CHAPTER 54

TECHNOLOGY
INSTRUMENTATION AND CONTROL ENGINEERING

Doctoral Theses

481.   ADYA (Alka)
        Investigations on Distribution Statcom for Medium Power Control Applications.
        Supervisors : Dr. A. P. Mittal and Dr. Bhim Singh
        Th 15326

Abstract

Describes investigations of DSTATCOM carried out for load compensation in distribution systems. The DSTATCOM is modeled as a three-phase, current controlled voltage source converter with an electrolytic capacitor at its DC link. The DSTATCOM system has been investigated for compensation of balanced as well as unbalanced loads, non-linear loads and dynamic loads. Concludes that DSTATCOM is a very effective shunt compensator for power quality improvement for a variety of three-phase, three-wire and three-phase, four wire ac electric distribution systems.

Contents

1. Introduction. 2. Literature survey. 3. Design of dstatcom systems. 4. Performance analysis of DSTATCOM for three phase, three-wire system. 5. Performance analysis of dstatcom for three-phase, four-wire system. 6. Performance analysis of dstatcom for three-phase, three-wire isolated system. 7. Performance analyais of dstatcom for three-phase, four-wire isolated system. 8. Main conclusions and suggestions for further work. Bibliography.

482.   SHARMA (Shambhu Nath)
        Some Studies on Volterra and Stochastic System.
        Supervisors : Dr. H. Parthasarathy and Dr. J. R. P. Gupta
        Th 15325

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Abstract

Develops the dynamics of a stochastically perturbed two-body problem using Brownian motion process. The effectiveness of the dust-perturbed two-body model is examined using bilinear and second-order approximations. Also develops the stochastic estimation algorithms for estimating the states of the orbiting particle in rotating and non-rotating frames from noisy measurements, which accounts for stochastic aceleration felt by it. The efficacy of the estimation procedure is adjusged on the basis of its ability to preserve perturbation effect felt by the dynamical system, reduced variances, stability characteristics, etc.

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