

MECHANICAL ENGINEERING COLLOQUIUM



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DYNAMICS OF TETHERED SATELLITES

ABSTRACT

Study of space tether dynamics started in the early 1970s when it was realized that tethers have potential for numerous space applications. The launch of Tethered Satellite System 1 (TSS – 1) in 1992 gave a significant boost to the study of space tether dynamics. Since then, a large number of such investigations have been carried out. Many of the recent ones are related to tether-assisted space debris removal. The seminar will discuss briefly several topics related to tethered satellites such as the librational motion of a tethered satellite, deployment and retrieval dynamics, elastic oscillations of a space tether, space debris towing dynamics, and dynamical behaviour of a tethered system at Lagrangian points.

ABOUT THE SPEAKER

Dr. Arun K. Misra is currently the Thomas Workman Professor Emeritus in the Department of Mechanical Engineering at McGill University in Montreal, Canada. He obtained his B.Tech. degree in Mechanical Engineering from IIT Kharagpur in India and PhD in Mechanical Engineering from the University of British Columbia in Vancouver, Canada. He has published extensively in various areas of spacecraft dynamics and control such as tethered satellites, flexible spacecraft, space debris and space robotics. He is a Fellow of the American Institute of Aeronautics and Astronautics (AIAA) as well as of the American Astronautical Society (AAS). He has been elected to the International Academy of Astronautics (IAA) and to the Canadian Academy of Engineering (CAE). He is a Co-Editor of the international journal Acta Astronautica. He has received several awards such as the Dirk Brouwer Award of the American Astronautical Society and the Distinguished Service Award of the International Astronautical Federation.

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