

CURRICULUM VITAE

JAMES RICHARD POWELL, PhD

CAPT, USN (Ret)
Dept. of Physics and Astronomy
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ASSISTANT PROFESSOR OF PRACTICE

EDUCATIONAL BACKGROUND

Bachelor of Arts, Philosophy, Eastern Washington University, 1972

Master of Science in Electronic Systems Engineering, Naval Postgraduate School, 1984

PhD Physics, UT San Antonio, December 2020

PROFESSIONAL EMPLOYMENT HISTORY

CAREER SUMMARY

47 years of leadership and teaching in graduate, undergraduate, and secondary education; and technical and operational Electronic Systems Engineering, Information Operations, and High-Power Microwave (HPM) Directed Energy development. Military leadership positions from squadron command up to the Joint Staff J3 and Joint Combatant Commander levels.

Disabled Veteran

Naval Flight Officer and Electronic Countermeasures Officer 1972-1993 with over 2500 flight hours in four squadron tours with squadron command and worldwide deployments

EA-6B Readiness Officer for Commander, Medium Attack Tactical Electronic Warfare Wing, U.S. Pacific Fleet, Jan 1987-Apr 1989

Military Lecturer, Electronics and Computer Engineering, and Electronic Warfare Departments, Naval Postgraduate School, Monterey, CA 93943 (CDR, USN), Apr 1989-Nov 1990

Commanding Officer and Executive Officer, Tactical Electronic Warfare Squadron 33 (Navy squadron VAQ-33), (CDR, USN) Nov 1990-Jan 1993

Chairman Joint Chiefs of Staff, Joint Staff J3 Action Officer and Branch Chief, J33 Information Warfare-Special Technical Operations Division (CAPT, USN), Joint Staff, Pentagon, Washington DC, Jan 1993-Jul 1996

Naval Postgraduate School Chair of Information Warfare and Assistant Provost for Military Faculty (CAPT, USN), Jul 1996-Aug 2001

Deputy to the Operations Director, J3 for Information Operations, J39 (CAPT, USN), US PACIFIC COMMAND, Aug 2001-Aug 2002

Senior Systems Engineer, Electronic Warfare and Information Operations Programs, Space and Naval Warfare Systems Center, San Diego, Job Series: Technical Specialist 90254-75872, Aug 2002-Jan 2004 (DP IV/GS-15)

Technical Director, Operations, Joint Information Operations Warfare Command, San Antonio, TX, Job Series 15823-603223, January 2004- January 2007 (GG-15)

Physics and Mathematics Educator, Bracken Christian School, 670 Old Boerne Rd, Bulverde, TX 78163, August 2007-June 2009

Lecturer of Physics, Dept. of Physics and Astronomy, UT at San Antonio; January 2009-present

AWARDS AND HONORS

EA-6B (Navy PROWLER Aircraft) Tactical Excellence Award for 1986

Rear Admiral John Perry Prowler of the Year Award for 1988

Outstanding Faculty Award, Information Sciences and Operations,
Naval Postgraduate School for 1999

Outstanding Research Achievement Award, Information Sciences and Operations,
Naval Postgraduate School for 1999

(Many additional military awards and decorations not listed)

TEACHING ACTIVITIES

PHY 1623 Algebra-based Physics II (undergraduate)

PHY 1603 Algebra-based Physics I (undergraduate)

Students mentored (2018-2021): Makalie DeHoyos (Graduate School and Medical School); Abel Gallegos (Medical School); Marcos Tudon (Medical School); Shaza Rehman (Medical

School); Ricky Tijerina (Dental School); Jiseon Choi (Dental School); Jairo Cano (Hertog War Studies Program, UT Austin); Preston Phan (Dental School); Uchechi Nwaichi (UTSA Scholarship)

(More than 100 students mentored 2009-2021)

RESEARCH/SCHOLARLY/CREATIVE ACTIVITIES

PUBLICATIONS:

“Bekenstein’s Entropy Bound-Particle Horizon Approach to Avoid the Cosmological Singularity”, with Rafael Lopez-Mobilia and Richard A. Matzner, Entropy Journal (Peer-reviewed, open access MDPI journal), 22(7), 795, <https://doi.org/10.3390/e22070795>, 21 July 2020, IF 2.530 (5 yr), 12p.

