

Erratum: Sensitivity Analysis of Thermoacoustic Instability with Adjoint Helmholtz Solvers

Matthew P. Juniper*

Engineering Department, University of Cambridge, CB2 1PZ, U.K.

(Dated: June 22, 2020)

* mpj1001@cam.ac.uk; http://www2.eng.cam.ac.uk/~mpj1001/MJ_biography.html

A subsequent paper (Magri, Juniper, and Moeck, *J. Fluid Mech.* **882** R1) shows that the conclusion that refers to the Rayleigh criterion should instead refer to the *first variation* of the Rayleigh criterion. The sentences of the paper that need to be altered are listed below. The rest of the paper is unaffected.

Abstract:

- “*Physical interpretation of these results shows that the well-known Rayleigh criterion should be revised for a linear analysis ... the criterion should contain the adjoint pressure rather than the pressure.*” should be changed to: “*These results show that the first variation of the Rayleigh criterion should be formed with the adjoint pressure rather than the direct pressure.*”

Section I Introduction:

- *This quote will be reexamined in Sec. VIII in light of the results in this paper* should be removed.
- “*(vi): the conclusion that Rayleigh’s criterion needs to be revised for non-self-adjoint systems*” should be removed.

Section VIII Physical interpretation. The results in this section are correct but concern the *first variation* of Chu’s expanded Rayleigh criterion, rather than Chu’s expanded Rayleigh criterion itself.

- “*In the self-adjoint case, this becomes equivalent to Rayleigh’s criterion*” is no longer relevant.
- “*This differs from Chu’s statement [3] because*” should be changed to “*The first variation of Chu’s statement [3] requires that*”.
- “*In a linear stability analysis,*” should be replaced by “*When considering the first variation,*”
- “*the Rayleigh integral formed with the adjoint pressure*” should be changed to “*the integral formed with the adjoint pressure.*”

Section XI Conclusion:

- “For this reason, the quote from Chu [3] ... is not correct for non-self-adjoint systems.” should be removed.
- “For the same reason, the generalized Rayleigh criterion should be formed with the adjoint pressure. The Rayleigh criterion formed with the direct pressure is the special case for self-adjoint systems.” should be changed to “The first variation of the Rayleigh criterion should be formed with the adjoint pressure. The first variation formed with the direct pressure is the special case for self-adjoint systems.”