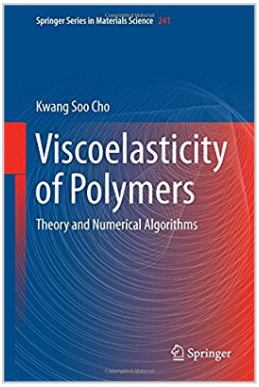

Viscoelasticity of Polymers: Theory and Numerical Algorithms (Springer Series in Materials Science)

By Kwang Soo Cho

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This book offers a comprehensive introduction to polymer rheology with a focus on the viscoelastic characterization of polymeric materials. It contains various numerical algorithms for the processing of viscoelastic data, from basic principles to advanced examples which are hard to find in the existing literature. The book takes a multidisciplinary approach to the study of the viscoelasticity of polymers, and is self-contained, including the essential mathematics, continuum mechanics, polymer science and statistical mechanics needed to understand the theories of polymer viscoelasticity. It covers recent achievements in polymer rheology, such as theoretical and experimental aspects of large amplitude oscillatory shear (LAOS), and numerical methods for linear viscoelasticity, as well as new insights into the interpretation of experimental data.

Although the book is balanced between the theoretical and experimental aspects of polymer rheology, the author’s particular interest in the theoretical side will not remain hidden. Aimed at readers familiar with the mathematics and physics of engineering at an undergraduate level, the multidisciplinary approach employed enables researchers with various scientific backgrounds to expand their knowledge of polymer rheology in a systematic way.

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Editorial Review

Review

“This is a generally well composed book. ... those who are engaged with rheological measurements of complex fluids will find this book an excellent resource.” (David Cheneler, Applied Rheology, Vol. 26 (4), 2016)

From the Back Cover

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About the Author
Prof. Cho's research is oriented to investigation of rheological and dynamic behaviors of polymer and related materials. His research interests are constitutive theory of nonlinear viscoelasticity and irreversible thermodynamics and characterization of structure of complex fluids by use of nonlinear viscoelastic measurements (eg. LAOS). He has high reputation world wide and one of the top 3 rheologists in Korea.

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