Agenda – RISK ANALYSIS OF AEROSPACE SYSTEMS II: Mission Success Starts with Safety

October 28, 2002

8:00 am	Registration and continental breakfast
8:30 am	Welcome and audience introductions
9:00 am	New thrust for probabilistic risk assessment at NASA
10:15 am	**Break**
10:30 am	Heritage approach to aerospace risk-based design with applications
Noon	**lunch**
1:00 pm	Heritage approach to aerospace risk-based design with applications (continued)
2:00 pm	**Break**
2:15 pm	Scenario-based risk assessment: An overview
3:30 pm	**Break**
3:45 pm	Scenario-based risk assessment: An overview (continued)
5:00-6:00	Workshop reception

October 29, 2002

8:15 am	Continental breakfast
8:45 am	Risk assessment applications to science and explorations missions
10:15 am	**Break**
10:30 am	Risk assessment applications to science and explorations missions (continued)
Noon	**Lunch**
1:00 pm	Space Station risk assessment for operations and upgrade decisions
2:30 pm	**Break**
3:00 pm	Space Station risk assessment for operations and upgrade decisions (continued)
4:30 pm	Adjourn

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Biographies

Michael Stamatelatos

Dr. Michael Stamatelatos is the Agency Manager of Risk Assessment in the Office of Safety and Mission Assurance at NASA Headquarters. He is responsible for the development and application of PRA policy as well as for coordinating, overseeing and integrating PRA programs and activities throughout the Agency. He works with all NASA Centers to enhance their expertise and proficiency in performing Probabilistic Risk Assessment (PRA). Under his leadership, NASA has developed: a state-of-the-art PRA Procedures Guide for Aerospace Applications; the second edition of the classic Fault Tree Handbook with expanded coverage in the area of binary decision diagrams and dynamic fault trees; PRA training for managers and practitioners; the latest version of integrated PRA software called QRAS; and regular PRA workshops for intra-agency information exchange. In 2002, Dr. Stamatelatos received the Exceptional Performance Award from the NASA Administrator for his work on improving the Agency's capability to perform Probabilistic Risk Assessment. Dr. Stamatelatos has held positions in academia, national laboratory and industry. He has taught courses on quantitative risk and reliability methods in the US, Russia, Ukraine, Romania, and Bulgaria.

Homayoon Dezfuli

Dr. Homayoon Dezfuli has twenty years of experience in PRA applications and methodology development for the space, nuclear power, and nuclear defense industries. A principal scientist at ISL, Inc., Dr. Dezfuli provides PRA support to the Office of Safety and Mission Assurance at NASA Headquarters.He was a member of the peer review panel for the international space station PRA. He managed and co-authored the PRA Procedures Guide and associated training course for NASA managers and practitioners.Dr. Dezfuli was the organizer and a lecturer for NASA Probabilistic Risk Assessment (PRA) Workshops for Managers and Practitioners in 2002. Dr. Dezfuli participated in the transfer of the risk assessment methodology to the space shuttle environment for assessing shuttle accident probabilities for the Galileo mission. Dr. Dezfuli performed PRA related projects for the US Nuclear Regulatory Commission and the U.S. Department of Energy. Dr. Dezfuli is the principal developer of the Windows-based risk and reliability analysis software, REVEAL 2.0, a Win32 application suite for the construction and evaluation of success-based PRA models.

Joseph R. Fragola

Joseph R. Fragola began his career at Grumman Aerospace Corp. in the late 1960's at the end of the manned lunar program. He joined IEEE Headquarters to lead the publication of the first Reliability Data Manual, IEEE STD-500 for the nuclear power industry. Mr. Fragola joined SAIC in 1980 where he participated in international efforts in application of probabilistic risk assessment to the safety of nuclear power, including Central Europe and in Russia. Following the Challenger accident, Mr. Fragola organized the application of PRA to various NASA programs. He was the SAIC Principal Investigator on the first launch-to-landing integrated risk assessment on the Space Shuttle system.He led the SAIC effort in support of the review of the Space Station external maintenance, which led to the significant redesign of the proposed system. Mr. Fragola participated with NASA in applying risk analyses to address upgrades to and possible replacements for the Space Shuttle. He is supporting the NASA/JPL effort to apply risk based design to Mars missions and has educated NASA engineers and managers in the application of risk technology through a series of seminars at NASA JSC, KSC, Langley, Ames, and JPL. Mr. Fragola also supports various risk applications of the European Space Agency.

Todd Paulos

Dr. Todd Paulos is an independent consultant with over ten years of experience in reliability engineering and PRA for NASA and DoD. His recent projects include the Non-Advocate Review Team for the 2nd Generation Launch Vehicle Program, developing a PRA guidebook and course for NASA, and developing a methodology to combine risk management activities that consider cost, technical and schedule issues, with PRA. Dr. Paulos managed and developed PRAs for several JPL programs including the Mars Exploration Rover (Mars 03), the joint Mars 07 mission with the French space agency CNES, Mars Smart Lander (Mars 09), Mars Sample Return (Mars 13), CloudSat, GRACE, and Herschel/Planck. At the NASA Johnson Space Center, Dr. Paulos developed a PRA for manned-mission to Mars architectures (nuclear thermal versus solar electric propulsion). Dr. Paulos has taught PRA and SAPHIRE courses to both the aerospace and nuclear industry. Prior to becoming an independent consultant, Dr. Paulos led the PRA effort on the X-33 and Reusable Launch Vehicle Programs at the Lockheed Martin Skunk Works.

Clayton Smith

Clayton A. Smith has managed a number of high technology assessment projects for Futron Corporation. He is currently the project manager for NASA's PRA of the International Space Station. Mr. Smith is also the System Safety engineer for the MESSENGER mission to Mercury scheduled for launch in 2004. He has nearly twenty years experience working to analyze large complex systems from a reliability/availability and safety points of view. These systems include spacecraft, launch vehicles, advanced manned spaceflight mission concepts, satellite based mobile telephone communication systems, air traffic control systems, nuclear and gas fired power plants, and chemical refineries.

James H. Lambert

Prof. James H. Lambert is the Program Chair of this workshop and the Associate Director of the Center for Risk Management of Engineering Systems, University of Virginia (lambert@virginia.edu).