



ME 591 Graduate Seminar

Department of Mechanical Engineering
The University of New Mexico

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Vacuum Tubes: a look at historical electrical engineering

Abstract

The history of electrical engineering dates back only about 150 years; it is rich in technology developments and colorful personalities. After fundamental understanding of basic electrical phenomena was achieved, engineering applications such as lighting, rotating machines, and heating constituted the discipline. With the invention of the vacuum diode (Fleming) and the Vacuum Triode (de Forest), the age of electronics was begun. The wonderment of audio, radio, computers, controls, television, and information transmission soon followed. This talk will review those formative years of the vacuum tube electronics from the original inventions, through technology advancements, to applications conception, and into the birth of the solid-state era.

By examining the opportunities afforded through the vacuum tube as well as its limitation, one is able to better understand the driving forces behind the transistor era.

Dr. Graham is a Visiting Professor in the Electrical and Computer Engineering Department when he spends considerable contact hours with students. He was Director of Operations and Engineering at Sandia National Laboratories until Y2K. At Y2K he moved to Austin, Texas to become President and CEO of SEMI-SEMATECH (later SISA), a consortium of suppliers to the global semiconductor industry. Ultimately, Dr. Graham orchestrated a merger of SISA into SEMI (Semiconductor Equipment and Materials International); today he consults with SEMI in support of the global silicon manufacturing industry. Graham received his doctorate in electrical engineering from the North Carolina State University.

