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Preface

Following the first international conference on Power System Harmonics held in Manchester in 1982, J. Arrillaga was commissioned by John Wiley & Sons to prepare a book on the subject. The book, co-authored by D.A. Bradley and P.S. Bodger and published in 1985, has provided the basis for a variety of courses and workshops on power quality issues. It has also been of considerable assistance to power system designers.

In the past two decades other books and an innumerable number of publications have appeared in the technical literature on the general topic of harmonics. Wiley has probably been the main contributor, with three further books, *Power System Harmonic Analysis* and *Power System Quality Assessment* (both by J. Arrillaga and his colleagues) and *Power System Harmonics Computer Modelling and Analysis* (by E. Acha and M. Madrigal). All these, however, have mostly included material coming out of academic research and on computer simulation techniques. In North America the subject is currently offered in the form of an IEEE CD-ROM tutorial course (*Modelling and Simulation of Power System Harmonics*) and an IEEE (5-hour) videotape on *Power System Harmonics.*

In recent years there have been numerous requests for an update of our original text, maintaining the practical approach to the subject. Therefore the scope of this new edition is not particularly different from the original, namely to provide a general understanding of power system harmonics generation, their effects, monitoring, analysis and elimination, but taking into account the main developments (particularly in power electronics) accepted by the power industry in the past two decades.

It is impractical for most users to develop their own harmonic assessment programs. Thus the analysis sections of the book provide basic understanding of the techniques involved in harmonic assessment and rely on existing available software, with special emphasis on generally available programs such as EMTP and MATLAB. The only exception is an advanced and complex frequency-domain program developed by the authors, called The Harmonic Domain, which is provided in CD-ROM form for demonstration purposes.

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