













did simulation through the dual-gas condition of shock wave and using the  $B^1$  difference method and Superbee limiter to discuss whether the estimation ability can be improved by this manner. As the testing results, not only the oscillations of Model  $B_3$  get grievous but its capturing-shock abilities are more and more unhealthy. Hence, we knew that it is no uses through considering the case of  $P_{M.E}$ , or maybe we should say that the considered EOS is inappropriate for our test case. As the second test results, we got that the influence of the quadratic term of gradient estimation is insignificant, even almost no, for the whole computing procedure. Hence, that we wanted to improve the flux limiters through this way is unsuitable.

### Conflict of Interest

The authors declare no conflict of interest.

### Author Contributions

The first author's contributions to this work include methodology, validation, formal analysis, and writing. The corresponding author provided review and supervision. All authors have approved the final version.

### Funding

This study was supported by the National Science and Technology Council (NSTC112-2221-E-035-042-), we want to thank for the valuable help cordially.

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