J. Pace VanDevender, PhD

President, Strange Power Inc · Principal Investigator, MQN Collaboration
President, VanDevender Enterprises LLC · Emeritus VP & CTO, Sandia National Laboratories

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EDUCATION

Ph.D. in Plasma Physics, Imperial College of Science and Technology, University of London (Marshall Scholar), 1974; M.A. in Physics, Dartmouth College, 1971; B.A. in Physics, Vanderbilt University, 1969.

WORK EXPERIENCE

President, Strange Power Inc
(November 2025 to Present)
Strange Power Inc was founded in November 2025 to commercialize results of the MQN Collaboration. The company's purpose is to develop, produce, market, and operate fusion power plants based on thermonuclear plasma confinement by Magnetized Quark Nuggets (MQNs) — a candidate for dark matter, the unseen mass holding galaxies together, composed of equal numbers of up, down, and strange quarks. Seven peer-reviewed publications support the MQN hypothesis (see Principal Investigator, MQN Collaboration below).

Principal Investigator, MQN Collaboration; President of VanDevender Enterprises, LLC
(July 2005 to Present)

- As Principal Investigator of the MQN Collaboration, Pace led a virtual organization of scientists, engineers, and explorers to develop and test the MQN hypotheses for dark matter and apply the results to MQN Confined Fusion Energy.
- Doing business as VanDevender Enterprises LLC, Pace provided technical reviews of nuclear fusion and fission startups for potential investors and conducted personal research in high-energy-density science and technology: the system design for the Plasma Power Station (PPS); LASNEX simulations for Quasi Spherical Direct Drive (QSDD) fusion capsules; theory and experiments on the Inverse Diode; the Clam Shell Magnetically Insulated Transmission Line (CSMITL); and anomalous current losses on the Z Machine at Sandia National Laboratories.

Emeritus Vice President, Sandia National Laboratories
(July 2005 to Present)
Pace contributed to the national interest through chairing the Independent Assessment Team of Sandia's Integrated Enabling Services, consulting with Sandia managers and executives, and participating in technical and managerial reviews.

Vice President, Science, Technology, and Partnerships Division; Vice President, Science, Technology, and Engineering Strategic Management Unit; Chief Technology Officer; and Chief Scientific Officer for the Nuclear Weapons Program
(September 2003 to June 2005)
Pace led and/or managed the research, development and engineering in nanosciences, materials and process sciences, microelectronics/microsystems and optoelectronics, advanced manufacturing, computational sciences, modeling and simulation science, and high-energy density physics. He was also the executive accountable for enabling the foundational technologies of the laboratory and was accountable for Sandia’s partnership program with industry and the university community. He formed and chaired the Tri-Lab CTO Council for greater collaboration among the NNSA weapon laboratories. He also integrated the Inertial Fusion and Magnetic Fusion organizations at Sandia for greater synergism.

Director, Executive Staff
(July 2002 to September 2003)
As Director of Executive Staff at Sandia National Laboratories, Dr. Pace VanDevender was in charge of Congressional relations, governance initiatives, strategic planning, state-government relations, quality assurance, performance assurance, laboratory assessment, issues management, corporate investigations, the ombuds program, and the support of the Sandia President and Executive Vice President.

Chief Information Officer
(July 1998 to July 2002)
As the CIO at Sandia National Laboratories, Pace was responsible for the information infrastructure, for cyber security, and for making information technology a compelling advantage for doing science, engineering and manufacturing. He led the System of Laboratories Computing Coordinating Committee and addressed system-wide cyber issues in a close working collaboration with the Department of Energy.

Director, Science Policy Center
(February 1998 to July 1998)
As Director, Science Policy Center, Pace led a lab-wide team to contribute to the national debate on the future of science policy in the US and developed the policy concept and framework for surety and validated it with a national workshop at the National Academy of Sciences.

President, Prosperity Institute Inc
(May 1995 to February 1998)
As Director, National Industrial Alliances Center at Sandia National Laboratories, Pace pioneered Prosperity Games, which are planning tools derived from executive level war games and extended through research on how people make decisions at each level of a complex organization. Intrigued by requests from multi-national corporations for this service and interested in learning, first hand, how the private sector functions, Pace incorporated Prosperity Institute as a for-profit corporation in 1995 to offer Prosperity Games for developing strategy, leadership, and organizations in for-profit commercial corporations. In addition, he partnered with Sandia National Laboratories to explore policy issues to counter the emerging terrorist threats through Prosperity Games for the President's Commission on Critical Infrastructure Protection. The results contributed to two Presidential Decision Directives establishing policy for the defending against terrorist activity in the United States. He served as President, while on leave of absence from Sandia National Laboratories.

