PREMKUMAR B. SAGANTI, PH. D.

Associate Professor in Physics and NASA-CARR Faculty

Department of Physics and NASA Center for Applied Radiation Research, Prairie View A&M University, TX

Chair: *Research Advisory Committee – Physics*

Group Leader*: Radiation Modeling and Visualization, NASA-CARR*

PI*: Radiation Modeling at Mars for MARIE Project, NASA-JSC*

PI*: Radiation Interuniversity Science and Engineering Program, NASA-JSC/HQ*

PI*: Radiation Model QMSFRG Expansion and Application Support, a NASA Co-op Agreement, NASA-JSC/LaRC*

Co-PI*: NASA-University Research Center (2008-2013) at PVAMU*

Education:

B. Sc. [***Physics & Mathematics***] Andhra Christian College, India 1982
M. Sc. [***Nuclear Physics***] Andhra University, Waltair, India 1986
M. S. [***Electro Optics***] University of Houston-Clear Lake, Texas 1991
(Prof. AG Houston-UHCL,Dr. Pitts-NASA-JSC, and Prof RJ Babaian-UTMDACC)
Ph. D. [***Physics***] Andhra University, Waltair, India 1994
(Prof. RD Ratnaraju-AU and Prof. KT Hecht, U of Michigan, Ann Arbor)

Professional Background:

Associate Professor, Department of Physics, and NASA Research Faculty, NASA Center for Applied Radiation Research, Prairie View A&M University, Prairie View, TX (2003 – Present)
Sr. Research Scientist, Space Radiation Health Project, and Image Science and Analysis Group, NASA Johnson Space Center, Lockheed Martin Space Operations, Houston, TX (1994-2003)
Adjunct Professor in Computer Science, Adjunct Professor in Computer Engineering, and Specialist in Image Processing - Robotics Research, University of Houston-Clear Lake, Houston, TX (1994 – Present)
Research Associate and Teaching Fellow, NASA Research Institute for Computing and Information Systems, University of Houston-Clear Lake, Houston, TX (1989-1994)

Biographical Sketch:

Dr. Saganti is currently a NASA Research Faculty with the NASA Center for Applied Radiation Research and an Associate Professor in the Department of Physics at the Prairie View A&M University, Prairie View, TX. He currently serves as PI on two NASA Grants - MARIE (Martian Radiation Environment Experiment), RaISE (Radiation Interuniversity Science and Engineering), and as a PI on NASA Co-op Agreement - QMSFRG (Quantum Multiple Scattering and Fragmentation). Dr. Saganti has been working with the GCR radiation environment modeling at Mars and of the near earth orbit including the GCR modulation studies under the mentorship of Dr. Cucinotta. Contributions in the expansion of the GCR environment and HZETRN model calculated predictions of dose rate at Mars showed a significant correlation of within 5% with the MARIE measured data. Model calculated GCR environment and transport calculations were presented at several national and international conferences world-wide. Some of the visualization of radiation environment work appeared in several NASA publications and NASA websites as well as **National Geographic**, **DISCOVER**, and **SCIENCE** journals.

For more than 15 years, Dr. Saganti contributed to the NASA's Exploration Vision through Image Science Analysis Group at NASA-JSC supporting more than 30 Space Shuttle missions including Hubble Space Telescope repair missions, MIR and ISS. Most recently he also served on the Space Shuttle Columbia accident as part of the image analysis investigation team on a special assignment for developing image analysis techniques required for the NASA investigation.

Dr. Saganti also received 15 years 'State of Texas Service Award' recognition in 2006 from President Wright of the Prairie View A&M University for serving the University of Houston and the Texas A&M University Systems.

