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Technical Comments

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Comment on "Homogeneous-Dilution Model of Partially Fueled Simplified Pulse Detonation Engines"

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REFERENCE [1] does not give sufficient credit to the contributions of [2]. The data shown in Figs. 5 and 6 of [1] clearly demonstrate that the extraordinarily simple relationship for performance of partially fueled pulse detonation engines (P-F PDEs) presented in [2] [i.e., Eq. (22)] provides estimates for both specific impulse and thrust that are evidently the equal of the other methods displayed over the useful range of initial mole fraction of detonable gas. This is undoubtedly true because the relationship of [2] is ultimately based on fundamental energetic principles and is no more empirical than first law of thermodynamics. The engineering community is indebted to the authors of [2] for the clarifying insight they brought to the PDE [3].

The informational value of [1] would have been increased if the baseline performance of fully fueled simplified PDEs (i.e., the F-F PDEs) had been compared with the classical cycle analysis of [4]. The methods of [2,4] are easily combined to produce extremely simplified relationships for estimating the performance of partially fueled pulse detonation engines (i.e., P-F PDEs).

References

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