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Thermo-chemo-mechanical modeling of a filled rubber behaviour submitted to thermal ageing

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This work focuses on the finite strain thermo-mechanical modeling of the dynamical behavior of carbon black filled butadiene using a multiphysics coupling approach. This material, as many filled rubbers, exhibits a complex thermo-dynamical behavior that strongly depends on the chemo-physical evolution due to severe thermo-mechanical loadings. The self-heating phenomenon, the frequency dependency and the Payne effect are taken into account in a phenomenological thermo-visco-hyperelastic model.

Speaker Biography

R Bouaziz has completed his PhD at the age of 27 years from University of Lille 1, France. He is a postdoctoral researcher in Centre des Matériaux (Mines ParisTech).

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