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# Apology

## Increasing the Numerical Robustness of Balanced Model Reduction

G. J. W. Mallory and D. W. Miller
*Massachusetts Institute of Technology, Cambridge, Massachusetts 02139*

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THIS is a formal apology for failing to cite a reference. Reference [1] was published as a Technical Note in the *Journal of Guidance, Control and Dynamics* in 2002 to present a technique to prebalance large-order, ill-conditioned models before the conduct of a standard model reduction. Although the technique was original, improved the numerical algorithm, and useful to the authors, 1) our starting place was the MATLAB Robust Control Toolbox [2], and we should have referenced it, and 2) we failed to conduct a thorough literature search and, as a result, did not recognize that other authors had addressed the same problem, with a different solution, more than a decade earlier [3,4], which led to the development of this Toolbox. Although this omission was unintentional, it was inappropriate and unprofessional. We reviewed this oversight with the AIAA Publications Ethical Standards Subcommittee, and we are in agreement that this apology is the appropriate resolution to the issue. This oversight has reinforced for us the importance of conducting a thorough literature search.

### References

[1] Mallory, G. J. W., and Miller, D. W., "Increasing the Numerical Robustness of Balanced Model Reduction," *Journal of Guidance, Control, and Dynamics*, Vol. 25, No. 3, May–June 2002, pp. 596–598. doi:10.2514/2.4922

[2] Chiang, R. Y., and Safonov, M. G., *Robust Control Toolbox for Use with MATLAB: Users Guide, Version 2*, The MathWorks, Natick, MA, 1998

[3] Safonov, M. G., Chiang, R. Y., and Flashner, H., "H-Infinity Robust Control Synthesis for a Large Space Structure," *Proceedings of the American Control Conference*, Inst. of Electrical and Electronics Engineers, Piscataway, NJ, June 1988, pp. 2038–2045.

[4] Safonov, M. G., and Chiang, R. Y., "A Schur Method for Balance-Truncation Model Reduction," *IEEE Transactions on Automatic Control*, Vol. 34, No. 7, July 1989, pp. 729–733. doi:10.1109/9.29399