abdallah Mbaruku, Florida State University, Department of Mechanical Engineering
  - Ph.D. 03/06, “Electromechanical and Fatigue Properties of As-Manufactured and Quench Damaged YBCO Coated Conductor”

- Jamaa Bouhattate, Florida State University, Department of Mechanical Engineering
  - Ph.D. 06/06, “Modeling Texture Evolution in Polycrystalline Materials using Spherical Harmonics”

- Gary Adam Merritt, Florida State University, Department of Mechanical Engineering
  - M.S. 07/06, “Proof of Principle for Bi2Sr2CaCu2O8+x React Wind Sinter Magnet Manufacturing”

- Manuel Ramos, Florida A&M University, Department of Mechanical Engineering
  - M.S. 07/06, “Low Aspect Ratio Bi2Sr2CaCu2O8+x/AgMg Wires Processed in High Magnetic Field”

- Giulio Mulazzani, University of Bologna (Italy), Department of Electrical Engineering
  - M.S. 2006, “Studio sperimentale della stabilità termica di nastri superconduttori della "seconda generazione”

- Doan Ngoc Nguyen, Florida State University, Department of Physics
  - Ph.D. 5/07, “Alternating current loss characteristics in (Bi,Pb)2Sr2Ca2Cu3O10 and YBa2Cu3O7 superconducting tapes”

- Anita Oliver, Florida State University, Department of Mechanical Engineering
  - M.S. 11/07, “Mechanical and electrical properties of carbon nanotube reinforced polycarbonate at liquid nitrogen temperature”

- Xiaorong Wang, Florida State University, Department of Electrical and Computer Engineering
  - Ph.D. 12/07, “Quench behavior of YBa2Cu3O7 coated conductors”

- Timothy Effio, Florida State University, Department of Mechanical Engineering
  - M.S. 06/08, “Quench induced degradation in Bi2Sr2CaCu2O8+x at 4.2 K”

- Samuel T. Adedokun, Florida A&M University, Department of Mechanical Engineering
  - Ph.D. 08/08, “Effects of magnetic field heat treatment on heavily deformed aluminum alloy 6061”

- Makita R. Phillips, Florida A&M University, Department of Mechanical Engineering
  - M.S. 04/09, “Influence of turn-to-turn insulation on quench propagation in YBCO coated conductors”

  North Carolina State University, Department of Mechanical and Aerospace Engineering
  - Ph.D. 06/14, “Effect of Alternative Insulation Materials on Quench Propagation in ReBa2Cu5O7-δ Coils”
• David Myers, Florida State University, Department of Mechanical Engineering  
  o M.S. 04/09, “Characterization of Bi$_2$Sr$_2$CaCu$_2$O$_{x}$/Ag-alloy conductor samples extracted from  
    wind and react solenoids”

• Michael LoSchiavo, Florida State University, Department of Mechanical Engineering  
  o M.S. 04/09, Florida State University, “Processing Issues of Bi$_2$Sr$_2$CaCu$_2$O$_8$ Round Wire  
    Involving Leakage and Alumino Silicate Insulation”

• Hubertus W. Weijers, University of Twente, Applied Physics & Low Temperature Division  
  o Ph.D. 06/09, “High-temperature superconductors in high-field magnets”

• Currently: Senior Principal Engineer, Magnet Systems, Robinson Research Institute, Wellington,  
  Tengming Shen, Florida State University, Department of Electrical and Computer Engineering  
  o Ph.D. 07/10, “Processing, microstructure, and critical current density of Ag-sheathed  
    Bi$_2$Sr$_2$CaCu$_2$O$_x$ multifilamentary round wire”

• Honghai Song, Florida State University, Department of Electrical and Computer Engineering  
  o Ph.D. 07/10, “Microscopic observations of quenching and the underlying causes of degradation in  
    YBa$_2$Cu$_3$O$_{7-δ}$Coated Conductor”

• Sarah Haney, North Carolina State University, Department of Materials Science and Engineering  
  o Ph.D. 12/12, “Investigation of Low Temperature, Atomic-Layer-Deposited Oxides on 4H-SiC  
    and their Effect on the SiC/SiO$_2$ Interface”

• Safoura Seifikar, North Carolina State University, Department of Materials Science and Engineering  
  o Ph.D. 03/13, “Texture and Magnetocrystalline Anisotropy in NiFe$_2$O$_4$ Thin Films for Application  
    in Magnetoelectric NiFe$_2$O$_4$/Pb[Ti$_{0.52}$Zr$_{0.48}$]O$_3$ Composites”

• Amir Kajbafvalla, North Carolina State University, Department of Materials Science and Engineering  
  o Ph.D. 12/13, “High strength silver/alumina sheath for Bi$_2$Sr$_2$CaCu$_2$O$_{8+δ}$ conductor”