Relevant Awards and Significant Recognitions

- 2008: Oxford Round Table invitee and presenter at St Anne's and Rhodes House, Oxford, UK July 2008.
- 2007: Outstanding Teacher in Physics, College of Arts and Sciences, Prairie View A&M University, TX
- 2007: NASA VIP Invitee for Space Shuttle Launch (STS-118) live observation at NASA-KSC (7th August) – department of education, NASA-HQ
- 2006: For sustained research funding, international conferences, and novel research collaborations – department of physics, Prairie View A&M University, TX
- 2004: NASA Special Recognition - Space Science Education and Public Outreach. For contribution to the public outreach material on the space radiation environment at Mars, NASA-HQ in June 2004.
- 2003: Space Flight Special Team Award for Image Analysis Support of the Columbia Accident Investigation, Space and Life Sciences Directorate, NASA-JSC, June 2003.
- 2003: Top Flight Award – Lockheed Martin: For the support of the Columbia investigation work with the Image Science and Analysis Group, June 2003.
- 2003: Recognition – in the SCIENCE on-line (April 2003) for the radiation damage to DNA illustration and the space radiation studies
- 2002: Recognition - Mars Radiation Model visualization pictures appeared in DISCOVER magazine (05/2002) and as Cover Pictures of NASA-JPL website (03/2002)
- 2001: Special Space Flight Achievement Award for Radiation Risk Factors Team, Space and Life Sciences Directorate, NASA Johnson Space Center, November 2001.
- 2001: Recognition - in the National Geographic January 2001 issue for the contribution of the space radiation effects related data and graphics.
- 1999: Lightning Award – Lockheed Martin: Special recognition for innovative work for providing the Space Shuttle Image Analysis reports on-line in a short time.
- 1998: Phase-I Shuttle-Mir Program Commemorative Certificate - NASA Johnson Space Center.
- 1998: Group Achievement Award of Recognition - NASA Johnson Space Center for the support of the DTO-1118 of the Shuttle/Mir Program and for the research work as a Principle Investigator on the Mir Window Survey Project.
- 1997: Going an Extra Mile (GEM) award of recognition for supporting the Hubble Space Telescope, Service Mission-2, NASA Johnson Space Center.
- 1995: Best Thesis Award (doctoral degree) - Gold Medal of Honor: Andhra University, Waltair, India
- 1995: Highest honor of recognition for best research contribution - Gold Medal of Honor: Department of Physics, Andhra University, Waltair, India
- 1995: Group Achievement Award of Recognition - NASA Johnson Space Center, for the support of the first Shuttle-Mir work on STS-63.
- 1994 and 1993: Directors Merit Award, RICIS, University of Houston-Clear Lake, Houston, Texas
- 1986: Highest Distinction in Radiation Physics for M.Sc. graduate course work, Department of Nuclear Physics, Andhra University, Waltair, India

Current Research Grants at Prairie View A&M University (2003 – Present):

- *Principal Investigator*: Radiation Modeling at Mars for Martian Radiation Environment Experiment (MARIE) Project, NASA-JSC (2004-2008) ~ $ 200,000
- *Principal Investigator*: Radiation Interuniversity Science and Engineering Program, NASA-JSC and NASA-HQ (2005-2008) ~ $ 300,000
- *Principal Investigator*: Radiation Assessment of Space Suit Proposed Material in Support of NASA's Phase-I and Phase-II grants to MER Corp., AZ through NASA-JSC (2005-2007) ~ $ 100,000
- *Principal Investigator*: Space Radiation QMSFRG Model Development and Application in Support of NASA-PI, Dr. Cucinotta of NASA-JSC [a NASA Co-Op Agreement] (2007-2009) ~ $ 200,000

- *Co-Principal Investigator and Group Leader*: Radiation Modeling and Visualization - NASA Center for Applied Radiation Research, NASA-HQ and NASA-JSC (2005-2006) ~ $ 450, 000
- *Co-Principal Investigator*: NASA University Research Center (URC) [a NASA Co-Op Agreement] PI-Dr. Wilkins of PVAMU (2008-2013) ~ $ 5,000,000
- *Mentor/Co-Investigator*: NIH IRACDA (Institutional Research Award for Career Development and Advancement) for Baylor College of Medicine Post-doctoral Fellows in partnership with Prairie View A & M U, St. Thomas U and the U of Houston – Down Town, PI-Dr. Slaughter of BMC (2008-2013) ~ $ 5,000,000

Public Outreach/Television Interviews/Press Releases (2000-2006):

- "Indian-Americans …U.S. Space Missions", An interview report by Francis Assisi for Indolink.Com, published in May from the comments of R. Tripathi (NASA-LaRC) and **P. Saganti** (PVAMU), 2006
- "Space Radiation Health and Shielding Strategies", NASA Scientist Profiles for NASA-TV, F. A. Cucinotta, H. Wu, **P. B. Saganti**, and E. Simmens, NASA-JSC and NASA-MSFC, December 2003
- "Galactic Cosmic Radiation and Human Health Concerns", DISCOVERY-TV program in Danish language, co-produced with the Denmark crew for the interview of Dr. Cucinotta, February 2002
- "Space Radiation - The Sun", Developed and produced for the Sun-Day NASA display at the Houston Museum of natural Sciences, 2001, 2002, 2003
- "Space Radiation Health" Developed and Presented Material for Open House and for Public Outreach – RRS Brisbane-2003, NASA-JSC 2000, 2001, and 2002. Current displays are at NASA-JSC, NASA-JPL, and NSRL/ BNL
- IEEE Presentation at the Gilruth Center - NASA Johnson Space Center (NASA-JSC): "On Detection of Prostate Cancer from Ultrasound Images" February 1998
- IEEE Presentation at the John Seally Auditorium at the University of Texas Medical Center (UTMB), Galveston. "On Detection of Prostate Cancer from Ultrasound Images" April 1998

