



Aerospace and Mechanical Engineering Seminar

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Orbital Debris: A Solution

The growing threat of orbital debris is presented; the talk focuses more on a solution than a detailed recapitulation of well-documented facts.

The special characteristic of orbital debris spread with time will be mentioned. Solar radiation, microgravity and debris hardware are shown to be assets and not the problem. Removal of larger debris, before it becomes intractable or disintegrate, is accomplished through a high-tech solar processor. Fairly involved inhomogeneous, nonlinear partial differential equations are solved and quoted from an AME PhD thesis. Working hardware of this Autonomous Space Processor for Orbital Debris is described. The prestigious science program Beyond-2000 produced an internationally broadcast video, which will be shown. Reliability of space operations is of utmost importance; a novel concept, again pioneered at the AME department, will be presented as a digression. Applications are directly relevant in the medical field where, again, reliability is mandatory.

The talk is semitechnical and those who seek in-depth details of engineering and science will be directed to our PhD and MS theses and refereed journal publications.

Bio

Kumar Ramohalli received his PhD from the Massachusetts Institute of Technology in 1971, where he was a member of Tau Beta Pi. He joined the faculty of the California Institute of Technology in 1971, and then shifted to the Jet Propulsion Laboratory as a special-grade research engineer. Ramohalli joined the faculty of the UA AME department in 1982. He served as the co-director of the NASA Space Engineering Research Center at the UA from 1988 to 1999. He received NASA's ES Medal for "exceptional contributions to combustion research" in 1984, was inducted into the International Academy of Astronautics in 1998, and was appointed and re-appointed by Governor Janet Napolitano to the Arizona Aerospace and Defense Commission in 2005 and 2007. Ramohalli retired from the AME faculty in 2015, and is currently advising students who are working on robots in his lab.

AME Lecture Hall, Room S212

Thursday, March 9, 2017

4 p.m.

Refreshments and socializing 3:45 p.m. at the east end of the AME Courtyard