

Porous material Analysis Toolbox based on OpenFoam (PATO)

Jean LACHAUD, Université de Bordeaux

PATO is a modular analysis platform to simulate the behaviour of materials in interaction with severe environments [1].

It was originally developed at NASA to model space vehicle heat shields. It has been released Open Source in 2017. It is currently used in different fields such as: atmospheric entry of meteorites and space debris, thermal transformation of biomass in biofuel, fire safety. It is implemented as a C++ top level module of OpenFOAM (computational fluid dynamics, GNU GPL) and Mutation++ (thermodynamics, transport, and chemistry library, GNU LGPL).

PATO can be obtained at the following link : <https://software.nasa.gov/software/ARC-16680-1A>

Références

- [1] J. LACHAUD AND J. B. SCOGGINS AND T. E. MAGIN AND M. G. MEYER AND N. N. MANSOUR, *A generic local thermal equilibrium model for porous reactive materials submitted to high temperatures*, International Journal of Heat and Mass Transfer, 108 : 1406-1417, 2017.