TALK

JOHANNES KEPLER UNIVERSITÄT LINZ

n·t·h·f·s Institut für Nachrichtentechnik und Hochfrequenzsysteme

IEEE AUSTRIA SECTION JOINT COMMITT CHAPTER

ISP Institute of Signal Processing

Topic: **Novel frequency estimation techniques**

Presenter: Prof. Dr. Barry Quinn
Macquarie University
Sidney, Australia

Date: 16.11.2017, 13:30

Location: MZ 412A

Abstract:
The concern of the talk is the estimation of the parameters in a sinusoidal model with additive noise. The literature has a very long history, spanning centuries. The noise may be correlated and need not be Gaussian. After reviewing the properties of the periodogram maximiser, i.e. an asymptotic frequency estimator motivated by least squares for the case where the noise is "white" and Gaussian, I shall look at more novel techniques: some based on Fourier coefficients, others motivated by ARMA modelling. More recently, there has been interest in phase-unwrapping techniques, for models of complex-valued processes.
Finally, I shall consider frequency estimation based on the "times of arrival" of a signal, rather than the values themselves. This has applications in radar.

Bio:
Barry Quinn was educated in Australia, obtaining BA (Hons) (1978) and PhD (1981) in Statistics at the Australian National University. He has held lectureships at the Universities of Wollongong and Queensland, a senior lectureship at the University of Newcastle (NSW) and was a Principal Research Scientist at Australia's Defence Science and Technology Organisation. He moved to the UK in 1995, where he held Chairs at Goldsmiths College (University of London) and UMIST (University of Manchester). He moved back to Australia in 2002, to take up a Chair in Statistics at Macquarie University, Sydney. Since the early 1990's, he has published mainly in Engineering journals, and mainly on Frequency Estimation. He co-authored The Estimation and Tracking of Frequency (Cambridge University Press) with E.J. Hannan in 2001. He is currently visiting the University of Paderborn, after spending two months at the Audio Analysis Laboratory at Aalborg University, Denmark.
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