Organizer and Chairman for the International Conferences (2006-2008):

- 2006: Material Research Society (MRS) San Francisco April 2006 and Guest Editor on for a MRS Book Publication [Materials in Extreme Environment, Ed: Ila, Mailhiot, and Saganti (ISBN-978-1-55899-886-5)]
- 2006: AOGS, Singapore, Conference Organizer and Guest Editor; Convener session PS, July 2006
- 2007: AOGS, Bangkok, Conference Organizer and Guest Editor; Convener session PS, July 2007
- 2007: Session Chair – Solar Heliospheric Modeling – AGU Fall Meeting, San Francisco, CA, December 2007
- 2008: AOGS, Busan, Korea, Conference Organizer and Guest Editor, 2007; Convener session PS, June 2008
- 2008: Organizer/Chair, Extreme Environment: Radiation; Progress in Electromagnetics Research Symposium, PIERS 2008 Organized by MIT in Hangzhou, CHINA, March 2008
- 2008: RPS-2008, Atlanta, GA, Conference Organizer and Reviewer, April 2008
- 2009: AOGS, Singapore, Conference Organizer and Convener - Session PS, August 2009

Books / Book Chapters / NASA-Publications

1. **Book [ISBN: 978-1-55899-886-5**] Materials in Extreme Environment, Editors: Daryush Ila, Christian Mailhiot, and **Premkumar Saganti**, MRS Publication, 2006
2. **Book Chapter [ISBN: 1402-01696-4]** P. B. Saganti, F. A. Cucinotta, J. W. Wilson, et al., Radiation Climate Map for Analyzing Risks to Astronauts on the Mars, **2001 Mars Odyssey,** Edited C.T. Russell, Springer Verlag, NY, April 2004
3. **Book [NASA-TP-212051]** F. A. Cucinotta, M. R. Shavers, **P. B. Saganti**, and J. Miller (Editors): Radiation Protection Studies of International Space Station Extravehicular Activity Space Suits, *NASA/TP-JSC*-**212051,** December 2003
4. **Book [NASA-TP-210792]** F. A. Cucinotta, J. W. Wilson, **P. B. Saganti**, X. Hu, M. Y. Kim, T. F. Cleghorn, C. J. Zeitlin, and R. K. Tripathi, Physics of the Isotopic Dependence of GCR Fluence Behind Shielding, *NASA-TP-2003*-**210792**, February 2003.

5. **Book** [NASA-TP-29295] F. A. Cucinotta, W. Shimmerling, J. W. Wilson, L. Peterson, G.D. Badhwar, **P. B. Saganti,** and J. Dicello, Space Radiation Cancer Risk Projections for Exploration Missions: Uncertainty Reduction and Mitigation, *NASA/TP-JSC*-**29295**, 2001
6. **Book Chapter [ISBN-0-471-39005-4] P. B. Saganti** and K. P. Lulla, Windows of Opportunity - A Photo Illustration of the Mir Windows; Published as a textbook chapter, Wiley, **ISBN-0-471-39005-4**: Dynamic Earth Environments Ed. KP Lulla and LV Dessinov. Contributed Ch-8 as a PI of the work of the NASA Shuttle-Mir.
7. **Book [NASA-TP-28578] P. B. Saganti**, Mir Window Survey; *A NASA JSC Technical Document*, JSC-**28578**, 1999.
8. **Book [NASA-TP-27698] P. B. Saganti**, Viewing Study of the International Space Station (ISS): *A NASA JSC Technical Document*, JSC-**27698**, 1996.

Selected Recent Scientific Publications and Conference Proceedings by Dr. Saganti (2003-2008)

2008

[1] **Saganti, P.B.**, Space Radiation Environment: Model Calculations and Ground Based Studies - NASA Sponsored Research at Prairie View AM University, in Alabama A&M University Research Forum. 2008.

