

James A. Gerald

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Education

Johns Hopkins University

1995 PhD in Physics

- PhD thesis on tau polarization and Michel parameters in Z boson decays.
- Experimental High Energy Physics Group on the L3 Experiment at CERN in Geneva, Switzerland (1992 – 1995).
- JHU Graduate Research Fellowship (1992-1995).

1992 MA in Physics and Astronomy

- NSF Graduate Fellowship (1990-1991), JHU Graduate Teaching Fellowship (1991-1992).

Syracuse University

1993 PhD in Electrical Engineering

- PhD thesis on gridded ground planes for microwave circuits embedded in a ceramic substrate.
- Left SU for JHU in August 1990 and completed the SU PhD Thesis work while at JHU.
- NSF Graduate Fellowship (1988-1990).

1988 MS in Electrical Engineering

- Master's Thesis on the reflection of incident radiation from apertures in cylindrical objects interconnected by microwave networks.
- SU Graduate Fellowship (1987-1988)

University of Mississippi

1987 BS in Electrical Engineering, *Summa Cum Laude*

- Undergraduate Research Assistant (1986-1987).
- Honors Senator for 4 years.
- Honors Scholar (1983-1987), Carrier Scholarship (1983-1987), Taylor Medal Recipient (1987).

Experience

Delta State University | 1003 W Sunflower Road, Cleveland, MS 38733

Director of the Honors Program *July 2018 – Present*

- Responsibilities include program development, curriculum development, and recruiting.

Assistant Professor of Physics *Aug 2014 – Present*

- CO-PI and Lead curriculum developer for the applied physics degree in meteorology.
- Curriculum Chair for Chemistry and Physics (2014-2017).
- Content developer for the physics laboratory courses.

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- Courses covered to date include Astronomy, Physical World, Physics of Sound, Physics for Life Sciences I & II, General Physics I & II, Electronics, and Medical and Biological Physics I & II.

CapitolMed | 1141 Ringwood Ave, Ste 7, Haskell, NJ 07420

Senior Account Manager *Oct 2008 – July 2014*

- Consultant to a top 5 pharmaceutical company.
- Assisted in the launch of a \$1.5 billion per year specialty drug.
- Created and operated physician call centers for reimbursement assistance.
- Created and operated a print shop for publishing the explanation of benefits letters for a top 5 health insurance company.
- Projected market size and penetration using a combination of medical, pharmaceutical, and census data.

EqualNox Consulting | Yorktown, VA

President *October 2000 – October 2008*

- Worked primarily with the Air Combat Command Surgeon General's Medical Modernization Office (ACC-SGR).
- Designed, developed, and deployed the first field capable electronic medical record intended for field hospitals and smaller units down to a single medical technician deployed down-range.
- Supported 38 deployed facilities and a number of smaller individual units around the globe.
- Collected and analyzed over 500,000 medical records.
- Provided medical manpower modernization, disease surveillance, disease management, and other data drive population health support for the AF and DoD.
- Effort peaked at 15 people in Newport News, Leesburg, and Charlottesville, VA.

CellAvant | Newport News, VA

Consultant *February 2006 – December 2006*

- Assisted in the launch of CellAvant, a mobile application development company.
- Determined the direction of the branding, the logo, and platform choices.
- Assisted with early software development projects.

Signal Corporation | Air Combat Command Surgeon General, Langley AFB, VA

Chief Scientist *October 1999 – October 2000*

- Performed a proof-of-concept demonstration of capability for a deployable electronic medical record.
- Expanded disease management protocols to include civilian populations under the care of Air Force clinics.

BTG | Air Combat Command Surgeon General, Langley AFB, VA

Chief Scientist *January 1998 – October 1999*

- Launched the first data driven disease management program for the US Air Force using the 18 clinics within Air Combat Command.
- Analyzed medical data from deployed locations and assisted in evaluating electronic medical records for deployment.

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Christopher Newport University | Newport News, VA

Assistant Professor *August 1997* – May 1998

- Taught Electromagnetics, Electronics, Computer Algorithms, Introductory Physics and Optics.

University of Minnesota | Brookhaven National Labs, Long Island, NY

Postdoctoral Research Associate *February 1996* – August 1997

- Managed the hyperbaryon experiment at BNL.
- Helped design and modernize the data acquisition system.

