

Yoo, C. S.; Wang, Y.; Trouvé, A.; Im, H. G.

Characteristic boundary conditions for direct simulations of turbulent counterflow flames.
(English) [Zbl 1086.80006](#)
Combust. Theory Model. 9, No. 4, 617-646 (2005).

The paper describes a direct numerical resolution for turbulent counterflow flames. Following *T. J. Poinso*t and *S. K. Lele* [*J. Comput. Phys.* 101, No. 1, 104–129 (1992; [Zbl 0766.76084](#))], the authors write the corresponding Navier-Stokes system and using the characteristic wave description they obtain the so-called Navier-Stokes characteristic boundary conditions NSCBC. Considering here the multidirectionality of the flame boundaries, the authors improve the previously known NSCBC within this context. They consider a first numerical scheme in the case of a laminar counterflow flame. They then apply the modified NSCBC in the context of laminar and turbulent counterflow flames.

Reviewer: [Alain Brillard \(Mulhouse\)](#)

MSC:

[80A25](#) Combustion
[76F40](#) Turbulent boundary layers
[76F65](#) Direct numerical and large eddy simulation of turbulence
[76M20](#) Finite difference methods applied to problems in fluid mechanics

Cited in **28** Documents

Keywords:

nonreflecting boundary conditions; compressible reacting flows; direct numerical simulation; counterflow flame; Navier-Stokes

Software:

[FlameMaster](#); [OPPDIF](#)

Full Text: [DOI](#)

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