

CURRICULUM VITAE

Jeffery C. Chancellor, Ph.D.

Department of Physics and Astronomy
Louisiana State University
Baton Rouge, LA 70803 USA

laboratory
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BIOGRAPHICAL DATA

Date and Place of Birth	September 1, 1970 Nacogdoches, TX.
Citizenship	USA

EDUCATION

Ph.D. in Applied Physics	2018
Texas A&M (USA)	
Advisor: Prof. Helmut Katzgraber	
M.S. in Physics	2005
University of Houston (USA)	
Advisor: Prof. Larry Pinsky	
B.S. in Physics	2003
University of Houston (USA)	
Minor: Mathematics	
International School of Cosmic Ray Astrophysics	2006
15th Course: "Astrophysics at Ultra-high Energies" (Italy)	
Center for Integrated Space Weather Modeling	2008
NSF Space Weather Summer School (USA)	

RESEARCH & PROFESSIONAL EXPERIENCE

Assistant Professor, tenure track	05/2019 – present
Department of Physics & Astronomy	
Louisiana State University, Baton Rouge, LA, USA	
Adjunct Assistant Professor	10/2019 – present
Department of Preventive Medicine & Population Health	
University of Texas Medical Branch, Galveston, TX, USA	
Founder & Chief Technical Officer	01/2020 – 06/2023
Atlantis Industries, USA	
Research Scientist	09/2015 – 05/2019
Computational Physics Group, Department of Physics & Astronomy	
Texas A&M University, College Station, USA	
Radiation Team Lead Scientist	2013 – 2015
Inspiration Mars Mission, USA	
Radiation Health Officer and Space Weather Advisor	2012
Red Bull Stratos Medical Team, USA	

Scientific Advisory Council NSBRI Center of Acute Radiation Research (CARR), USA	2011 – 2014
Scientist, Radiation Effects Program Manager National Space Biomedical Research Institute, USA	2010 – 2014
Senior Research Engineer Lockheed Martin Space Operations, NASA Johnson Space Center, USA	2005 – 2008
Research Scientist Lockheed Martin Space Operations, NASA Johnson Space Center, USA	2003 – 2005
Research Associate X-Ray & Space Physics Labs Department of Physics, University of Houston, USA	2000 – 2005
Operations and Quality Assurance Manager Morton's INC., USA	1997 – 1999
Flight Mechanic, United States Coast Guard , USA	1989 – 1996

AWARDS

- Marie Marvingt Award**
Aerospace Medical Association (AsMA) 2018
For excellence and innovation in aerospace medicine
- Hubble 25th Anniversary Commendation**
National Aeronautics & Space Administration (NASA) 2016
- NASA Peer Award**
Awarded by Human Research Program 2012
Outstanding contribution to NASA's Human Research Program

RESEARCH INTERESTS

Applications of how heavy ion radiation interacts with soft and condensed matter for manned spaceflight vehicle structure, shielding, and clinical healthcare. Monte Carlo modeling of heavy charged nuclei and materials and the angular discrepancy in off-axis fragments produced by inelastic nuclear interactions in particle transport codes

- Heavy ion interactions with soft and condensed matter
- Applications of Artificial Intelligence
- Radiation transport modeling (PHITS,FLUKA)
- Spacecraft shielding development
- Simulation of radiation environments in space
- Radiobiology
- Space radiation dosimetry
- Electromagnetic shielding & modeling

GRANTS

Research Grants**Current**

Audax Exploration & Geospace Integrated Strategies, LLC
 Grant: NOAA Small Business Innovation Research (SBIR) Phase 1 Award
AI Based Long Range Space Weather Prediction System.
 10/2023-4/2025, US \$90,000,

Principal Investigator (PI)
 Grant: Direct Funding, NASA HRP Space Radiation Element
Direct comparison of the two methods of generating a ground-based space radiation analog and validation of a novel approach for ground-based simulations of the intravehicular GCR environment.
 6/2024-5/2025, US \$819,079

Principal Investigator (PI)
 Grant: LaSPACE Graduate Research Fellowship
Translating Space Radiation Genotoxicity from Rodent to a Non-Human Primate Model Using CRISPR/CAS9 and Radiobiology Computational Models.
 8/2023 – 07/2024, US \$20,000

Principal Investigator (PI)
 Grant: LaSPACE Graduate Research Fellowship
Improvement of the Radiobiological Models by In-vivo Validation to Numerical Methods.
 8/2023 – 07/2024, US \$20,000

Principal Investigator (PI)
 Grant: LaSPACE Undergraduate Research Assistantship (LURA)
Development of Scientific Instrumentation Payloads to Measure the Space Radiation Environment in Cis-Lunar, Lunar Surface, and Lunar Orbit.
 8/2023 – 07/2024, US \$6,000

Principal Investigator (PI)
 Grant: Texas Advanced Computing Center (TACC) Allocation
AI Framework to Design Radiation Shielding for Spacecraft Using Machine Topology Optimization.
 2022-2024, Stampede2 cluster 53, 856, 000 CPUh

Co-Investigator (Co-I)
 Grant: NASA 2021: Lunar Explorer Instrument for Space Biology Applications
Impacts of radiation and space travel stress stimuli expected during long-duration exploration space missions on photosynthesis, crop growth and yield.
 12/2022-12/2023, US \$8,000

Principal Investigator (PI)
 Grant: NASA Human Research Program HERO Appendix C: Topics in Human Health Countermeasures, Behavioral Performance, and Space Radiation
Integration of in-silico and in-vivo models for determining preclinical indicators and/or integrated biomarkers of radiation induced vascular dysfunction.
 6/2021-5/2024, US \$1,796,018

Principal Investigator (PI)
 Grant: LSU College of Science and Office of Research & Development Funds
Tiger Eye 1 Mission To Lunar Surface.
 1/2021-12/2024, US \$75,000

Institutional Principal Investigator (PI)

Grant: NASA Space Biology Appendix D: Solicitation of Proposals for Flight and Ground Space Biology Research

Develop a novel single-cell biodosimetry for brain genomic instability and neurodegeneration to predict clinical health outcomes in human spaceflight crews.

