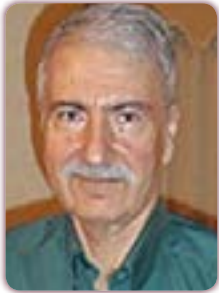


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Daniel N Riahi

University of Texas Rio Grande Valley, USA

Modeling rotating fiber jets and application in forcespinning

In this lecture, we first review modeling and simulation that have been carried out in the last two decades for nonlinear inviscid and viscous Newtonian rotating jet flows with curved centerlines. Next, we consider the governing modeling system, which we developed recently, for the polymeric fiber jets and calculate the corresponding nonlinear solutions for quantities such as jet speed, radius, stretching rate, trajectory and strain rate versus different values of the arc length and parameters that can represent effects due to rotation, friction, surface tension and relaxation time. We present the application of such results in force spinning process, which is a relatively new technology that uses centrifugal force due to the externally imposed rotational forces to produce nanofibers from different materials with important technological applications.

Biography

Daniel N Riahi is Professor in the School of Mathematical & Statistical Sciences at The University of Texas Rio Grande Valley, USA and is Professor Emeritus in the Department of Mechanical Science and Engineering at the University of Illinois at Urbana-Champaign, USA. He is Fellow of Society of Engineering Science, Associate Fellow of American Institute of Aeronautics and Astronautics (AIAA) and Fellow of Wessex Institute of Technology of Great Britain. He was Honorary General Chair of the World Congress on Engineering and Technology (China, 2011), Keynote Speaker and Plenary Lecturers of over seven International Conferences. He received a number of awards including Service recognition, certificates, honorific title & research awards. He is an author of over 380 publications mostly published in rigorously refereed journals.

daniel.riahi@utrgv.edu

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