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Technical Comments

Comment on "Special Section: Hubble Space Telescope Control"

Bong Wie*
Arizona State University, Tempe, Arizona 85287

THE March–April 1995 issue of this journal contains a special section on Hubble Space Telescope Control, consisting of six papers[1–6] that deal with various aspects of the control redesign problem of Hubble Space Telescope (HST).

The purpose of this Technical Comment is to inform the readers of this journal as well as the authors of Refs. 1–6 that a simple solution to the HST control redesign problem had already been presented in Wie et al.,[7] which later appeared in the November–December 1993 issue of this journal. (Note: Ref. 7 was not referenced by any of the contributing papers[1–6] of the special section on Hubble Space Telescope Control.)

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*Professor, Department of Mechanical and Aerospace Engineering. Associate Fellow AIAA.

References

[1]Bukley, A. P., "Hubble Space Telescope Pointing Control System Design Improvement Study Results," *Journal of Guidance, Control, and Dynamics*, Vol. 18, No. 2, 1995, pp. 194–199.

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[3]Collins, E. G., and Richter, S., "Linear-Quadratic-Gaussian-Based Controller Design for Hubble Space Telescope," *Journal of Guidance, Control, and Dynamics*, Vol. 18, No. 2, 1995, pp. 208–213.

[4]Irwin, R. D., Glenn, R. D., Frazier, W. G., Lawrence, D. A., and Follett, R. F., "Analytically and Numerically Derived H-infinity Controller Designs for Hubble Space Telescope," *Journal of Guidance, Control, and Dynamics*, Vol. 18, No. 2, 1995, pp. 214–221.

[5]Nurre, G. S., Sharkey, J. P., Nelson, J. D., and Bradley, A. J., "Preservicing Mission, On-Orbit Modifications to Hubble Space Telescope Pointing Control System," *Journal of Guidance, Control, and Dynamics*, Vol. 18, No. 2, 1995, pp. 222–229.

[6]Zhu, G., Grigoriadis, K. M., and Skelton, R. E., "Covariance Control Design for Hubble Space Telescope," *Journal of Guidance, Control, and Dynamics*, Vol. 18, No. 2, 1995, pp. 230–236.

[7]Wie, B., Liu, Q., and Bauer, F., "Classical and Robust H_∞ Control Redesign for the Hubble Space Telescope," *Proceedings of the 1992 AIAA Guidance, Navigation, and Control Conference* (Hilton Head, NC), AIAA, Washington, DC, 1992, pp. 1434–1444; also *Journal of Guidance, Control, and Dynamics*, Vol. 16, No. 6, 1993, pp. 1069–1077.

Errata

Full Envelope Flight Control System Design Using Quantitative Feedback Theory

Odell R. Reynolds, M. Pachter, and C. H. Houpis
U.S. Air Force Institute of Technology, Wright–Patterson Air Force Base, Ohio 45433-7655

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TWO errors were introduced into the paper. The title of the paper as approved by the authors is above. The incorrect title is *Full Envelope Flight Control System Design Using Qualitative Feedback Theory*. Please note that this error may not be corrected in all of this journal's numerous abstracting and indexing services.

The abstract also included several errors with the word quantitative being replaced by qualitative. The following is the abstract in its correct form.

A controlled plant's characteristics can vary widely throughout its operational envelope. This is a major problem in nominal plant-based control system design. Hence, gain scheduling is often used for full envelope design. In this paper, it is proposed to address the plant's variability using robust control design concepts, minimizing the need for gain scheduling. In particular, the frequency-domain-based quantitative feedback theory multiple input multiple output robust controls design method is employed for the synthesis of a full envelope flight control system for an F-16 aircraft derivative. Quantitative feedback theory addresses structured uncertainty that is caused by full envelope operation. Thus, quantitative feedback theory robust control is particularly suited for full envelope controller design. Compensators and prefilters for the aircraft's pitch and lateral/directional channels are designed to meet level 1 flying qualities specifications, and these designs are validated using simulations.

AIAA regrets these errors, for which the authors bear no responsibility.