The Hong Kong Polytechnic University
Department of Applied Mathematics

Colloquium

Time Averaged Consensus in a Direct Coupled Distributed Coherent Quantum Observer

by

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Abstract

This presentation considers the problem of constructing a distributed direct coupling quantum observer for a closed linear quantum system. The proposed distributed observer consists of a network of quantum harmonic oscillators and it is shown that the distributed observer converges to a consensus in a time averaged sense in which each component of the observer estimates the specified output of the quantum plant. An example and simulations are included to illustrate the properties of the distributed observer.

Biography

Ian R. Petersen was born in Victoria, Australia. He received a Ph.D in Electrical Engineering in 1984 from the University of Rochester. From 1983 to 1985 he was a Postdoctoral Fellow at the Australian National University. In 1985 he joined UNSW Canberra where he is currently Scientia Professor and an Australian Research Council Laureate Fellow in the School of Engineering and Information Technology. He has served as an Associate Editor for the IEEE Transactions on Automatic Control, Systems and Control Letters, Automatica, and SIAM Journal on Control and Optimization. Currently he is an Editor for Automatica and an Associate Editor for the IEEE Transactions on Control Systems Technology. He is a fellow of IFAC, the IEEE and the Australian Academy of Science. His main research interests are in robust control theory, quantum control theory and stochastic control theory.

Date : 7 October, 2015 (Wednesday)
Time : 11a.m. – 12noon
Venue : TU801, The Hong Kong Polytechnic University

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