11/2020 – 10/2023, US \$350,000

Co-Investigator (Co-I)

Grant: TRISH Space Radiation Solicitation (TSRAD-2020)

Using human stem-cell derived vascular, neural and cardiac 3D tissues to determine countermeasures for radiation.

10/2020 – 09/2023, US \$68,612

Completed

Atlantis Industries, INC.

Grant: Small Business Innovation Research (SBIR) Phase 2 Award

Automated Space Weather Anomaly Detection & Countermeasure Response.

2022, US \$1,500,000

Atlantis Industries, INC.

Grant: Small Business Innovation Research (SBIR) Phase 2 Award

AI-Enabled Radiation Modeling and Design of Advanced Space Electronics in xGEO.

2022, US \$750,000

Co- Investigator (Co-I)

Grant: TRISH Enhancing eXploration Platforms and ANalog Definition (EXPAND) Program

Characterization of Radiation Environment During SpaceX Inspiration 4 Mission.

5/2021-9/2021, US \$69,945

Principal Investigator (PI)

Grant: Texas Advanced Computing Center (TACC) Allocation

Emulation of the Heavy-Charged Particle Spectra Found in Microgravity

2021-2022, Stampede2 cluster 2, 112, 000 CPUh

Principal Investigator (PI)

Grant: LaSPACE Graduate Research Fellowship

Computational Model of the Human Brain to Study Dose Topology on the Sub-micron Scale.

8/2021 – 07/2022, US \$16,000

Principal Investigator (PI)

Grant: LaSPACE Undergraduate Research Assistantship (LURA)

Characterization of Radiation Environment During SpaceX Inspiration 4 Mission.

8/2021 – 07/2022, US \$4,700

Atlantis Industries, INC.

Grant: Small Business Innovation Research (SBIR) Phase 1 Award

AI-Enabled Radiation Modeling and Design of Advanced Space Electronics in xGEO.

2021, US \$50,000

Principal Investigator (PI)

Grant: Texas Advanced Computing Center (TACC) Allocation

Emulation of the Heavy-Charged Particle Spectra Found in Microgravity

2019, Stampede2 cluster 2, 500, 000 CPUh

Principal Investigator (PI)

Grant: LaSPACE Graduate Research Fellowship

A physiological scalable analog that can simulate the non-homogenous space radiation environment in a laboratory setting.

8/2020 – 07/2021, US \$16,000

Principal Investigator (PI)

Grant: LaSPACE Undergraduate Research Assistantship (LURA)

Development of an AI based deep generative design framework and topology optimization for spacecraft radiation shielding.

8/2020 – 07/2021, US \$12,000

Principal Investigator (PI)

Grant: LSU Center for Computation & Technology Allocation

Physiologically Scalable Moderator Block for Non-Homogenous Exposures

2020, SuperMic cluster 291, 840 CPUh

Supercomputing Time Allocation Grants

Texas Advanced Computing Center (TACC) Allocation, Stampede2 cluster	25,000 CPUh	2018
Texas Advanced Computing Center (TACC) Allocation, Stampede2 cluster	21,000 CPUh	2019
LSU Center for Computation & Technology Allocation, SuperMic cluster	50,000 CPUh	2019
LSU Center for Computation & Technology Allocation, SuperMike II cluster	2,000 CPUh	2019
LSU Center for Computation & Technology Allocation, SuperMike II cluster	291,840 CPUh	2020
Texas Advanced Computing Center (TACC) Allocation, Stampede2 cluster	250,000 CPUh	2020
Texas Advanced Computing Center (TACC) Allocation, Stampede2 cluster	100,000 CPUh	2021
Texas Advanced Computing Center (TACC) Allocation, Stampede2 cluster	2,112,000 CPUh	2021
Texas Advanced Computing Center (TACC) Allocation, Stampede2 cluster	960,000 CPUh	2021
Texas Advanced Computing Center (TACC) Allocation, Stampede2 cluster	25,960,000 CPUh	2022

PUBLICATIONS

Publications include 2 book chapters, 2 commissioned special reports, and 3 patents.

Papers

Nemec-Bakk A., Sridharan V., Willey J.S., Koturbash I., Williams D.K., Patel C.M., Borg A.M., Chesal M.C., Reno K., Gifford G., Newhauser W.A., Williams J., **Chancellor JC**, Boerma M., Sex-specific effects on the heart from combined exposure to simulated galactic cosmic radiation and microgravity. *Life Sciences and Space Research*. 2024 *submitted*.

Chancellor JC, The Impact of Ions on DNA. *Viewpoint Physics*.116, 41. DOI: 10.1103/Physics.16.41. (2023)

Chesel M., Blue RS, Aunon-Chancellor SA **Chancellor JC**, Novel Tetrahedral Human Phantoms for Space Radiation Dose Assessment. *Nature Microgravity (submitted)*.123.3 <https://doi.org/10.48550/arxiv.2303.05564>. 10.48550/ARXIV.2303.05564. (2023)

McMahon M. **Chancellor JC**, Accident Simulations for Nuclear Power Plants Impacting Louisiana: Differences in 2017 vs. 1992 Protective Action Guidelines. *Health Physics*.123.3 (2022): 218-228.

