



Navier-Stokes-Fourier Equations: A Rational Asymptotic Modelling Point of View

By Radyadour Kh. Zeytounian

Springer-Verlag Berlin and Heidelberg GmbH Co. KG, Germany, 2014. Paperback. Book Condition: New. 2012 ed.. 229 x 152 mm. Language: English . Brand New Book ***** Print on Demand *****.This research monograph deals with a modeling theory of the system of Navier-Stokes-Fourier equations for a Newtonian fluid governing a compressible viscous and heat conducting flows. The main objective is threefold. First , to deconstruct this Navier-Stokes-Fourier system in order to unify the puzzle of the various partial simplified approximate models used in Newtonian Classical Fluid Dynamics and this, first facet, have obviously a challenging approach and a very important pedagogic impact on the university education. The second facet of the main objective is to outline a rational consistent asymptotic/mathematical theory of the of fluid flows modeling on the basis of a typical Navier-Stokes-Fourier initial and boundary value problem. The third facet is devoted to an illustration of our rational asymptotic/mathematical modeling theory for various technological and geophysical stiff problems from: aerodynamics, thermal and thermocapillary convections and also meteofluid dynamics.



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