A BRIEF HISTORY OF SEMICONDUCTORS

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The field of Electronics is of relatively recent vintage compared to other traditional fields of engineering and technology, and may be linked to the 'discovery' of the electron by J.J. Thompson in 1897. The astonishing developments in computing and communications taken for granted today are the result fundamental and applied studies on the properties of solids in the early decades of the 20th century. The true emergence of this new class of materials - Semiconductors - had to await the formal developments of Solid State Theory in the 1930's and the technological imperative to find a successor for vacuum tube techology. However, there have been many early attempts to study and apply the properties of naturally occurring materials with semiconducting properties.

This informal talk will highlight some of the key early and later developments of the field with a loose collection of topics that include time line, key ideas and discoveries, unique aspects of semiconductors, personalities and anecdotes, and some speculations on the future of semiconductors.

S. Ashok received his B.E. (Hons) degree from the P.S.G. College of Technology, Coimbatore, M.Tech.from the Indian Institute of Technology, Kanpur, and the Ph.D. from the Rensselaer Polytechnic Institute,Troy, NY, USA, all in Electrical Engineering. He joined the faculty of the Department of Engineering Science, the Pennsylvania State University, University Park, PA, in 1978, where he has been a Professorsince 1987. His research interests have included Schottky barriers, semiconductor surface/interface modification, ion implantation, plasma/ion beam process-induced defects, and photovoltaics. He initiated
in 1992 and continued to co-organize through 2007 a symposium on Semiconductor Defect Engineering, held regularly at Materials Research Society Spring meetings. He has held several sabbatical and summer appointments at universities and research laboratories around the world and given numerous seminars, review talks, tutorials and short courses. He has also served in the organization of several international conferences, the most recent major undertaking being as co-chair of the Fall 2008 Materials Research Society Meeting in Boston. He is the author or co-author of over 200 publications and 160 conference presentations.