Nemec-Bakk, A., Sridharan, V., Landes, R.D., Singh, P., Cao, M., Dominic, P., Seawright, J.W., **Chancellor JC**, and Boerma, M., Effects of low-dose oxygen ions on cardiac function and structure in female C57BL/6J mice. *Life Sciences in Space Research*. (2022)

Chancellor JC, Nowady C, Williams JA, Aunon-Chancellor SM, Chesal M, Looper J, Newhauser W. Everything You Wanted to Know About Space Radiation but Were Afraid to Ask. *Environmental Science & Health, Part C, Special Edition: Overcoming the Challenges of Space Environment*, Part C, 39:2, 113-128, DOI: 10.1080/26896583.2021.1897273 (2021)

Willey JS, Britten RA, Tahimic C, Sanford LD, Morteux M, Mao XW, **Chancellor JC**. Biological and Neurobehavioral Effects of Simulated Spaceflight Radiation and Microgravity as Combined Spaceflight Hazards. *Environmental Science & Health, Part C, Special Edition: Overcoming the Challenges of Space Environment*, 39:2, 129-179, DOI: 10.1080/26896583.2021.1885283 (2021)

Blue RS, **Chancellor JC**, Suresh R, Carnell L, Reyes D, Nowady C, Antonsen EL. Challenges in managing acute space radiation-induced illnesses in exploration spaceflight
Aerospace Medicine & Human Performance, Nov 1;90(11):966-977 (2019)

Blue RS, **Chancellor JC**, Antonsen EL, Bayuse TM, Daniels, VR, Wotring, VE. Limitations in Predicting Radiation-Induced Pharmaceutical Instability during Long-Duration Spaceflight.
Nature Microgravity, Jun;5(1) (2019)

Chancellor JC, Guetersloh SB, Cengel KA, Ford J, Katzgraber HG. Targeted nuclear spallation from moderator block design for a ground-based space radiation analog
Nature Microgravity, submitted(arXiv:1706.02727v2) (2019)

Chancellor JC, Blue RS, Cengel KA, Aunon SM, Rubins KH, Katzgraber HG, Kennedy AR. Limitations in predicting the space radiation health risk for exploration astronauts.
Nature Microgravity, Apr;1(4) (2018)

Chancellor JC, Aunon SM, Charles J. Medical Implications of Space Radiation Exposure due to low altitude polar orbits.
Aerospace Medicine & Human Performance, Jan 1; 89(1):3-8 (2018)

Chancellor JC, Scott GB, Sutton JP. Space Radiation: The Number One Risk to Astronaut Health beyond Low Earth Orbit.
Life 4, 491 (2014), ISSN 2075-1729.

Reyes DP, McClure SS, **Chancellor JC**, Blue RS, Castleberry TL, Vanderploeg JM. Implanted medical devices in the radiation environment of commercial spaceflight.
Aerospace Medicine & Human Performance, 85(11): 1106-13 (2014)

Pinsky L, **Chancellor JC**
Status of the development of a new active personal dosimeter for use in space radiation environments. *Proceedings of the IEEE Aerospace Conference Big Sky, MT, March 3–10.* (2008)

Pinsky L, **Chancellor JC**, Minthaka D
Evolving the Medipix2 Technology For Use As An Active Space Radiation Dosimeter. *IEEEAC.* (2008)

Pinsky L, **Chancellor JC**
Development of a New Active Personal Dosimeter for Use in Space Radiation Environments. *IEEEAC.* (2007)

Book Chapters

Elgart SR, Stoffle NN, **Chancellor JC**, Allnut RA, Bagshaw M, Blue RS, *Aerospace Radiation*. Fundamentals of Aerospace Medicine, Davis, J (2020)

Chancellor JC, Watkins S., *Space Radiation*. In Mayo Clinic: Medicine in Challenging Environments for Apple iOS (Version 7.1) Stepanek J, Johnson R, Cocco D eds. Retrieved from <http://www.viacuro.com/MICE/> (2014)

Intellectual Property

AI based time-frequency analysis of the Sun's X-ray signature and measurable changes in the Sun's environment, to predict a pending SEP and the intensity of the proton flux
Technology Disclosure (2022)

iOS Interface for Semiconductor Radiation Detector Technology
Technology Disclosure (2021)

System and Method for AI Based Spacecraft Shielding Design
U.S. Provisional Patent 63/316,832 (2021)

System and Method for Simulating Non-Homogeneous Space Radiation Environment
U.S. Provisional Patent 63/257,434(2021)

Radiation Detecting Wearable Devices
U.S. Patent 9,759,672 B2 (2017)

Radiation Microdosimeters Correlated with Biological Cells and Cell Components
U.S. Patent 8,858,888 B2 (2014)

Special Reports

Note: *Not published in public domain.*

Chancellor JC, Clark JC

“Radiation Strategy for Inspiration Mars Mission,”

Prepared for the Inspiration Mars Foundation and submitted to the White House Office of Science & Technology (OSTP).

Chancellor JC, Moore E

“Feasibility Study for a Research/Clinical Heavy Ion Accelerator,”

Confidential report commissioned by Louisiana State University and the Mary Bird Perkins Cancer Center, Baton Rouge, LA. (2012)

TEACHING

Graduate Lectures

MEDP 7538 “Monte Carlo Methods,” Department of Physics & Astronomy, Louisiana State University (Fall 2023)

International Space University, Human Performance in Space, France, *“Everything you wanted to know about space radiation but were afraid to ask.”*. Mar. 2021

MEDP 7121-1 “Radiation Biology,” Department of Physics & Astronomy, Louisiana State University (Spring 2020, 2021, 2022, 2023, 2024)

MEDP-4351 “Radiation Detection and Instrumentation” Department of Physics & Astronomy, Louisiana State University (Fall 2020, 2021)

MEDP-4352 “Radiation Detection and Instrumentation Laboratory” Department of Physics & Astronomy, Louisiana State University (Fall 2020, 2021)

MECH 599 Design For Aerospace Environments, George R. Brown School of Engineering, Department of Mechanical Engineering and Materials Science, Rice University. Oct 2018, *“The Operational Space Radiation Environment and the Uncertainties of Predicting Human Health Outcomes”*.

