which can assist in the synthesis of the controller. The design approach employs computational algorithms which have recently become available in commercial software packages.

The controller design procedures formulated in this note offer the designer additional freedom in the synthesis of feedback controllers. In particular, they allow the synthesis of either unbiased or biased controllers in a framework that is more general than that offered by standard LQG/LTR.

Application to a SISO example with one nonminimum phase zero suggests that the additional flexibility offered by the methods of this note is useful for shaping sensitivity functions, while still reflecting the fundamental limitations inherent in all feedback systems.

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Comments on "Robust Adaptive Regulation with Minimal Prior Knowledge"

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***Abstract*—There is a circularity in the argument of a recent paper.[1] Therefore, the correctness of the results of the paper[1] is ambiguous.**

A recent paper[1] presents a new robust adaptive regulator by using minimal prior knowledge. It is claimed that the presented adaptive regulator has the ability to stabilize a discrete-time system with small uncertainty dynamics and with slowly time-varying parameters.

The purpose of this note is to point out a circularity hiding in the argument of results in the paper.[1] We follow the numbering of the paper.[1]

From the argument in the paper,[1] we see that the key point is to construct a sequence $\{\beta(t)\}$ such that

$$\liminf_{t\to\infty}\beta(t) > 0 \qquad \text{with (A.49) satisfied.}$$

However, this has not been done in the paper,[1] and there is still a circularity in the argument.

More precisely, in order to verify $\liminf_{t\to\infty}\beta(t) > 0$ for the $\beta(t)$ defined by (A.53), one requires $\sup_{t\geq 0} K_\phi(t) < \infty$, and hence requires $\sup_{t\geq 0} M_L(t) < \infty$ and $\sup_{t\geq 0} M_A(t) < \infty$ [see (A.52), (A.22) and (A.36)]. This in turn needs Propositions 4.1–4.4 and (4.3). However, in order to get Propositions 4.1–4.4 and (4.3), one needs condition $\liminf_{t\to\infty}\beta(t) > 0$. In other words, in order to verify $\liminf_{t\to\infty}\beta(t) > 0$, one requires the condition $\liminf_{t\to\infty}\beta(t) > 0$. This is an obvious circularity.

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