[2] **Saganti, P.B.**, F.A. Cucinotta, T.F. Cleghorn, C.J. Zeitlin, and J.W. Wilson, Radiation Environment at Mars: Measured Data and Model Calculations (2001-2007), in 5th Asia Oceania Geosciences Society (AOGS) Meeting. 2008, AOGS: Busan, Korea. (Invited)

[3] **Saganti, P.B.**, E.L. Towns*, and F.A. Cucinotta, Variations of Galactic Particle Flux (2001-2007): Voyager, Ulysses, ACE/CRIS and MO/MARIE Data, in 5th Asia Oceania Geosciences Society (AOGS) Meeting. 2008, AOGS: Busan, Korea.

[4] Hawkins*, E., J.I. Zhou, and **P. B. Saganti**, Radiation Assessment of Simulated Lunar Regolith Composite Materials, in 5th Asia Oceania Geosciences Society (AOGS) Meeting. 2008, AOGS: Busan, Korea.

[5] Towns*, E.L., J.I. Zhou, and **P. B. Saganti**, Radiation Assessment of Martian Regolith Composite Materials, in 5th Asia Oceania Geosciences Society (AOGS) Meeting. 2008, AOGS: Busan, Korea.

[6] **Saganti, P.B.** and F.A. Cucinotta, Expansion of Selective-Core Model Calculations for Low Mass Nuclei Fragmentation with Current GCR Data, in NASA Space Radiation Health Investigators Workshop. 2008, SRHP-USRA: Philadelphia, PA.

[7] **Saganti, P.B.**, L.M. Porter, and F.A. Cucinotta, Visualization of Space Radiation Transport: Assessment with High Resolution Human Head Data, in Committee on Space Research, COSPAR-2008. 2008, COSPAR: Montréal, Canada. (Invited)

[8] **Saganti, P.B.** and F.A. Cucinotta, Model Estimated GCR Particle Flux Variation - Assessment with CRIS Data, in Committee on Space Research, COSPAR-2008. 2008, COSPAR: Montréal, Canada.

[9] **Saganti, P.B.** and F.A. Cucinotta, Model Calculations with Excited Nuclear Fragmentations and Implications of Current GCR Spectra in Committee on Space Research, COSPAR-2008. 2008, COSPAR: Montréal, Canada.

[10] **Saganti**, P.S., Current Context of the Physics Curricula: Teacher vs. Mentor, in Oxford Round Table. 2008, Journal of Oxford Round Table Oxford, UK. (Invited)

[11] Alvaro*, J., J. Swift*, and **P. B. Saganti**, Nuclear Isotopic Abundances and Cross-Sectional Data for Space Radiation Transport Applications, in PVAMU Annual Biology Conference. 2008: Prairie View A&M University.

[12] Becktemba*, N.O. and **P. B. Saganti**, Radiation Damage to DNA and Repair Mechanism, in PVAMU Annual Biology Conference. 2008: Prairie View A&M University.

[13] Freeman*, M.N. and **P. B. Saganti**, Space Radiation and Assessment with RBE, in PVAMU Annual Biology Conference. 2008: Prairie View A&M University.

[14] Royal*, C., T. Childress*, and **P. B. Saganti**, Radiation Effects on the Human Eye- Early Onset of Cataracts, in PVAMU Annual Biology Conference. 2008. Prairie View A&M University.

[15] Scott-Turner*, A., A. Marati*, and **P. B. Saganti**, Proton and Helium Particle Flux from Ulysses Spacecraft: Assessment of Space Radiation, in PVAMU Annual Biology Conference. 2008.

[16] Williams*, J.E. and **P. B. Saganti**, A Database of Radiation Studies: Biology and Physics, in PVAMU Annual Biology Conference. 2008. Prairie View A&M University

[17] Alvaro*, J., J. Swift*, and **P. B. Saganti**, Nuclear Isotopic Abundances and Cross-Sectional Data for Space Radiation Transport Applications, in Texas A&M University System (TAMUS) PATHWAYS Symposium. 2008: Commerce, TX.

[18] Becktemba*, N.O. and **P. B. Saganti**, Radiation Damage to DNA and Repair Mechanism, in Texas A&M University System (TAMUS) PATHWAYS Symposium. 2008: Commerce, TX.

[19] Childress*, T. and **P. B. Saganti**, Radiation Effects on the Human Eye- Early Onset of Cataracts – An Assessment of Ophthalmic Biology, in Texas A&M University System (TAMUS) PATHWAYS Symposium. 2008: Commerce, TX.

[20]Christy*, T. and **P. B. Saganti**;, Epidemiological Assessment of Long Term Radiation Effects – Hiroshima, Nagasaki, and Chernobyl, in Texas A&M University System (TAMUS) PATHWAYS Symposium. 2008: Commerce, TX.