Director of National Industrial Alliances Center, Sandia National Laboratories
(October 1993 to December 1995)
This Center was a start-up operation to discern the customer requirements for national laboratory contributions to industry and to implement national alliances with industry, government, national laboratory, and academic institutions to enhance the competitiveness of the US industrial base. Manufacturing was the focus. Electronics was the first target. Quality Functional Deployment, Prosperity Games, and Roadmap Making, were used to provide valued service in the national interest to key personnel in industry, government (Departments of Energy and Commerce, Office of Science and Technology Policy, Senate, and House of Representatives, ARPA, and NIST), multi-purpose national laboratories, universities, and think tanks.

The team worked with industry and government leaders to roadmap the technology and policy options for electronics manufacturing in the United States and its implementation. The work was sanctioned by the National Science and Technology Council through the Civilian Industrial Technology Committee and the Electronics Subcommittee in support of the National Electronics Manufacturing Initiative (NEMI).

Director of Corporate Communications
(May 1993 to September 1993)
During the transition from AT&T to Martin Marietta contract management, Pace served in this position and worked effectively to further the following goals, which are continued by his successor from Martin Marietta: He created a "One Sandia" ethos for greater synergism and propagated the corresponding message for every Sandian to communicate as the central message for present and future customers. He managed opportunities like the Depleted Uranium Legacy, Salary Freeze, Transition Communications, and Secretary O'Leary's Vision for the Department. Finally, he developed the industry-government-university-laboratory network for establishing Sandia as the service leader for industrial competitiveness.

Director of the Center for Pulsed Power Sciences
(1984 to 1993)
Pace led a recognized world-class science and technology organization in x-ray physics, Inertial Confinement Fusion, nuclear weapon effects simulation, directed energy weapons, and pulsed power sciences. He established a Sandia Core Competency in Pulsed Power Sciences in preparation for the cessation of underground testing, for a differentiating strength in industrial processing (Quantum Manufacturing) in synergism with the Sandia Materials Core Competency, and for post-Cold War directed energy weaponry. During this period, he was the Program manager for Sandia's work in the Strategic Defense Initiative (SDI) for the DOD and for the Nuclear Directed Energy Weapons (NDEW) Program for the DOE. He served on the SDIO Scientific Advisory Panel for Directed Energy Weapons.

Manager of Fusion Research
(1982 to 1984)
Pace managed the Sandia Inertial Confinement Fusion Program, restructured the work to concentrate on the lithium-ion approach to driving inertial confinement fusion. During his tenure, Sandia commissioned the Particle Beam Fusion Accelerator II (PBFA II) Accelerator. He served as acting Director of Pulsed Power Sciences for 9 months in 1983, during which time Pace initiated the Strategic Defense Facility (SDF) Project at Sandia National Laboratories.

Supervisor of Pulsed Power Research
(1978 to 1982)
Pace managed the pulsed power research organization during the construction and testing of the Particle Beam Fusion Accelerator I (PBFA I) and the design, marketing, and initial construction of the Particle Beam Fusion Accelerator II (PBFA II) and the design of the Saturn accelerator.

Senior Member of Technical Staff
(1974 to 1978)
Pace conducted research and technology development and deployment in pulsed power technology in the areas of water breakdown, multi-channel water switching, prepulse voltage reduction, magnetically inhibited vacuum flashover, magnetically insulated power flow in vacuum insulated transmission lines, imploding plasmas, and ion-beam focusing. He led the successful Power Flow Project. The work resulted in the design and construction of the Proto II and PBFA I.

Marshall Scholar, Imperial College of Science and Technology, University of London, England (1971 to 1974)
Pace advocated the introduction of pulsed power from Aldermaston Weapon Research Establishment (currently called Atomic Weapons Establishment, AWE) to Imperial College, constructed their first accelerator with sponsorship by AWRE's Charlie Martin, and conducted first two-stream and ion-acoustic instability heating with an intense relativistic electron beam heating of a plasma and introduced laser scattering diagnostics with an intense beam to measure the resulting plasma properties.

