论文

CREDIBLE SETS FOR SYSTEM PARAMETERS AND TRANSFER FUNCTIONS

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摘要   The credible sets for system parameters and transfer functions are discussedin this paper. The derivations of the credible sets via the Bayesian statistical methods aregiven in various cases and the credible sets of transfer functions are constructed on the basis of the parameter credible sets. In the small sample case the credible set, which the parameters are in, has minimal volume with given credible probability. In the large sample case, it is proved that if the critical boundary is taken properly then the probability, with which the parameters are in the credible set, will tend to one as the number of data tendsto infinity. The credible set for transfer function is an envelope on the complex plane. Under some assumptions, the envelope tends to the curve of true transfer function.

关键词   Credible set, system identification, rob

分类号

Abstract The credible sets for system parameters and transfer functions are discussedin this paper. The derivations of the credible sets via the Bayesian statistical methods aregiven in various cases and the credible sets of transfer functions are constructed on the basis of the parameter credible sets. In the small sample case the credible set, which the parameters are in, has minimal volume with given credible probability. In the large sample case, it is proved that if the critical boundary is taken properly then the probability, with which the parameters are in the credible set, will tend to one as the number of data tendsto infinity. The credible set for transfer function is an envelope on the complex plane. Under some assumptions, the envelope tends to the curve of true transfer function.

Key words   Credible set   system identification   robust controller   asymptotic property

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