

# TRAVELING WAVE SOLUTIONS DESCRIBING COMBUSTION WAVES IN POROUS MEDIA

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## Resumo/Abstract:

A number of models describing injection of air into a porous medium that contains a solid fuel will be presented. In [2] the model was simplified and rigorous proof of the existence of the traveling wave solution was presented under the assumption that only co-flow combustion waves existed. The stability of such solutions was studied in [1]. The results presented in [2] were generalized by taking into account the counter-flow combustion wave in [3]. All wave sequences for the general Riemann problem solution were obtained and validated through numerical simulations.

## References

- [1] C.G., FURTADO, L., MARCHESIN, D., SCHECTER, S., *Stability of Interacting Traveling Waves in Reaction-Convection-Diffusion Systems.*, Discrete and Continuous Dynamical Systems, v. suppl., p. 258-266, 2015.
- [2] C.G., MARCHESIN, D., SCHECTER, S., *Combustion waves and Riemann solutions in light porous foam.*, Journal of Hyperbolic Differential Equations, v. 11, p. 295-328, 2014.
- [3] C.G., SENOS, L., *Riemann solutions for counter flow combustion in light porous foam.*, Computational and Applied Mathematics, 2017.