Johns Hopkins University | Geneva, Switzerland

Graduate Research Assistant *November 1992* – December 1995

- Worked for the Experimental High Energy Physics Group on the L3 Experiment at CERN.
- Providing modelling and simulation for new central tracking designs.
- Served as the L3 central tracking Shift Leader and expert on call.
- Served as the L3 Head Shift Leader managing the data acquisition team.
- Ported the Tau Physics group's analysis package from the Apollo to the HP-UX platform.
- Designed and authored a new data processing and analysis package for the Tau group.
- Led the analysis of the Michele parameters in the tau system.
- Led the analysis of tau polarization.

Johns Hopkins University | Baltimore, MD

Graduate Teaching Assistant *August 1991* – November 1992

- Taught Electromagnetics.
- Managed the teaching assistants for the introductory physics course.

DuPont | Wilmington, DE

Research Associate *May 1991* – August 1991

- Consultant with the High Power Microwave Circuit group assisting in the design, development, and testing of high power microwave components embedded in ceramics.

Syracuse University | Syracuse, NY

Graduate Research Associate *August 1987* – August 1990

- Developed novel mathematical and computational techniques for determining the effect of a gridded ground plane on microwave circuits. S
- Simulated the reflection of incident radiation on apertures on a cylindrical surface backed by microwave networks.
- Earned both a Syracuse Graduate Fellowship and a NSF Graduate Fellowship.

Naval Summer Graduate Fellowship Program | Kirtland AFB, Albuquerque, NM

Graduate Research Associate *June 1987* – August 1987

- Worked with US Air Force Applied Research Group at Kirtland, AFB.

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- Provided mathematical and computational assistance in the modeling and simulation of high powered microwave pulse technology.

University of Mississippi | Oxford, MS

Undergraduate Research Assistant *August 1985* – May 1987

- Designed and developed data acquisition systems using GPIB technologies for the Department of Electrical Engineering.

Skills

- Program and Project Management
- System Design and Deployment
- Software Design and Development
- Software Deployment and Lifecycle Management
- Data Analysis and Knowledge Creation
- Proof-of-Concept and Demonstration of Capabilities
- Databases: MS SQL Server and SQL Query, MS Access
- Coding: Visual Basic (100,000+ lines of code), Fortran (100,000+ lines of code), C++
- Data Acquisition
- MS Project
- XML, HTML

Recent Grants

Development of Curriculum and Materials for Medical and Biological Physics I and II, \$24,861 over 1 year beginning May 2017. Funded by a Mississippi INBRE Grant from the University of Southern Mississippi. PI – James Gerald.

A Bachelor's of Science in Applied Physics (Meteorology) for the Military Meteorology Workforce, \$996,610.63 over 5 years beginning November 2016. Funded by the Office of Naval Research. PI – Talbot Brooks. Co-PI – James Gerald.

Grants Applications in Progress

Active Learning for the Underprepared Student, Funding Opportunity: Improving Undergraduate STEM Education: Education and Human Resources (IUSE: EHR), \$300,000 over 3 years beginning January 2019. PI – James Gerald, Co-PI – Lee Virden.



Recent Presentations

Effective Education in the 21st Century: Thinking Critically About Instruction on Your Campus.

James A. Gerald and James R. Tarr, 2018 American Association of University Administrators Leadership Seminar, Philadelphia, PA. June, 2018.

Active Learning and DSU.

James A. Gerald, 2018 Café Scientifique, Delta State University. April, 2018.

Active Learning's Impact on Underprepared Students.

James A. Gerald, 2018 Mississippi Academy of Sciences, Hattiesburg, MS. February, 2018.

Open Source and Collaboration Using PressBooks Textbooks.

James A. Gerald and Sharon L. Gerald, 2016 Creating Futures through Technology Conference, Biloxi, MS. March 2016.

Designing E-books, Designing Engagement.

James A. Gerald and Sharon L. Gerald, 2015 Creating Futures through Technology Conference, Biloxi, MS. March 2015.