Dissertation: **THE BEKENSTEIN *QUANTUM* PARTICLE HORIZON APPROACH TO AVOID THE COSMOLOGICAL SINGULARITY**, James Richard Powell, The University of Texas at San Antonio, College of Sciences, Department of Physics and Astronomy, December 2020, 86p.

“The Quantum Limit to Moore’s Law”, Proceedings of the IEEE, 96/8 Aug. 2008, IF 10.252

“Unification of Fundamental Forces at High Radiation Temperature in the Creator, “The Consuming Fire”, CRSQ (Quarterly peer-reviewed journal), 45/1 Summer 2008, 6p.

“Stellar Radiation Entropy as Evidence of Supernatural Order and Creation”, CRSQ (Quarterly peer-reviewed journal), 46/2, Fall 2009, 6p.

“Heuristic Approach to Quantum Gravity in Terms of Incremental Curvature of Spacetime”, Preprint Draft

(Many additional classified projects and papers beyond this UNCLASSIFIED format)

PATENTS:

Infrared Countermeasures to Defeat the Man-Portable Air Defense (MANPAD) Missile Threat to civilian airliners:

Tail-source IR Countermeasures (TIRCM), NC#84443

Transponder-Missile Approach Warning (T-MAW), NC#84757

Space and Naval Warfare Systems Center, San Diego

SCHOLARLY PRESENTATIONS

“BEKENSTEIN’S PARTICLE HORIZON APPROACH TO AVOID THE COSMOLOGICAL SINGULARITY”, The UTSA-SwRI Graduate Student Symposium for Astro/Space Physics & Planetary science, October 11, 2019

BEKENSTEIN’S ENTROPY BOUND AND THE VERY EARLY UNIVERSE, UTSA College of Sciences Research Conference, October 6, 2017

“THE FIRST MOMENT OF THE UNIVERSE: TEMPERATURE AND ENTROPY PATHS TO THE PLANCK SCALE”, UTSA=SwRI Astronomy and Space Physics Graduate Symposium, September 25, 2015

GRANTING ACTIVITIES

JOHN TEMPLETON FOUNDATION GRANT PROPOSAL: Research into the First Moment of the Universe, ID:47975, March 2013 (Unfunded)

SERVICE ACTIVITIES

DISTINGUISHED SPEAKERS HOSTED FOR THE UTSA PHYSICS AND ASTRONOMY GRADUATE RESEARCH SEMINAR:

Dr. John Mather (Nobel Laureate), NASA James Webb Space Telescope Senior Project Scientist (COBE Satellite Co-PI), September 27-29, 2012 (Seminar and public talk)

Sir Roger Penrose (Nobel Laureate, 2019), December 3-8, 2013 (Seminar, Public Talk, and numerous discussions).

Prof. Jacob Bekenstein, Hebrew University of Jerusalem, April 13-18, 2015 (Seminar, Public Talks and numerous private discussions)

Prof. Dennis Ugolini, Chair, Dept. of Physics, Trinity University, “Advanced LIGO: Expanding the Search for Gravitational Waves”, September 27, 2013

Prof. Andres Larraza, Chair, Dept. of Physics, Naval Postgraduate School, “The Crookes Radiometer: How a Toy Pushed the Frontiers of Physics”, March 26, 2015

Prof. Richard Matzner, University of Texas, Dept. of Physics, “A Test of the Weak Equivalence Principle Using Laser-Ranged Satellites”, April 12, 2019

Prof. Dennis Ugolini, Chair, Dept. of Physics, Trinity University, “Teaching Gravitational-Wave Astronomy in the Undergraduate Laboratory, November 15, 2019

Matthew A. Greenhouse, GSFC, James Webb Space Telescope Program Update,
September 25, 2020

Raphael Bousso, University of California at Berkeley, April 9, 2021

Presentation, "WHY BE AN ASTRONOMER", Chase Hill/May Elementary School,
October 2012