US Army Military Service
(1969 to 1971)
Pace was drafted into Army for Viet Nam engagement, trained in light arms infantry, and selected for Special Science and Engineering Assistant. During service, Pace obtained his Master's Degree in Physics with research in solid state from Dartmouth College. He was honorably discharged as Specialist 5.

Physicist, Lawrence Livermore National Laboratory
(1968/1969)
He researched the equation of state of iron nickel alloys in shock wave experiments as a summer intern (1968) and one approach to a short pulse neutron source for nuclear weapon diagnostics as a summer intern and subsequently as a staff physicist (1969).

HONORS

- Department of Energy's Lawrence Award for Physics in 1991 for his contributions to Pulsed Power Research and Technology
- Fellow of the American Physical Society
- Fellow of the American Association for the Advancement of Science
- Senior Member of the Institute of Electrical and Electronic Engineers

OTHER ROLES

- Member of the Naval Studies Board from 1989 to 1997
- Sub-Team Leader on Restructuring Sandia from 1990 to 1991
- Environment, Safety, and Health Communications Manager for the 1991 Tiger Team
- Currently or formerly member of various external review panels for the National Research Council, Argonne National Laboratory, Los Alamos National Laboratory, Jefferson Laboratory, Princeton University, and the Department of Defense Strategic Defense Initiative (Directed Energy Weapons)

RECENT PUBLICATIONS

J. Pace VanDevender, T. Sloan. A search for Magnetized Quark Nuggets (MQNs), a candidate for dark matter, accumulating in iron ore. Universe 10 (1), 27 (2024) https://doi.org/10.3390/universe10010027.

T. Sloan, J. Pace VanDevender, Tracianne B. Neilsen, Robert L. Baskin, Gabriel Fronk, Criss Swaim, Rinat Zakirov & Haydn Jones, Magnetised quark nuggets in the atmosphere. Sci. Rep. 11, 22432 (2021). https://doi.org/10.1038/s41598-021-01658-9.

J. Pace VanDevender, Robert G. Schmitt, Niall McGinley, David G. Duggan, Seamus McGinty, Aaron P. VanDevender, Peter Wilson, Deborah Dixon, Helen Girard, and Jacquelyn McRae, Results of search for magnetised quark-nugget dark matter from radial impacts on earth. Universe 7(5), 116 (2021). https://doi.org/10.3390/universe7050116.

J. Pace VanDevender, Aaron P. VanDevender, P. Wilson, B. F. Hammel, & N. McGinley. Limits on magnetized quark-nugget dark matter from episodic natural events. Universe 7(2), 35 (2021). https://doi.org/10.3390/universe7020035.

J. Pace VanDevender, C. J. Buchenauer, C. Cai, Aaron P. VanDevender, A. P. & B. A. Ulmen, Radio frequency emissions from dark-matter-candidate magnetised quark nuggets interacting with matter. Sci. Rep. 10, 13756 (2020). https://doi.org/10.1038/s41598-020-70718-3.

J. Pace VanDevender, I. M. Shoemaker, T. Sloan, A. P. VanDevender, & B. A. Ulmen, Mass distribution of magnetised quark nugget dark matter and comparison with requirements and observations. Sci. Rep. 10, 17903 (2020). https://doi.org/10.1038/s41598-020-74984-z.

J. Pace VanDevender, Aaron P. VanDevender, T. Sloan, Criss Swaim, Peter Wilson, Robert. G. Schmitt, Rinat Zakirov, Josh Blum, James L. Cross Sr., and Niall McGinley. Detection of magnetized quark-nuggets, a candidate for dark matter. Sci. Rep. 7, 8758 (2017). *https://doi.org/10.1038/s41598-017-09087-3*.

J. Pace VanDevender, Timothy D. Pointon, David B. Seidel, Kenneth W. Struve, Christopher Jennings, Bryan V. Oliver, and Larry X. Schneider. Requirements for self-magnetically insulated transmission lines. Physical Review Special Topics Accelerators and Beams 18 030401 (2015). https://doi.org/10.1103/PhysRevSTAB.18.030401.

J. Pace VanDevender, William L. Langston, Michael F. Pasik, Rebecca S. Coats, Timothy D. Pointon, David B. Seidel, G. Randal McKee, and Larry X. Schneider. New self-magnetically insulated connection of multi-level accelerators to a common load. Physical Review Special Topics Accelerators and Beams 18 030403 (2015). https://doi.org/10.1103/PhysRevSTAB.18.030403.