Invited by: Leroy Chiao, Ph.D., former NASA Astronaut, Department of Mechanical Engineering, Rice University.

ASTRO 470 Solar System Physics, Department of Physics, Rice University, Houston, TX. Lectures given on both Nov 2015 and Sept 2014, *“Space Radiation and Operational Space Flight”*.

Invited by: David Alexander, Ph.D., Professor. Director of Rice Space Institute.

MECH 599 Design For Aerospace Environments, George R. Brown School of Engineering, Department of Mechanical Engineering and Materials Science, Rice University. Oct 2015, *“Space Radiation”*.

Invited by: Leroy Chiao, Ph.D., former NASA Astronaut, Department of Mechanical Engineering, Rice University.

ASTE 527 Space Exploration Architectures Concept Synthesis Studio, Astronautical Engineering Department, University of Southern California, Los Angeles. Sept 2014, *“Spaceflight Operations in the Interplanetary Space Radiation Environment”*.

Invited by: Madhu Thangavelu, Professor.

ASEN 3036 Introduction to Human Spaceflight, Aerospace Engineering Sciences Department, College of Engineering and Applied Science, University of Colorado, Boulder. April 2014, *“Space Radiation and Operational Spaceflight”*.

Invited by: Jim Voss, Professor, former NASA Astronaut, Vice President, Space Exploration Systems, Sierra Nevada Co.

AASEN 5016 Space Life Sciences, Aerospace Engineering Sciences Department, College of Engineering and Applied Science, University of Colorado, Boulder. April 2014, “*Space Radiation Pathogenesis*”.

Invited by: Jim Voss, Professor, former NASA Astronaut, Vice President, Space Exploration Systems, Sierra Nevada Co.

2014 Health Physics Society Professional Development School. Baton Rouge, February 12-15, 2014, “*The Space Radiation Environment and Health Risks*”.

Invited by: Wayne Newhauser, Ph.D., Dr. Charles Smith Chair of Medical Physics, Professor and Director, Medical Physics and Health Physics, Louisiana State University.

2014 Health Physics Society Professional Development School. Baton Rouge, February 12-15, 2014, “*Space Radiation Risk and Planning Strategies*”.

Invited by: Wayne Newhauser, Ph.D., Dr. Charles Smith Chair of Medical Physics, Professor and Director, Medical Physics and Health Physics, Louisiana State University.

MECH 599 Design For Aerospace Environments, George R. Brown School of Engineering, Department of Mechanical Engineering and Materials Science, Rice University. Oct 2013, “*Ionizing Space Radiation and Space Vehicle Shielding*”.

Invited by: Leroy Chiao, Ph.D., former NASA Astronaut, Department of Mechanical Engineering, Rice University.

MECH 599 Design For Aerospace Environments, George R. Brown School of Engineering, Department of Mechanical Engineering and Materials Science, Rice University. Sept 2013, “*The Sun and Interactions*”.

Invited by: Leroy Chiao, Ph.D., former NASA Astronaut, Department of Mechanical Engineering, Rice University.

Short Courses

UTMB School of Medicine, University of Texas Medical Branch Aerospace Medicine Short Course, Galveston, TX. Jul. 2023, “*NSFW: A Look Behind the Curtain at the Dirty Secrets of Space Radiation Risk*”

UTMB School of Medicine, University of Texas Medical Branch Aerospace Medicine Short Course, Galveston, TX. Jul. 2022, “*NSFW: A Look Behind the Curtain at the Dirty Secrets of Space Radiation Risk*”

UTMB School of Medicine, University of Texas Medical Branch Aerospace Medicine Short Course, Galveston, TX. Jul. 2021, “*Radiation is Hard: Challenges of Pathogenesis and Translation into Clinical Outcomes*”

UTMB School of Medicine, University of Texas Medical Branch Aerospace Medicine Short Course, Galveston, TX. Jul. 2020, “*Radiation is Hard: Challenges of Pathogenesis and Translation into Clinical Outcomes*”

UTMB School of Medicine, University of Texas Medical Branch Aerospace Medicine Short Course, Galveston, TX. Jul. 2019, “*Radiation is Hard: Challenges of Pathogenesis and Translation into Clinical Outcomes*”

UTMB School of Medicine, University of Texas Medical Branch Aerospace Medicine Short Course, Galveston, TX. Jul. 2018, “*The Uncertainties of Predicting Human Health Outcomes*”

UTMB School of Medicine, University of Texas Medical Branch Aerospace Medicine Short Course, Galveston, TX. Jul. 2017, “*The Operational Space Radiation Environment and the Uncertainties of Predicting Human Health Outcomes*”

Session Chair & Academic Faculty “*Space Radiation Medicine and Protection*,” 2014 Health Physics Society Professional Development School, Baton Rouge, LA. Feb 2014

UTMB School of Medicine, University of Texas Medical Branch Aerospace Medicine Short Course, Galveston, TX. Jul. 2014, “*Radiation Health Risks For Long-Duration Spaceflight Missions Outside of Low-Earth Orbit*”

UTMB School of Medicine, University of Texas Medical Branch Aerospace Medicine Short Course, Galveston, TX. Jul. 2013, “*Radiation Operations for Space Medicine Support*”

Bioastronautics Summer Institute, National Space Biomedical Research Institute. Houston, TX. May, 2013, “*Radiation Health Risk For Long-Duration Spaceflight Missions Outside of Low-Earth Orbit*”

 ADVISING

Current Graduate Students

Nousha Afshari, **2023 LaSpace Graduate Fellow**, *Physics*
 Megan Chesal, **2020 & 2021 LaSpace Graduate Fellow**, *Physics*
 Shanice Manning, **2023 LaSpace Graduate Fellow**, *Physics*
 Hao Zuo, *Physics & Mathematics*

