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# 频域不确定性系统加权混合灵敏度函数频域整形

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# FREQUENCY SHAPING OF MIXED WEIGHTED SENSITIVITY FUNCTION FOR FREQUENCY UNCERTAINTY SYSTEMS

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摘要 参考文献 相关文章

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**摘要** 针对输出端乘性不确定性系统如何决定加权混合灵敏度函数的问题，将来源于经典控制理论的频域回路成形法推广到多变量混合灵敏度H∞控制设计中，提出了带宽可调的加权函数频域整形的公式化构造法，使频域H∞控制设计中可同时兼顾和折衷时域和频域性能指标，并通过调整带宽可改善控制系统的性能。所述方法在某型双转子涡喷发动机气动热力学非线性模型上对抗干扰性和目标跟踪进行了仿真验证。

**关键词：**

Abstract： This paper focuses on the problem of determining the mixed weighted sensitivity function for the plant uncertainty with multiplicative output perturbation, extends the loop shaping approach derived from classical control theory to the control design of the multivariable mixed weighted sensitivity, and presents a constructed method of the equation with an adjustable bandwidth for the frequency shaping of the weighted function which can trade off the design specifications between time and frequency domains. It is shown that the performance of a control system can be improved by means of tuning the bandwidth. Simulations on the nonlinear model of the twin spool turbojet engine aerothermodynamics are conducted to verify the disturbance rejection and tracking performance.

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