[21]Freeman*, M.N. and **P. B. Saganti**, Space Radiation and Assessment with RBE, in Texas A&M University System (TAMUS) PATHWAYS Symposium. 2008: Commerce, TX.

[22]Royal*, C. and **P. B. Saganti**, Radiation Effects on the Human Eye- Early Onset of Cataracts - A Measure of Optical Lens Opacity, in Texas A&M University System (TAMUS) PATHWAYS Symposium. 2008: Commerce, TX.

[23]Scott-Turner*, A., A. Marati*, and **P. B. Saganti**, Proton and Helium Particle Flux from Ulysses Spacecraft: Assessment of Space Radiation, in Texas A&M University System (TAMUS) PATHWAYS Symposium. 2008: Commerce, TX.

[24]Williams*, J.E. and **P. B. Saganti**, A Database of Radiation Studies: Biology and Physics, in Texas A&M University System (TAMUS) PATHWAYS Symposium. 2008: Commerce, TX.

[25]Freeman*, M.N. and **P. B. Saganti**, Space Radiation and Assessment with RBE, in Annual Biomedical Research Conference for Minorities (ABRCMS) 2008, ABRCMS: Orlando, FL

[26]Becktemba*, N.O. and **P. B. Saganti**, Radiation Damage to DNA and Repair Mechanism, in Annual Biomedical Research Conference for Minorities (ABRCMS) 2008, ABRCMS: Orlando, FL.

[27]**Saganti, P.B.** and F.A. Cucinotta, Model Calculated GCR Particle Flux Variations and Assessment of Biological Consequences for Deep-space Human Explorations, in International Conference on Radiation Biology as part of 9th Biennial Meeting of Indian Society for Radiation Biology (ISRB). 2008, Indian J of Radiation Biology: University of Rajasthan, Jaipur, Inida, November 10-12, 2008 (Invited)

[28]**Saganti, P.B.**, G.M. Erickson, and F.A. Cucinotta, 3-D Visualization of SPE and Correlations with Data from the Other Side of the Sun, in American Geophysical Sciences (AGS) Fall Meeting. 2008, AGS: San Francisco, CA.

2007

[29]**Saganti, P.B.**, E.L. Towns, and F.A. Cucinotta, Radiation environment and galactic particle flux variations: Voyager, Ulysses, ACE/CRIS and MO/MARIE data, in 16th IAA Humans in Space Symposium. 2007, PS7-2: LPHIS07-01: Beijing, China.

[30]Hada, M., **P. B. Saganti**, B. Gersey, R. Wilkins, F.A. Cucinotta, and H. Wu, Chromosomal Aberrations in Human Epithelial Cells Exposed to Secondary Neutrons at LANSCE: An “m-BAND” Analysis, , in LUG-2007 (LANSCE Users Group) of the Los Alamos Neutron Science Center. 2007: Santa Fe, NM.

[31]Hada, M., **P. B. Saganti**, B. Gersey, R. Wilkins, F.A. Cucinotta, and H. Wu, M-BAND analyses of chromosome aberration in human epithelial cells exposed to g-rays and secondary neutrons, in 13th International Congress of Radiation Research (ICRR), San Francisco, CA, July 2007 (14th ICRR will be held in Warsaw, Poland in 2011; 12th ICRR was held in Brisbane, Australia in 2003) 2007, ICRR: San Francisco, CA.

[32]**Saganti, P.B.** and F.A. Cucinotta, Selective-Core Model Calculations of Oxygen Nuclei Fragmentation and the Implications with the Current GCR Data, in 18th Annual NASA Space Radiation Investigators' Workshop 2007: Sonoma, Rohnert Park, CA.

[33]Hassler, D.M., F.A. Cucinotta, and the Radiation Team, The Radiation Assessment Detector (RAD) on the Mars Science Laboratory (MSL): Objectives and Updates; , in AOGS-2007. 2007, AOGS: Bangkok, Thailand. (Invited, Presenter - **P. B. Saganti**)

[34]**Saganti, P.B.** and T.F.C. F. A. Cucinotta, C. J. Zeitlin, and J. W. Wilson, Radiation Environment at Mars: Models vs. Measurements, in AOGS-2007. 2007, AOGS: Bangkok, Thialand. (Invited)

[35]Zhou, J.I., E.L. Towns*, and **P. B. Saganti**, Assessment of Composite Materials with Martian Regolith, in AOGS-2007. 2007: Bangkok, Thailand.

