

MAR14-2014-020824

Abstract for an Invited Paper
for the MAR14 Meeting of
the American Physical Society

From Electrons Paired to Electric Power Delivered– A Personal Journey in Research and Applications of Superconductivity at IBM, EPRI, and Beyond
PAUL GRANT, W2AGZ Technologies

This talk will reprise a personal journey by the speaker in industrial and applied physics, commencing with his employment by IBM at age 17 in the early 1950s, and continuing through his corporate sponsored undergraduate and graduate years at Clarkson and Harvard Universities, resulting in 1965 in a doctorate in applied physics from the latter. He was subsequently assigned by IBM to its research division in San Jose (now Almaden), where he initially carried out both pure and applied theoretical and experimental investigations encompassing a broad range of company-related product technologies. . . storage, display, printer and data acquisition hardware and software. In 1973, he undertook performing DFT and quantum Monte Carlo calculations in support of group research in the then emerging field of organic and polymer superconductors, a very esoteric pursuit at the time. Following upon several corporate staff assignments involving various product development and sales strategies, in 1982 he was appointed manager of the cooperative phenomena group in the Almaden Research Center, which beginning in early 1987, made significant contributions to both the basic science and applications of high temperature superconductivity (HTSC). In 1993, after a 40-year career, he retired from IBM to accept a Science Fellow position at the Electric Power Research Institute (EPRI) where he funded power application development of superconductivity. In 2004, he retired from his EPRI career to undertake “due diligence” consulting services in support of the venture capital community in Silicon Valley. As a “hobby,” he currently pursues and publishes DFT studies in hope of discovering the pairing mechanism of HTSC. In summary, the speaker’s career in industrial and applied physics demonstrates one can combine publishing a record three PRLs in one month with crawling around underground in substations with utility lineman helping install superconducting cables, along the way publishing 10 patents, conducting numerous interviews with the national media, serving a sabbatical as visiting professor at the National University of Mexico, writing review articles, commentaries and book reviews for Scientific American, Physics World and Nature and, most importantly, having lots of fun at the end of the day!