

My Years at Bell Laboratories (1963-1989)

S. M. Sze
National Chiao Tung University
Stanford University

Abstract

Bell Laboratories was established in 1925 as a research and development organization for American Telephone and Telegraph Company (AT&T). Prior to AT&T's divestiture in 1984, Bell Labs had over 30,000 staff with 4000 Ph.D and a budget of U.S. \$3 billions with 10% devoted to basic research. At its peak (early 1940 to early 1980), Bell Labs was considered one of the most prominent research institutions in the world.

Bell Labs contributed significantly to semiconductor technology. Bell Labs invented or developed the bipolar transistor, JFET, thyristor, solar cell, MOSFET, non-volatile semiconductor memory, IMPATT diode and CCD. Bell Labs also pioneered the zone-refining, ion implantation, diffusion, oxide masking, epitaxy, and molecular beam epitaxy technologies.

I joined Bell Labs during its peak years. I was very fortunate to work for a company which provided a stimulating and challenging environment where I was welcomed, inspired, and abundantly assisted. I will talk about my experience at Bell Labs and describe some of my major projects there.