[36]Towns*, E.L., **P. B. Saganti**, and F.A. Cucinotta, Galactic Particle Flux Variations: Voyager, Ulysses, ACE/CRIS and MO/MARIE Data, in AOGS-2007. 2007: Bangkok, Thailand.

[37]**Saganti, P.B.**, E.L. Towns, F.A. Cucinotta, T.F. Cleghorn, and C.J. Zeitlin, Assessment of SPE Enhanced Radiation Doses at Earth and at Mars; AOGS-2007, Bangkok, in AOGS-2007. 2007: Bangkok, Thialand.

[38]**Saganti**, P., A. Kumar, B. Cudnik, V. Obot, P. Denkins, and R. Singleterry, An Interuniversity Radiation Science Program at PVAMU; , in American Physical Society (APS) Physics Teachers Association. 2007, APS: Greensboro, NC.

[39]Cudnik, B.M., A.A. Kumar, **P. B. Saganti**, and N. Richardson, Project XLR8 and its Work in Physics and Physical Science, in American Physical Society (APS) Physics Teachers Association. 2007, APS: Greensboro, NC.

[40]Wang, F., **P. B. Saganti**, B.M. Cudnik, and A.A. Kumar, Assessment of Physics Teaching and Training at PVAMU, in American Physical Society (APS) Physics Teachers Association. 2007, APS: Greensboro, NC.

[41]Towns*, E.L. and **P. B. Saganti**, Radiation Environment Particle Flux: Assessment with MARIE Data, in AIAA Space-2007. 2007, AIAA: San Diego, CA.

[42]Calvin*, T. and **P. B. Saganti**, Radiation Particle Flux Assessment: ACE/CRIS Data, in AIAA Space-2007. 2007, AIAA: San Diego, CA.

[43]Swift*, J. and **P. B. Saganti**, Nuclear Cross-Sectional Data for Space Radiation Transport Applications, in Texas A&M University System (TAMUS) PATHWAYS Symposium. 2007: Tarleton State University, TX.

[44]Becktemba*, N.O. and **P. B. Saganti**, Radiation Damage to DNA and Repair Mechanism, in Texas A&M University System (TAMUS) PATHWAYS Symposium. 2007: Tarleton State University, TX.

[45]Jelks*, B. and **P. B. Saganti**, Long-Term Space Radiation Effects: An Epidemiological Perspective, in Texas A&M University System (TAMUS) PATHWAYS Symposium. 2007: Tarleton State University, TX.

[46]Freeman*, M.N. and **P. B. Saganti**, Space Radiation and Assessment with RBE, in Texas A&M University System (TAMUS) PATHWAYS Symposium. 2007: Tarleton State University, TX.

[47]Williams*, J.E. and **P. B. Saganti**, A Database of Radiation Studies: Biology and Physics, in Texas A&M University System (TAMUS) PATHWAYS Symposium. 2007: Tarleton State University, TX.

[48]Sigers*, Z. J. and **P. B. Saganti**, Long Duration Space Travel and Psychological Issues for Consideration, in Texas A&M University System (TAMUS) PATHWAYS Symposium. 2007: Tarleton State University, TX.

[49]**Saganti, P.B.**, E.L. Towns, and F.A. Cucinotta, Radiation Environment at Mars: Measured Data and Model Calculations 2002 - 2007, in 59th International Astronautical Congress (IAC) 2007: Hyderabad, India.

[50]**Saganti**, P., E. Towns, G. Erickson, and F. Cucinotta, 3D Visualization of Solar Disk: Martian Radiation Assessment of Solar Particle Events, in AGS. 2007, AGS: San Francisco, CA.

2006

[51]**Book: ISBN-978-1-55899-886-5**; Materials in Extreme Environment, Editors: Daryush Ila, Christian Mailhiot, and **Premkumar Saganti**, MRS Publication, 2006

[52]**P. B. Saganti**, F. A. Cucinotta, J. W. Wilson, T. F. Cleghorn, C. J. Zeitlin; Model Calculations of the Particle Spectrum of the Galactic Cosmic Ray (GCR) Environment: Assessment with ACE/CRIS and MARIE Measurements, Rad Meas **41** (9-10) 1152-1157, 2006

[53]M.F. Moyers, **P. B. Saganti** and G.A. Nelson; EVA space suit proton and electron threshold energy measurements by XCT and range shifting, Rad Meas **41** (9-10) 1216-1226, 2006

[54]Kerry Lee, Lawrence Pinsky, Vic Andersen, Cary Zeitlin, Tim Cleghorn, Frank Cucinotta, **Premkumar Saganti**, William Atwell and Ron Turner; Helium cosmic ray flux measurements at Mars, Rad Meas **41** (9-10) 1123-1125, 2006