Current Undergraduate Students

Isaac Ponders, *Physics*
 Gregory Field, **2023 LaSpace Undergraduate Fellow**, *Electrical Engineering*

Former Students

Maria Kratz, M.S. *Bioengineering*
 Jared Taylor, Ph.D., *Physics*, now in medical physics residency.
 Jacob Miller, Honors Thesis, **2022 Fulbright Research Scholar** *Electrical Engineering*
 Duncan Wilkie, **2021 LaSpace Undergraduate Fellow** *Physics & Mathematics*
 Emily Freedman, *Mechanical Engineering*
 Michael McMahon, *Health Physics*
 Declan Fortune, *Mechanical Engineering*
 Lukas Kim, *Physics & Chemistry*
 Elizabeth Moore, Ph.D., MBA thesis research, *Feasibility Study for a Research/Clinical Heavy Ion Accelerator*, Wake Forest University (2013)
 Jake Normand, *Physics*
 Haly Pellegrin, **2021 LaSpace Undergraduate Fellow**, *Magna Cum Laude*, *Medical Physics*, graduated and now working as a research engineer with Geocent INC.

Thesis Committees

Jacob Miller, Honors Thesis Advisor, *Electrical Engineering*
 Ana Dieguez, MS, *Medical Physics*
 Elizabeth Park, MS, *Medical Physics*
 Zhongqiang Li, PhD, *Electrical & Computer Engineering*

International PhD Thesis Examiner

Stefania Peracchi, University of Wollongong, AUS, PhD, *Physics*

 INVITED TALKS

Lectures and talks include 1 Keynote address, 3 Grand Rounds lectures, and more than 30 invited talks at seminars, and colloquia.

Symposia, & Workshops

Johns Hopkins University, Baltimore, MD, Space Life Sciences Symposium, “*Space Radiation: Still a Problem?*” May. 2023

Louisiana State University, College of Science, Dean’s Reception, “*Research in the SpaRTAN Physics Laborator*” Jan. 2022

Johns Hopkins University, Baltimore, MD, Space Life Sciences Symposium, “*Space Radiation: Where is the Risk?*” Feb. 2021

Louisiana Space Grant Consortium, Baton Rouge, LA, LaSpace Annual Meeting, “*Research in the SpaRTAN Physics Laborator*” Oct. 2021

NASA Exploration Medical Capabilities (ExMC) Technical Interchange Meeting. Johnson Space Center, Houston, TX. “*The Operational Space Radiation Environment*”. June 2019

Department of Defense (DoD) Radiation Working Group, Defence Health Headquarters, Washington, D.C. “*The Operational Space Radiation Environment and Mitigation Strategies*”. June 2019

Texas A&M Research Computing Week, College Station, TX. “*Can you simulate the space radiation environment for more accurate ground-based radiobiology outcomes?*” June 2017

Special Colloquia to honor the career of Ann R. Kennedy, Ph.D., Perlman School of Medicine, University of Pennsylvania, Philadelphia, PA. “*Space Radiation-Induced Biological Effects: Important research findings from the Center of Acute Radiation Research at the University of Pennsylvania.*” Nov 2016”

Inspiration Mars Foundation Radiation Technical Interchange Meeting with NASA, Houston, TX. “*Inspiration Mars Radiation Mitigation Strategy*”. Jun 2013

National Space Biomedical Research Institute Acute Risk Workshop. Houston, TX. “*Operational Needs for Mitigating Space Radiation During Long-Duration Missions Outside of Low-Earth Orbit*”. Feb 2012

Houston Technology Collaboration Center Radiation Technologies Symposium, NASA Johnson Space Center, Webster, TX. “*Clinical versus space radiation*”. Sept 2015

Houston Technology Collaboration Center Radiation Technologies Symposium, NASA Johnson Space Center, Webster, TX. “*Wearable dosimetry and related technologies*”. Sept 2015

Colloquia & Seminars

Texas A&M University, School of Medicine, “*Zapping Away Cosmic Rays: A Honest Guide to Keeping Astronauts Not-So-Radioactive!*” April. 2024

University of Mississippi, Department of Physics, “*Radiation Schmadiation: The Laughing Matter of Outsmarting Cosmic Rays for Human Space Exploration*” March. 2024

University of Pennsylvania, Department of Radiation Oncology Invited Speaker Seminar, “*NSFW: A Look Behind the Curtain at Computational Space Radiobiology Mitigating the Dirty Secrets of Space Radiation Research*” Sept. 2023

Louisiana Nuclear Society, Baton Rouge, La, Continuing Professional Development Seminar, “*Shooting For the Stars- A Look Behind the Curtain on How the SPARTAN Physics Lab is Solving the Dirty Secrets of Space Radiation*” Apr. 2023

LSU Health Science Center, Shreveport, LA, Colloquia, Dept. of Pharmacology, Toxicology and Neuroscience, “*NSFW: A Look Behind the Curtain at Computational Space Radiobiology Mitigating the Dirty Secrets of Space Radiation Research*” May. 2022

University of Pennsylvania, Philadelphia, PA, Colloquia, Medical Physics Seminar “*Everything You Wanted to Know About Space Radiation But Were Afraid to Ask*” April. 2022

Southeastern Louisiana University, Hammond, LA, Colloquia, Dept. of Physics “*Ground-Based Space Radiation Analogs for Accurate Assessment of Human Health Outcomes*” March. 2022

University of Wisconsin, Madison, WI, Medical Physics Seminar, “*Development of Ground-based Analogs for Space Radiobiology Research*” Apr. 2021

