RECENT ADVANCES ON THE NUMERICAL MODELING OF POLYMER MIXING

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ABSTRACT

This minisymposium aims at gathering recent advances in the mathematical and numerical modeling of polymer mixing technologies.

Polymer manufacturing processes are ubiquitous in many industrial sectors. The development of accurate and efficient numerical simulation tools has greatly improved the manufacturing capability, control and industrial productivity of such processes. Further improvements can be obtained exploiting new emerging numerical technologies.

The topics covered in this mini-symposium include (but are not limited to) conforming and non-conforming discretization methods, mesh generation techniques, particle-based methods, machine-learning techniques, mixing indices, rheological modeling, turbulent and multiphase flows.

Contributions from both academic and industrial research centers are encouraged.

REFERENCES

[1] J.M.A. Cesar de Sa and R.M. Natal Jorge, "New enhanced strain elements for incompressible problems", *Int J Numer Methods Eng.*, Vol. **44**, pp. 229–248, (1999).

[2] O.C. Zienkiewicz and R.C. Taylor, *The Finite Element Method*, 4th Edition, Vol. 1, Mcgraw Hill, 1989.