

CURRICULUM VITAE

Jeffery C. Chancellor, Ph.D.

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

[Webpage](#)
[arXiv research page](#)
email: jeff@chancellor.space

INDEX

Academic Summary	1
Biographical Data & Education	1
Research & Professional Experience	1
Awards	2
Research Interests	2
Publications	3
Papers	3
Book Chapters	4
Intellectual Property	4
Special Reports	4
Teaching	4
Courses & Teaching Activities	4
Invited Lectures at Symposia & Conferences	6
Seminars	6
Special Panels	7
Service	7
Reviewing & Editorial Activities	7
Conference Organization	7
In the Media	9
Miscellaneous	9
Short Bio	10

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BIOGRAPHICAL DATA

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

EDUCATION

Ph.D. in Applied Physics
 Texas A&M (USA)
 Advisor: Prof. Helmut Katzgraber

M.S. in Physics
 University of Houston (USA)
 Advisor: Prof. Larry Pinsky

B.S. in Physics
 University of Houston (USA)
 Minor: Mathematics

International School of Cosmic Ray Astrophysics
 15th Course: "Astrophysics at Ultra-high Energies (Italy)

Center for Integrated Space Weather Modeling
 NSF Space Weather Summer School (USA)

Languages: English, Russian (some)

RESEARCH & PROFESSIONAL EXPERIENCE

Assistant Professor, tenure track Department of Physics & Astronomy Louisiana State University, Baton Rouge, LA, USA	05/2019 – present
Research Scientist Computational Physics Group, Department of Physics & Astronomy Texas A&M University, College Station, USA	09/2015 – 05/2019
Radiation Team Lead Scientist Inspiration Mars Mission, USA	2013 – 2015
Radiation Health Officer and Space Weather Advisor Red Bull Stratos Medical Team, USA	2012
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
Radiation transport modeling (PHITS,FLUKA)
Spacecraft shielding development
Simulation of radiation environments in space
Nuclear fission products
Radiobiology
Space radiation dosimetry

GRANTS

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, SuperMike II cluster	50,000 CPUh	2019

PUBLICATIONS

Publications include 1 book chapter, 2 commissioned special reports, and 3 patents.

Papers

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)

Blue RS, **Chancellor JC**, Suresh R, Carnell L, Reyes D, Nowadly C, Antonsen EL,
Challenges in managing acute space radiation-induced illnesses in exploration spaceflight
Aerospace Medicine & Human Performance, submitted (2018)

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)

Blue RS, **Chancellor JC**, Antonsen EL,
Clinical implications of radiation-induced coagulopathies during exploration spaceflight
Aerospace Medicine & Human Performance, submitted (2017)

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 310. (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

Chancellor JC, Watkins S. (2014)

"Ionizing Radiation and Space Weather,"

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/>

Patents

Space Radiation Environment Emulator

U.S. Provisional Patent (2017)

Radiation Detecting Wearable Devices

U.S. Patent 9,759,672 B2 (2017)

Jointly owned with James Ziegler, Ph.D. and Wayne Newhauser, Ph.D.

Radiation Microdosimeters Correlated with Biological Cells and Cell Components

U.S. Patent 8,858,888 B2 (2014)

Jointly owned with James Ziegler, Ph.D. and Wayne Newhauser, Ph.D.

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**

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. 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*”

SUPERVISION

Graduate Students – MBA thesis research

Elizabeth Moore, Ph.D., *Feasibility Study for a Research/Clinical Heavy Ion Accelerator*, Wake Forest University (2013)

INVITED LECTURES AT SYMPOSIA & CONFERENCES

Lectures and talks include 1 Keynote address, special lectures, and more than 20 invited talks at conferences, seminars, and colloquia.

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

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

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

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

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

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

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

Baylor College of Medicine, Center for Space Medicine, Journal Club. Houston, TX. “*Cosmic Radiation*”. Nov 2012

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

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

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

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

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

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

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

Special Panels

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

SERVICE

Grant Reviewing Activities

NASA Space Technology Research Fellowships (NSTRF) 2015

NASA Space Technology Research Fellowships (NSTRF) 2014

NASA Space Technology Research Fellowships (NSTRF) 2012

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

Member & Collaborator, *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 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
- ☐ Spaceflight News, “*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, “*Astronauts 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 Health Physics Society (HPS) (since 2018)
- Member of the Aerospace Medical Society (AsMA) (since 2017)
- Member of the Institute of Physics (since 2015)
- Member of the Center for Space Medicine at Baylor College of Medicine (since 2013)
- Member of the American Physical Society (since 2010)

SHORT BIO

Jeff Chancellor is a scientist and expert consultant on radiation effects for manned spaceflight and the aerospace industry. He is also currently in the Computational Physics Group, Department of Physics & Astronomy. 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 for the development of manned spaceflight vehicle structure, shielding, and clinical outcomes in humans following space radiation exposures.

Prior to Texas A&M he 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 Programs Orion Crew Exploration Vehicle in the effort to reach an optimum mass configuration that would maximize the shielding during solar particle events.

In addition, Jeff was the Radiation Health Officer and Space Weather Advisor on the Medical Team during the history-making Red Bull Stratos project. His support included assessment of the space radiation environment and geomagnetic conditions to inform a Go/No-Go recommendation prior to launch.

Last updated on August 01, 2019