• Quang Van Le, North Carolina State University, Department of Materials Science and Engineering  
  o Ph.D. 3/14, “Relationship between microstructure and mechanical properties in Bi$_2$Sr$_2$CaCu$_2$O$_x$  
    round wires using peridynamics simulation”

• Goran Rasic, North Carolina State University, Department of Materials Science and Engineering  
  o Ph.D. 3/14, “Nanoscale Surface Patterning and Coercivity Reduction in NiFe$_2$O$_4$ Thin Films”

• Golsa Naderi, North Carolina State University, Department of Materials Science and Engineering  
  o Ph.D. 7/14, “Understanding processing, microstructure and transport relationships of  
    Bi$_2$Sr$_2$CaCu$_2$O$_{8+δ}$/Ag round wires”

• Yun Zhang, North Carolina State University, Department of Materials Science and Engineering  
  o Ph.D. 7/15, “Oxide and metallic precursor powders for Bi$_2$Sr$_2$CaCu$_2$O$_x$/Ag round wires”

• Yi-Fang Lee, North Carolina State University, Department of Materials Science and Engineering  
  o Ph.D. 8/15, “Fabrication and Properties of Topological and Two-dimensional Thin Film  
    Heterostructures”

• Liyang Ye, North Carolina State University, Department of Materials Science and Engineering  
  o Ph.D. 10/15, “Quench Behavior and Degradation Limit of Ag-sheathed Bi$_2$Sr$_2$CaCu$_2$O$_x$ Round  
    Wires”

• Min Fan, North Carolina State University, Department of Materials Science and Engineering  
  o Ph.D. 6/16, “On the Formation and Evolution of Cu-Ni-rich Bridges of Alnico Alloys with  
    Thermomagnetic Treatment and Tempering”

• Sam Rogers, North Carolina State University, Department of Materials Science and Engineering
Justin Schwartz, Chancellor, University of Colorado Boulder

- Ph.D. 11/16, “Effects of Tensile Fatigue on Critical Current and n-value of (RE)Ba2Cu3O7-x Superconductors”

- Weston Straka, North Carolina State University, Department of Materials Science and Engineering
  - Ph.D. 03/17, “Chemical Solution Deposition Based Synthesis of High Symmetry Phase of Hafnium Dioxide Thin Films”

- Taryn Kittel, North Carolina State University, Department of Materials Science and Engineering
  - M.S. 05/17

- Youness Alvandi Tabrizi, North Carolina State University, Department of Mechanical and Aerospace Engineering
  - Ph.D. 06/18, “Electric Control of Magnetization in Biferroic Heterostructures with Patterned Interfaces: a Phase-Field Micromagnetic Study”

- Federico Scurti, North Carolina State University, Department of Materials Science and Engineering
  - Ph.D. 06/19, “In-Situ Distributed Sensing for High Temperature Superconductor Magnets based on Rayleigh-backscattering Interrogated Optical Fibers”

- Chris Velez, Pennsylvania State University, Department of Mechanical Engineering
  - M.S. 07/20, “Quench Detection Logic for High Temperature Superconducting Magnets Based on Distributed Optical Fiber Sensing”

- Alexandria Cruz, North Carolina State University, Department of Materials Science and Engineering
  - Ph.D. 01/21, “Investigating the interface of cobalt ferrite and hafnia”

Graduate Student Committees (not Major Professor)

- Farhad Booshaghi, Ph.D. Mechanical Engineering, FSU, 1997
- Daryl J. Hartley, Ph.D. Physics, FSU, 1998
- John Panek, Ph.D. Mechanical Engineering, FSU, 1998
- Zhongyu Chen, Ph.D. Mechanical Engineering, FSU, 2000
- Jason Trembley, M.S. Mechanical Engineering, FSU, 2003
- Yeon Suk Choi, Ph.D. Mechanical Engineering, FSU, 2004
- Xu Wang, Ph.D. Electrical Engineering, FSU, 2004
- Gilberto Alexandre Castello Branco, Ph.D. Mechanical Engineering, FSU, 2005
- Frederic Trillaud, Ph.D., CEA/SACLAY France, 2005
- Antoine Jerome Raoul Berret Jr., M.S. Mechanical Engineering, FSU, 2005
- Gail Jefferson, Ph.D. Mechanical Engineering, FAMU, 2005
- Rasheemah Burrell, Ph.D. Mechanical Engineering, FAMU, 2005
- Mohit Mathur, M.S. Mechanical Engineering, FSU, 2006
- Jingping Chen, Ph.D. Mechanical Engineering, FSU, 2006
- Kai Huang, Ph.D. Mechanical Engineering, FSU, 2007
- Lewei Qian, Ph.D. Mechanical Engineering, FSU, 2007
- Ting Xu, Ph.D. Mechanical Engineering, FSU, 2007
- Steven T. Downey, Ph.D. Mechanical Engineering, FSU, 2008
- Sladana Lazic, M.S. Mechanical Engineering, FSU, 2008
- Haomin Lin, Ph.D. Mathematics, FSU, 2008
- Shalini Gupta, Ph.D. Electrical & Computer Engineering, Georgia Tech, 2009
- Aaron Johnston-Peck, Ph.D. Materials Science and Engineering, NCSU, 2011
- Elizabeth Paisley, Ph.D. Materials Science and Engineering, NCSU, 2012
- Zach Lampert, Ph.D. Materials Science and Engineering, NCSU, 2012
Justin Schwartz, Chancellor, University of Colorado Boulder

