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## PREFACE

Upon the kind invitation of the Indian Institute of Science, Bangalore, this volume has been compiled from the manuscripts of my Centenary Lecture presented on May 27, 2008 at that institution as well from my papers which represent the milestones of my half-century career in the information and communication sciences with principal application to wireless systems. That experience can be viewed as segmented roughly (with overlaps) into three unequal parts: a six-year “apprenticeship” at the Jet Propulsion Laboratory in Pasadena, California, where I concentrated on phase-coherent communication systems for which the synchronization and tracking device known as the phase-locked loop is central; a ten-year period as a full-time academic at the School of Engineering and Applied Science of the University of California, Los Angeles, where I pursued research in Information Theory, Digital Communication and Coding; and finally twenty-seven years in technology-based enterprises, Linkabit and Qualcomm in San Diego, California, where as chief technologist, I concentrated on applications of my previous work, first to satellite communication and later to mobile terrestrial communication. Continuing, however, with a part-time academic appointment at University of California, San Diego, I also authored two books.

Thus the first two papers deal with phase synchronization and measurement. The next six resulted from academic research on coding, beginning with my 1967 paper which most impacted wireless communication and ending with a retrospective on the development of the algorithm contained therein. The last eight papers, written in my third phase, deal with applications to wireless communication, both satellite and terrestrial with emphasis on Spread Spectrum, which is also known as Code Division Multiple Access (CDMA) technology. The first of these was a rather prophetic tutorial on the prospective benefits of Spread Spectrum, which was more than validated two decades later; the last is a theoretical review of current advanced-generation wireless networks.

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