

UNIVERSITY OF MACAU  
FACULTY OF SCIENCE AND TECHNOLOGY

Distinguished Lectures on Microelectronics

THE DIGITAL ALLPASS FILTER: A VERSATILE SIGNAL PROCESSING BUILDING BLOCK

Date and Time: 6<sup>th</sup> June 2011 (Monday), 2:30PM

Venue: HG01 Lecture Theatre, University of Macau

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**Abstract:** The digital allpass filter is a computationally efficient signal processing building block which is quite useful in many signal processing applications. In this talk we review the properties of digital allpass filters, and provide a broad overview of the diversity of applications in digital filtering such as notch filtering, low sensitivity digital filter implementation, tunable filter design, complementary filtering and filter banks, multirate filtering, digital audio, image zooming, etc.



Professor Mitra transferred to UCSB in July 1977 after 10 years at UC Davis. He obtained his B.Sc. with honors in Physics (1953) and the M.Sc. (Tech.) in Radio Physics and Electronics (1956) in India. He then obtained his the M.S. (1960) and Ph.D. (1962) in electrical engineering from UC Berkeley. He has published over 600 papers in the areas of analog and digital signal processing, and image processing. He has also authored and co-authored twelve books, and holds five patents. Dr. Mitra has served IEEE in various capacities including service as the President of the IEEE Circuits & Systems Society in 1986, and has

held visiting appointments in Australia, Austria, Finland, India, Japan, Singapore and the United Kingdom. Dr. Mitra is the recipient of the 1973 F.E. Terman Award and the 1985 AT&T Foundation Award of the American Society of Engineering Education, the 1989 Education Award, and the 2000 Mac Van Valkenburg Society Award of the IEEE Circuits & Systems Society, the Distinguished Senior U.S. Scientist Award from the Alexander von Humboldt Foundation of Germany in 1989, the 1996 Technical Achievement Award and the 2001 Society Award of the IEEE Signal Processing Society, the IEEE Millennium Medal in 2000, the McGraw-Hill/Jacob Millman Award of the IEEE Education Society in 2001, the 2002 Technical Achievement Award of the European Association for Signal Processing (EURASIP) and the 2005 SPIE Technology Achievement Award of the International Society for Optical Engineers, and the University Medal of the Slovak Technical University, Bratislava, Slovakia in 2005. He is the co-recipient of the 2000 Blumlein-Browne-Willans Premium of the the Institution of Electrical Engineers (London) and the 2001 IEEE Transactions on Circuits & Systems for Video Technology Best Paper Award. He has received Honorary Doctorate degrees from the Tampere University of Technology, Finland and the Technical University of Bucharest, Romania. He is a member of the U.S. National Academy of Engineering, the Norwegian Academy of Technological Sciences, an Academician of the Academy of Finland, and a corresponding member of the Croatian Academy of Sciences and Arts, and the Academy of Engineering, Mexico. Dr. Mitra is a Fellow of the IEEE, AAAS, and SPIE, and a member of EURASIP.

The lectures are open to the public

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