



SDI FINAL EVALUATION FORM 1.1

PART 1:

Journal Name:	British Journal of Mathematics & Computer Science
Manuscript Number:	2014_BJMCS_14446
Title of the Manuscript:	LQ Optimal Control-Based Variable Gain Controllers for Linear Systems with Structured Uncertainties and Its Performance Analysis
Type of the Article	Original Research Article

PART 2:

FINAL EVALUATOR’S comments on revised paper (if any)	Authors’ response to final evaluator’s comments
The authors have not answered to the points 1, 3, and 4 of the previous comments. Bellow some details are given. 1- In the statement of theorem 1, the authors should add “for a given $\delta>0$” since δ is chosen by the designers and is not a decision parameter. 3- The comment of the authors is not convincing. The parameter $\gamma(x,t)$ is adjusted at each time. If the condition $x^T P B R^{-1} B^T P x \leq \delta x^T x$ is not satisfied at a time t_1 it would be verified at a next time t_2 since the asymptotic stability is required for the system and δ is chosen by the designers. The problem here is how to master the switching of $\gamma(x,t)$ between the two expressions of (4.2) in order to guarantee good transient. 4- The feedback gain matrix K in (5.2) is not corrected. I verified the solution of the Riccati equation (3.4) and I found that the Matrix P in (5.2) is also incorrect. It follows that the control law used by the authors is not correct and therefore the simulation results should be revised and corrected.	We authors greatly appreciate your helpful comments to our paper (ID :2014/BJMCS/14446), which help us improve the correctness and readability of our paper. On the basis of the referee's comments we add and modify some points to make our main contribution and vague points clearer. 1. Theorem 1 has been corrected. 3. The design parameter δ plays an important role. Namely, the switching of the time-varying parameter $\gamma(x,t)$ is determined by the relations $x^T(t) \{ \text{cal } P \} B \{ \text{cal } R \}^{-1} B^T \{ \text{cal } P \} x(t) \geq \delta x^T(t) x(t)$ and $x^T(t) \{ \text{cal } P \} B \{ \text{cal } R \}^{-1} B^T \{ \text{cal } P \} x(t) \leq \delta x^T(t) x(t)$. In the revised version of our manuscript, we add the explanations about that in some remarks. Please see Remark 2 -- 4 for details. 4. Thank you for your comments. There is a mistake in the design parameters. In numerical simulations, the design parameters have been corrected.