University of Arkansas for Medical Sciences, Little Rock, AR, College of Public Health Seminar, “*Everything you wanted to know about space exploration but did not know whom to ask*” Apr. 2021

SpaceX Headquarters, Hawthorne, CA, Special Lecture to Medical and Radiation Teams, “*Everything you wanted to know about space radiation but were afraid to ask.*”. Dec. 2020

GSI Helmholtz Centre for Heavy Ion Research, Darmstadt, Germany, Biophysics Seminar, “*Emulation of the space radiation environment for materials testing and radiobiological experiments.*”. Nov. 2020

University of Wollongong, Centre for Medical Radiation Physics, Wollongong, Australia, “*Everything you wanted to know about space radiation but were afraid to ask.*”. Oct. 2020

Louisiana State University, Astronomy on Tap. Feb. 2020

Louisiana State University Health Science Center, Department of Molecular and Cellular Physiology, Shreveport, LA, “*Radiation Health Risks For Long-Duration Spaceflight Missions and the Uncertainties of Predicting Human Health Outcomes*”. Jan. 2020

World Extreme Medicine Conference. Edinburgh, Scotland “*Radiation is Hard: Challenges of Pathogenesis and Translation into Clinical Outcomes*”. Nov. 2019

University of British Columbia, Department of Physics & Astronomy, Vancouver, CA. “*Medical Challenges to Human Space Exploration*”. March 2019

Louisiana State University, Department of Physics & Astronomy, Baton Rouge, LA. “*Operational Space Radiation Environment: Analogs, Pathogenesis, and Translation Into Clinical Outcomes in Humans*”. Feb. 2019

University of Colorado, Boulder, Department of Aerospace Engineering, Boulder, CO. “*Operational Space Radiation Environment: Analogs, Pathogenesis, and Translation Into Clinical Outcomes in Humans*”. Feb. 2019

University of British Columbia, Outer Space Institute, Vancouver, CA. “*Space Colonization*”. Nov 2018

Sam Houston State University, Department of Physics, Huntsville, TX. “*Can you simulate the space radiation environment for more accurate ground-based radiobiology outcomes?*” Nov 2017

Rice University, Department of Physics, Houston, TX. “*Simulating the Interplanetary Space Weather Environment For Ground-based Radiobiology Experiments*”. Sept 2014

Wake Forest School of Medicine, Visiting Seminar Series, Winston-Salem, NC. “*Clinical Outcomes and Pathology of Low-Dose Space Radiation*”. Apr 2014

Baylor College of Medicine Center for Space Medicine Lecture Series, Houston, TX. “*Radiation Health Risk For Long-Duration Spaceflight Missions Outside of Low-Earth Orbit*”. Mar 2013

Rutgers University, Department of Toxicology Seminar, Environmental & Occupational Health Science Institute, New Jersey–Robert Wood Johnson Medical School, Piscataway, NJ. “*Confronting the Health Hazards of the Interplanetary Space Radiation Environment*”. Nov 2013

University of Texas Health Science Center, Department of Pathology Seminar, San Antonio, TX. “*The Challenges of Space Radiation Pathogenesis and Translation Into Clinical Outcomes*”. Oct 2013

Texas A&M Space Life Sciences Lecture Series. College Station, TX. “*Research Opportunities in Space Life Sciences*”. Oct 2011

Texas A&M Department of Nuclear Engineering. College Station, TX. “*NSBRI Radiation Effects Research: Looking To The Future*”. Mar 2011

Rice University, Department of Nuclear Physics, Houston, TX. “*Development of Heavy-Ion Therapy as a research and treatment modality*”. Aug 2009

NASA Johnson Space Center. Webster, TX. “*Simulating Dose Measurements In Tissue Using the Monte Carlo Particle Transport Code FLUKA Using Historical SPE Models*”. Jul 2007

University of Houston, Department of Physics, Houston, TX. “*Bragg Diffraction and Synchrotron X-ray Reflectance Studies During Low Temperature Phase Transitions of LiSrCoO Thin Films*”. Apr 2006

Medical School Grand Rounds Presentation

University of Texas Medical Branch, Galveston, **Grand Rounds**, Aerospace Medicine, “*Navigating the Space Radiation Health Risks in the Commercial Spaceflight Era*” March. 2023

Baylor College of Medicine, Center for Space Medicine Lecture Series. Houston, TX. “*Space Radiation: Health Risks & Mitigation Strategies*”. Mar 2012

Baylor College of Medicine, Center for Space Medicine Lecture Series. Houston, Tx. “*Space Radiation Health Risks*. Mar 2011”

CONFERENCE CONTRIBUTIONS

Talks

NASA Human Research Program, 2027 Investigators Workshop “*Combination of Galactic Cosmic Radiation Exposure and Simulated Microgravity Result in Late Pro-Inflammatory Responses and Epigenetic Reprogramming in the Mouse Lung*” Feb. 2024

NASA Human Research Program, 2022 Investigators Workshop “*Accurate Prediction of Dose Topology for Assessing Human Health Outcomes Following exposures to the Space Radiation Environment*” Feb. 2022

Space Health Innovation Conference. San Fransisco, CA “*Space Radiation is Hard: Analogs are Important For Instigating Disease Pathogenesis*”. Nov. 2019

Aerospace Medical Association Annual Scientific Meeting, Denver, CO. “*Medical Implications of Space Radiation Exposure due to low altitude polar orbits*”. May 2017

Annual Meeting of the Radiation Research Society. New Orleans, LA. “*Monte Carlo particle transport modeling software for vehicle shielding analysis*”. Sept 2013

Annual Meeting of the American Physical Society. Atlanta, GA. “*Comparison of the Angular Dependence of Monte Carlo Particle Transport Modeling Software*”. Apr 2011

Keynote Lecture, Texas Health Physics Society, San Antonio, TX. “*MEDIPIX: A CERN Technology That Can Be Developed Into An Active Real-time Space Radiation Dosimeter*”. Jan 2007

