

*Proceedings of the Korean Nuclear Society Autumn Meeting
Seoul, Korea, October 1998*

Development of Discrete-Time H_∞ Filtering Method for Time-Delay Compensation of Rhodium Incore Detectors

Moon-Kyu Park, Yong-Hee Kim, Kune-Ho Cha and Myung-Ki Kim

**Korea Electric Power Research Institute
103-16 Munji-dong, Yusung-gu
Taejon, Korea 305-380**

Abstract

A method is described to develop an H_∞ filtering method for the dynamic compensation of se neutron detectors normally used for fixed incore instruments. An H_∞ norm of the filter transfer matrix as the optimization criteria in the worst-case estimation error sense. Filter modeling is performed discrete-time model. The filter gains are optimized in the sense of noise attenuation level of H_∞ s introducing Bounded Real Lemma, the conventional algebraic Riccati inequalities are converted into Matrix Inequalities (LMIs). Finally, the filter design problem is solved via the convex optimization framework using LMIs. The simulation results show that remarkable improvements are achieved in view of response time and the filter design efficiency.