Workshops and Professional Development

2018 American Association of Colleges and Universities PKAL STEM Leadership Institute, Adamstown, MD, 7/17-7/22/2018.

2018 American Association of University Administrators Leadership Seminar, Widener University, PA, 6/5-6/8/2018.

Publications

High School Physics for Delta State E-Learning

J. Gerald, OpenStax-CNX Web site. <http://legacy.cnx.org/content/col12009/1.3/>, Jun 6, 2016.

Performance of the L3 plastic scintillating fibre calibration system

G. Alverson, J. Bao, P. Fisher, J. Gerald, A. Gougas, I. Leedom, A. Pevsner, C. Spartiotis, S. Reucroft, L. Taylor

Published in Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, Volume 380, Issue 3, 11 October 1996, Pages 555–561

Measurement of the Michel parameters and the average tau-neutrino helicity from tau decays in $e^+ e^- \rightarrow \tau^+ \tau^-$

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L3 Collaboration (M. Acciarri et al.). Mar 1996. 15 pp.
Published in Phys.Lett. B377 (1996) 313-324

Tests of the charged weak current in correlated hadronic tau decays using L3 at LEP

James A. Gerald (Johns Hopkins U.). 1995. 134 pp.
UMI-96-17520, CERN-THESIS-98-007, CERN-THESIS-98-07, CERN-THESIS-98-7

Multiconductor transmission lines in multilayered dielectric media over a gridded ground plane

Gerald, James A. (1993). Electrical Engineering and Computer Science - Dissertations. Paper 216.

Mode extraction from an electromagnetic slow wave system

James A. Gerald, Dec. 1987.
Published in Universal Energy Systems, Inc., United States Air Force Graduate Student Summer Support Program, Volume 1 20 p (SEE N89-12754 04-31)

Plotting vector fields with a personal computer

Darko Kajfez, James A. Gerald
IEEE Transactions on Microwave Theory and Techniques 12/1987; 35(11-35):1069 – 1072,
December 1987

L3 Papers with a Significant Contribution

Large collaborations like L3 at LEP contain author lists numbering in the 100s. Of the 59 papers bearing my name as a part of that collaboration, I have selected to list only those to which I believe I made a significant contribution.

Measurement of the Michel parameters and the average tau-neutrino helicity from tau decays at LEP

L3 Collaboration (M. Acciarri et al.). Jul 1998. 15 pp.
Published in Phys.Lett. B438 (1998) 405-416

Measurement of the anomalous magnetic and electric dipole moments of the tau lepton

L3 Collaboration (M. Acciarri et al.). Mar 1998. 13 pp.
Published in Phys.Lett. B434 (1998) 169-179

Measurement of tau polarization at LEP

L3 Collaboration (M. Acciarri et al.). Feb 1998. 19 pp.
Published in Phys.Lett. B429 (1998) 387-398

Measurement of the weak dipole moments of the tau lepton

L3 Collaboration (M. Acciarri et al.). Feb 1998. 14 pp.
Published in Phys.Lett. B426 (1998) 207-216



Measurement of $D(s) \rightarrow \tau \text{- anti-}\tau \text{- neutrino}$ and a new limit for $B \rightarrow \tau \text{- anti-}\tau \text{- neutrino}$

L3 Collaboration (M. Acciarri et al.). Dec 1996. 18 pp.
Published in Phys.Lett. B396 (1997) 327-337

Measurement of the lifetime of the tau lepton

L3 Collaboration (M. Acciarri et al.). Sep 1996. 14 pp.
Published in Phys.Lett. B389 (1996) 187-196

Measurement of the branching ratios $b \rightarrow e \text{ neutrino } X$, $\mu \text{ neutrino } X$, $\tau \text{-neutrino } X$ and $\text{neutrino } X$

L3 Collaboration (M. Acciarri et al.). Apr 1996. 27 pp.
Published in Z.Phys. C71 (1996) 379-390

One prong tau decays with neutral kaons

L3 Collaboration (M. Acciarri et al.). Apr 1995. 17 pp.
Published in Phys.Lett. B352 (1995) 487-497

Measurement of exclusive branching fractions of hadronic one space prong tau decays

L3 Collaboration (M. Acciarri et al.). Nov 1994. 15 pp.
Published in Phys.Lett. B345 (1995) 93-102

A Measurement of tau polarization at LEP

L3 Collaboration (M. Acciarri et al.). Sep 1994. 20 pp.
Published in Phys.Lett. B341 (1994) 245-256