Special Panels

Panel Speaker, “*New Frontiers in Space Medicine*,” 2020 International Space Medicine Summit, Rice University

Panel Speaker, “*Space Radiation*,” 2019 International Space Medicine Summit, Rice University

Panel Speaker, “*Space Radiation*,” 2018 International Space Medicine Summit, Rice University

Panel Speaker, “*Update on the Space Radiation Risk*,” 2017 International Space Medicine Summit, Rice University

Session Chair, “*Challenges of Long-duration Human Exploration Flights: An Update on the Current Status of Space Radiation Research*,” 2014 International Space Medicine Summit, Rice University

Panel Speaker, “*The Life Science Challenges of Long-duration Human Exploration Flights: Interpreting Radiobiology Risk Assessment into Clinical Outcomes For Protecting Astronaut Crew Health*,” 2013 International Space Medicine Summit, Rice University

Posters

NASA Human Research Program, 2024 Investigators Workshop *Development of a Physiologically Scaled Cosmic Ray Generator for Ground-Based Radiobiology Experiments*.

NASA Human Research Program, 2024 Investigators Workshop *Challenging the Cause Of Non-Malignant Ionizing Radiation Effects via Numerical Methods*.

NASA Human Research Program, 2024 Investigators Workshop *Computational Mammalian Phantoms for predicting dose topology incurred in the space radiation environment*.

NASA Human Research Program, 2024 Investigators Workshop *Prolonged low-dose Rate Irradiation of Both Tail Suspended and Full Weight Bearing Mice Over 24H Using Simulated Galactic Cosmic Rays*.

NASA Human Research Program, 2024 Investigators Workshop *Effects of Galactic Cosmic Radiation and Simulated Microgravity on the Cardiovascular System and Retina*.

NASA Human Research Program, 2023 Investigators Workshop *Integration of in-silico and in-vivo Models for Determining Preclinical Indicators and/or Integrated Biomarkers of Radiation-Induced Vascular Dysfunction*. .

American Society of Gravitational and Space Research Annual Conference, 2020 *Impact of Space Flight Radiation and Microgravity on DNA Integrity and Fertility Risk of Human & Bovine Sperm on the ISS*.

SERVICE

Journal Reviewing Activities

Journal of Applied Physics, Nature Scientific Reports, eNeuro, Life Sciences in Space Research, Acta Astronautica, Methods in Cell Biology, Nature Microgravity

Grant Reviewing Activities

NASA Space Technology Research Fellowships (NSTRF) 2015

NASA Space Technology Research Fellowships (NSTRF) 2014

NASA Space Technology Research Fellowships (NSTRF) 2012

Department-level Service

Member, LSU Physics & Astronomy PhD Qualifying Exam Committee (2021-present)

Member, LSU Physics & Astronomy Outreach Committee (2021-present)

Member, LSU Physics & Astronomy Computing & Networks Committee (2021-present)

Chair, LSU Physics & Astronomy Steering Committee (2020-2021)

Secretary, LSU Physics & Astronomy Faculty Council (2019-2020)

Member, LSU Physics & Commencement Committee (2019-2020)

Conference Organization

Program Committee “*International Space Medicine Summit*,” 2014

Program Committee “*NASA Human Research Program Investigators’ Workshop*,” 2013

Program Committee “*International Space Medicine Summit*,” 2013

Program Committee “*NASA Human Research Program Investigators’ Workshop*,” 2012

Steering Committee “*NASA Human Research Program Standing Review Panel*,” 2012 – 2014

Advisory Boards

Fellow, *The Outer Space Institute, For the sustainable development of Space*, University of British Columbia

Panel Member, “*AC370 - F47.02 Task Group on Solar Particle Event Mitigation Strategies in LEO*,” American Society for Testing and Materials (ASTM)

Review Item Disposition Board “*NASA Exploration Medical Capability Preliminary Design Review*,” Exploration Medical Capabilities Program, NASA Human Research Program. Houston, TX. 2012 – 2014

PRESS

- The Reveille, [LSU physicist, start-up’s technology pave way for future of space travel](#), 08/2022
- The Advocate, [It costs \\$1,000 per gram to go to space. An LSU professor wants to make that cheaper](#), 08/2022
- Greater Baton Rouge Business Report, [LSU professor creates AI-based startup focused on space exploration](#), 08/2022
- And the Valley Shook, [LSU to Conquer Moon, Possibly Entire Galaxy](#), 05/2021
- The Advocate, [This device made by LSU students will be part of NASA’s 2022 moon landing — the first since 1972](#), 05/2021
- Tiger Tv, [Tiger Eye 1 Research team and their ”high” aspirations to launch technology to the moon](#), 05/2021
- Tiger Droppings, [LSU will be 1st University to go to the moon](#), 05/2021
- Louisiana Radio Network, [LSU students to send radiation detection device to the Moon](#), 05/2021
- Business Report, [LSU will be first university to put technology on the moon](#), 05/2021