[55]F. A. Cucinotta, J. W. Wilson, **P. B. Saganti**, X. Hu1, M. Y. Kim, T. F. Cleghorn, C. J. Zeitlin, R. K. Tripathi; Isotopic Dependence of GCR Fluence behind Shielding, Rad Meas **41** (9-10) 1235-1249, 2006

[56]Ebony Towns* and Premkumar **Saganti**; Radiation Environment from MARIE, ULYSSES, and VOYAGER data: Assessment of Shielding Material. 4th Annual Patways Symposium, TAMU, 2006

[57]Bryon Jennings*, Premkumar **Saganti**, and Gloria Regisford; Space Radiation Environment and Relative Biological Effectiveness, 4th Annual Patways Symposium, TAMU, 2006

[58]Porsha Melcher, Premkumar **Saganti**, and Richard Wilkins; Radiation Biophysical Studies for Space Applications with Neutrons, 4th Annual Patways Symposium, TAMU, 2006

[59]P. Denkins, **P. Saganti**, V. Obot, R. Singleterry; The NASA Radiation Interuniversity Science and Engineering (RaISE) Project: A Model for Intercollaboration and Distance Learning in Radiation Physics and Nucelar Engineering; 57th International Astronautical Congress, Valancia, Spain, October 2006

[60]**P. Saganti,** E. Towns*, F. Cucinotta, C. Zeitlin; Radiation Enviromment Modeling for Human Exploration: Calculations and Assessment with Measured Data for 2004-2006; 57th International Astronautical Congress, Valancia, Spain, October 2006

[61]**Premkumar B. Saganti**, Francis A. Cucinotta, and Cary Zeitlin; Mars Radiation Environment Modeling Consequent to Results of Orbiter Measurements, 2nd AOGS (Asia Oceania Geosciences Society) 10-14 July 2006, Singapore (Invited Presentation)

[62]C. Zeitlin, R. Turner, T. Cleghorn, F. Cucinotta, and **P. Saganti**; Radiation Measurements in Mars Orbit with Odyssey Instrument Suite, 2nd AOGS (Asia Oceania Geosciences Society) 10-14 July 2006, Singapore (Invited)

[63]E. Towns***; P. Saganti**, F. Cucinotta, T. Cleghorn, C. Zeitlin; Model estimated GCR Particle Flux Variations-Assessment with CRIS and MARIE Data; COSPAR2006-A-03518; D2.4-0007-06, Beijing, China

[64]**P. Saganti**, E. Towns*, F. Cucinotta, T. Cleghorn, C. Zeitlin; 3D-Visualization of Solar Disk: Radiation Assessment of Solar Particle Events at Mars and Earth; COSPAR2006-A-03520; D1.1-0057-06, Beijing, China

[65]**P. Saganti**, F. Cucinotta, C. Zeitlin, T. Cleghorn, J. Wilson; Radiation Environment at Mars: Assessment with Measurements and Model Calculated Predictions; COSPAR2006-A-03504; F2.4-0009-06, Beijing, China

[66]Brad Gersey, John Sodolak, Megumi Hada, Prem **Saganti**, Richard Wilkins, Francis Cucinotta and Honglu Wu, Micronuclei induction in human fibroblasts exposed in vitro to Los Alamos high-energy neutrons; COSPAR-Mutagenic Consequences of the Space Environment, July 23-25, 2006, Xian, China

[67]**P. Saganti**, H. Wu, M. Hada, B. Gersey, R. Wilkins, M. Bernard*, S. Aghara; Assessment of Neutron Particle Flux Spectral Data for Radiation Biology Applications; COSPAR-Mutagenic Consequences of the Space Environment, July 23-25, 2006, Xian, China (Invited)

[68]M. Hada, **P. Saganti**, W. Hu, B. Gersey, R. Wilkins; Inter and Intra Chromosomal Aberrations in Human Cells Exposed invitro to High and Low LET Radiations, COSPAR-Mutagenic Consequences of the Space Environment, July 23-25, 2006, Xian, China (Invited)

[69]**P. B. Saganti**, F.A. Cucinotta, and A. Rusek, Characterization of Heavy Ion Induced Secondary Particle Spectra and Assessment of Radiation Environment: Experiments with Martian Regolith at NSRL/BNL, 4th International Radiation Health Worker Investigators' Workshop, Moscow, Russia

