论文

观测时滞连续系统的白噪声H$_2$估计

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摘要：

针对带有观测时滞的线性连续系统, 研究了输入白噪声最优估计器的设计问题. 基于新息重组分析理论和Hilbert空间的正交投影定理, 提出了一种简便有效的新方法. 采用的关键技术是将时滞观测转化为无时滞观测, 从而可以通过求解与原系统同维的两个微分Riccati方程, 得到白噪声的最优估计器. 该方法计算简单, 无须计算复杂的偏微分Riccati方程或算子Riccati方程.

关键词： 去卷;新息重组;Riccati方程;时滞系统;连续系统

H$_2$ white noise estimation for linear continuous-time systems with delayed measurements

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Abstract:

he H$_2$ optimal input white noise estimator for linear continuous-time stochastic systems with delayed measurements was studied. The proposed approach was based on the re-organization innovation methods and projection theory in Hilbert space. The key technique of the proposed algorithm was converting the delayed measurements to non-delayed measurements. Then, The optimal white noise estimators were given by computing the solution of two standard Riccati equations with the same order as that of the original system. The proposed method is sample and does not need to compute both complex partial differential equation and operator equation of Riccati.

Keywords: deconvolution; re-organized innovation; Riccati equation; time-delay systems; continuous-time system

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