- Ryan D. Hodges, Ph.D. Electrical Engineering, NCSU, 2014
- Peiman Shahbeigi Roodposhti, Ph.D. Materials Science and Engineering, NCSU, 2015
- John A. Medford, M.S. Materials Science and Engineering, NCSU, 2015
- Raj Kumar, Ph.D. Materials Science and Engineering, NCSU, 2015

Long-term Visitors Hosted
- Professor Kristian Fossheim, Trondheim University, Norway
- Professor Shimone Reich, Weizmann Institute, Israel
- Professor Yutaka Yamada, Tokai University, Japan
- Dr. Jaimoo Yoo, Korean Institute of Metallurgy and Mining, South Korea
- Professor Nasser Hamdan, King Fahad University, Saudia Arabia
- Professor Hiroshi Maeda, Kitami Institute, Japan
- Sylvain Boutemy, Toulouse University, France
- Beatrice Boutemy, Toulouse University, France
- Arno Godeke, University of Twente, Netherlands
- Hans van Eck, University of Twente, Netherlands
- Frederic Trillaud, CEA/SACLAY, France
- Dr. Pavol Usak, Institute of Electrical Engineering, Slovak Academy of Sciences, Slovakia
- Dr. Philippe Vanderbemden, Department of Electrical Engineering and Computer Science, Université de Liège, Belgium
- Dr. Andreas Heinrich, University of Augsburg, Department of Physics, Germany
- Dr. Marco Breschi, University of Bologna, Department of Electrical Engineering, Italy
- Giulio Mulazzani, University of Bologna, Department of Electrical Engineering, Italy
- Morgan Poitevin, Univ. of La Rochelle, Department of Materials Science and Engineering, France
- Antoine Guillou, Univ. of La Rochelle, Department of Materials Science and Engineering, France
- Dr. Xiaofan Gou, Hohai University, China
- Davide Cruciani, University of Bologna, Department of Electrical Engineering, Italy
- Shivendra Kumar, Indian Institute of Technology Kanpur
- Federico Scurti, University of Bologna, Department of Electrical Engineering, Italy
- Dr. Jun Zhou, Lanzhou University, College of Civil Engineering and Mechanics, China
- Yawei Wang, Shanghai Jiao Tong University, China
- Peifeng Gao, Lanzhou University, College of Civil Engineering and Mechanics, China
- Shijian Yin, Dilian University of Technology, School of Materials Science and Engineering, China
- Professor Kyu Jeong Song, Jeonbuk National University, Physics Department, Korea
- Professor Wentao Wang, Southwest Jiaotong University, China

Post-doctoral Research Fellows Supervised
- Joerg Kessler, 01/94 – 04/96
- Yang Ren Sun, 03/94 – 07/96
- Christian Wolters, 03/94 – 09/96
- Bruce C. Amm, 12/96 – 11/97
- P.V.P.S.S. Sastry, 08/96 –10/99
- Qingyu Hu, 09/97 – 08/99
- Jo Moore, 03/98 – 07/98
- Ulf Trociewitz, 01/01 – 01/04
- Isaac Rutel, 08/02 – 05/04
- Guomin Zhang, 11/03 – 04/06
• Abdallah Mbaruku, 03/06 – 02/08
• Xiaotao Liu, 04/06 – 04/12
• Wan-Kan Chan, 05/08 – 8/17 (promoted to Research Assistant Professor)
• Frank Hunte, 01/09 – 12/09
• Gang Yang, 06/09 – 08/10
• Sasha Ishmael, 10/11 – 10/15
• Golsa Naderi, 08/14 – 10/16
• Menghui Li, 02/15 – 02/16
• Weston Straka, 03/17 – 10/17
• Patrick Lomenzo, 10/17 – 9/18
• Federico Scurti, 08/19 – 3/22