- ❑ Advacam Press Release, [This device made by LSU students will be part of NASA's 2022 moon landing — the first since 1972](#), 05/2021
- ❑ LSU Office of Research and Economic Development, [LSU Goes to the Moon](#), 05/2021
- ❑ Space 3D Podcast, [Season 4, Episode 8: A Glowing Interview with Space Radiation Expert Dr. Jeff Chancellor, Part 2](#), 04/2021
- ❑ LSU Office of Economic Development, [Going the Distance: Innovation in Radiation Research Takes LSU Medical Physics Student from Mary Bird Perkins Cancer Center to SpaceX](#), 04/2021
- ❑ Space 3D Podcast, [Season 4, Episode 8: A Glowing Interview with Space Radiation Expert Dr. Jeff Chancellor, Part 1](#), 03/2021
- ❑ Reveille, [LSU physics graduate students invited to present space radiation research at SpaceX](#), 02/2021
- ❑ LSU News, [SpaceX Invites LSU Students to Present Radiation Research Effects on Astronauts](#), 01/2021
- ❑ LSU News, [NASA Supports LSU Physicist's Work to Advance Human Space Exploration](#), 12/2020
- ❑ NASA Press Release, [NASA Selects 21 Research Proposals to Advance Human Space Exploration](#), 10/2020
- ❑ Johns Hopkins University News, [Experts to study human tissue models' responses to space radiation and develop countermeasures](#), 10/2020
- ❑ Science News, [A new moon radiation measurement may help determine health risks to astronauts](#), 09/2020
- ❑ LSU News, [LSU Physics Students Receive Louisiana Space Grant Research Awards](#), 08/2020
- ❑ Inside Science, [Mouse Study Raises Concerns About Human Brain Function During Space Travel](#), 08/2019
- ❑ Cosmos, [Going to space probably won't give you cancer, research suggests](#), 07/2019
- ❑ The Daily Beast, [Deep Space Travel Will Almost Certainly Cause Cancer in Astronauts](#), 10/2018
- ❑ Nature Microgravity Community, [Radiation and astronauts: The gaps in our knowledge](#), 6/2018
- ❑ Texas A&M Today, [Texas A&M Physics Graduate Student Jeff Chancellor '17 Honored for Space Radiation Research](#), 05/2018
- ❑ Science360 News, National Science Foundation (NSF) featured research, ["Anticipating the Dangers of Space,"](#) 04/2018
- ❑ Phys.org, [Researchers use supercomputers to estimate radiation risks for low Earth orbits](#), 04/2018
- ❑ Spaceflight News, ["Expecting the Risk of Space – Unpredictable Solar Particle Events and Galactic Cosmic Rays,"](#) 04/2018
- ❑ Texas Advanced Computing Center (TACC) featured research, [Anticipating the Dangers of Space](#), 04/2018
- ❑ Texas A&M High Performance Research Computing featured research, [Simulating the effects of the space radiation environment with a ground-based model](#), 07/2017
- ❑ Texas A&M College of Science News, [Texas A&M-Led Team Develops First Ground-Based Model Simulating Effects of Space Radiation](#), 06/2017
 - Featured in TAMU Science discover-e newsletter
 - Featured in Texas A&M Research
 - Featured in Texas A&M Today newsletter
 - Featured in Texas A&M Today, June 20, 2017
- ❑ Texas A&M Science eNews, ["To boldly and more safely go,"](#) 06/2017,
 - Featured in TAMU Science discover-e newsletter
- ❑ The Eagle Newspaper, ["Astronaut's husband among Texas A&M researchers seeking solutions to space radiation issues,"](#) 06/18/2017
 - Featured in Texas A&M Physics Homepage
- ❑ Gizmodo.com, [Scientists Propose a New Way to Test How Space Radiation Will Fry You](#), (Ryan Mandelbaum 06/21/2017)
 - Featured in Texas A&M Physics Homepage
- ❑ WIRED Magazine, [Private plan to send humans to Mars in 2018 might not be so crazy](#), (Adam Mann 02/27/2013)

- ABC news, [Cosmic Radiation Could Cause Alzheimer's in Mars Astronauts](#), (01/1/2013)
- The Orlando Sentinel, "*Sentinel Exclusive: NASA wants to send astronauts beyond the moon,*" (Mark Matthews 09/22/2012)

MISCELLANEOUS

Professional Membership

Member of the Radiation Research Society

Member of the American Society for Gravitational & Space Research

Member of the Aerospace Medical Society (AsMA)

Member of the American Physical Society

SHORT BIO

Jeff Chancellor is a scientist and expert consultant on radiation effects for manned spaceflight and the aerospace industry. He is currently Assistant Professor of Physics in the Department of Physics & Astronomy at Louisiana State University.

His research utilizes 3D Monte Carlo modeling techniques and high-performance computer platforms to study heavy charged particle interactions with soft tissue and condensed matter following space radiation exposures. At LSU, Jeff is the Director of the Space Radiation Transport & Applied Nuclear Physics (SpaRTAN) Laboratory. The SpaRTAN lab's research is focused on applications of how heavy ion radiation interacts with soft and condensed matter for ground-based analogs, manned spaceflight vehicle structure, shielding, and clinical healthcare. The SpaRTAN lab utilizes high-performance, multi-core computers and sophisticated numerical techniques for studying complex dynamics that are otherwise difficult to mimic in a laboratory setting. Prior to LSU he was a research scientist in Helmut Katzgraber's Computational Physics Group at Texas A&M University.

Previously, Jeff has was the Radiation Effects Program Manager at the National Space Biomedical Research Institute and held an academic appointment at the Center For Space Medicine at Baylor College of Medicine. Much of his research drive is from his experience as a Senior Research Engineer with the Space Radiation Analysis Group (SRAG) at NASA's Johnson Space Center. As part of SRAG, he served as a Flight Controller on the Radiation Console in Mission Control and as the Radiation Lead on the Mission Management team for Space Shuttle mission STS-118, STS-120, STS-122, and STS-125 (Hubble repair mission). This included projecting the radiation exposure, briefing the astronaut crew on any health risks associated with mission, exposures informing the Mission Manager of the radiation risk assessment and providing a Go/No-Go recommendation. Additionally, Jeff also provided training in space weather, medical physics, and countermeasure procedures to astronauts preparing for missions on the International Space Station. He worked extensively with the design team for the Constellation Program's Orion Crew Exploration Vehicle and led the effort to reach an optimum mass configuration that would maximize the shielding during solar particle events.

Last updated on March 06, 2024