[70]**P. Saganti** and F. Cucinotta; Modeling of the Radiation Environment of the Mars: Measured Data and Assessment with Simulated Martian Regolith; CRIS-2006 (Cosmic Ray International Seminars), Catania, Italy, In Press, Nucl Phys B, 2007

2005

[71]Ebony Towns* and Premkumar **Saganti**; Radiation Dose Estimations in the Deep Space from MARIE and ULYSSES Data; ABRCMS, Atlanta, 2005

[72]Tausha Calvin* and Premkumar **Saganti**; Radiation Dose Estimations in the Deep Space from the ACE/CRIS Data; ABRCMS, Atlanta, 2005

[73]Kevin Calvin* and Premkumar **Saganti**; Radiation Dose Visualization in the Human Body: Head, ABRCMS, Atlanta, 2005

[74]Ti Nieshia R. Martin*, Premkumar **Saganti**, and Richard Wilkins; Space Radiation Instruments: Physics & Biology, ABRCMS, Atlanta, 2005

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Graduate Research Theses (Advisor / Committee Member, 1993-Present):

1. 2008: Radiation Environment Modeling with GCR Flux from Spacecraft Data, **Tausha Calvin**, Department of Computer Science, Prairie View A&M University (expected 2008)
2. 2008: Visualization of Radiation Transport in the Human Body, **Kevin Calvin**, Department of Computer Science, Prairie View A&M University (expected 2008)
3. 2007: Assessment of Radiation Environment at Mars – Contributions of Martian Regolith, **Ebony L. Towns**, Dept of Mechanical Engineering, Prairie View A&M University (2007)
4. 2002: A Framework for Performing Textural Analysis and Classification of Prostate Ultrasound Images, **Mark A. Sheppard**, M. S. Thesis (Computer Science): University of Houston-Clear Lake (2002, Dr. Shih).
5. 1996: Parallel Research Methods for Texture Analysis, **Peries, C**., M. S. Thesis (Computer Science): University of Houston-Clear Lake (1996, Dr. Shih).
6. 1996: Ultrasound Image Calibration for Prostate Cancer Detection, **Jayawardena, I**., Internship Project (Mathematics): University of Houston-Clear Lake (1996, Dr. Houston).
7. 1995: Volume Visualization of the Prostate Gland Using 2-D Transrectal Ultrasound Images, **Abeyesekera, R.,** M. S. Thesis (Computer Science): University of Houston-Clear Lake (1995, Dr. Houston).
8. 1994: Investigation of Artificial Intelligence Techniques for Detection of Cancer Lesions in Medical Images, **Enombo, J. B.,** M. S. Thesis (Computer Science): University of Houston-Clear Lake (1994, Dr. Houston).
9. 1993: Digital Image Processing of Diagnostic Medical images, **Selvan, AAD**, M. S. Thesis (Computer Science): University of Houston-Clear Lake (1993, Dr. Houston).

Working Experiences at National Laboratories (2003 – Present):

- **Brookhaven National Laboratory (BNL)**
  - NASA Space Radiation Laboratory (NSRL) 2001 - Present
    - Assisted in NASA-JSC radiation biology experiments for Dr. Cucinotta (2001-2003)

        - As a PI worked with Fe, Si and C beams on Martian and Lunar Regolith material for secondary particle assessment (2004, 2005, and 2006)
        - As a PI participated in more than 10 different experimental beam times and supported graduate research and thesis work including NASA-SBIR Phase-I & II grants

- **Los Alamos National Laboratory (LANL)**
    - Los Alamos Neutron Science Center (LANSCE) 2003 - Present
        - As a Co-PI participated on several NASA-CARR related experiments with Aerospace Materials and NASA SBIR Phase-I grants (2005 – 2007)
        - As a Co-PI conducted experiments for secondary particle assessment from "blue room" experiments with high energy and high current protons on Martian Regolith
        - As a Co-PI initiated experiments with biology as an extension of radiation biology studies through PVAMU in collaboration with NASA-CARR
        - As a PI introduced the development of new detectors for secondary particle energy and trajectory assessment in collaboration with NASA-JSC (Dr. Holland)

- **NASA Proton Beam Facility (LLU)**
    - Loma Linda University Medical Center – Proton Therapy Center 2001– Present
        - As a collaborator assisted radiation experiments in support of Dr. Cucinotta (2001-2003)
        - As a PI conducted experiments with data collection and modeling (2005 and 2007) with Martian and Lunar Regolith samples for graduate thesis work
        - As a PI conducted experiments with data collection and modeling (2006) in support of NASA-SBIR Phase-I grants