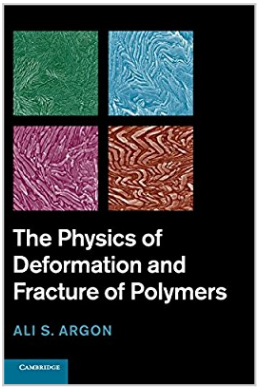

The Physics of Deformation and Fracture of Polymers (Cambridge Solid State Science)

By A. S. Argon

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Demonstrating through examples, this book presents a mechanism-based perspective on the broad range of deformation and fracture response of solid polymers. It draws on the results of probing experiments and considers the similar mechanical responses of amorphous metals and inorganic compounds to develop advanced methodology for generating more precise forms of modelling. This, in turn, provides a better fundamental understanding of deformation and fracture phenomena in solid polymers. Such mechanism-based constitutive response forms have far-reaching application potential in the prediction of structural responses and in tailoring special microstructures for tough behaviour. Moreover, they can guide the development of computational codes for deformation processing of polymers at any level. Applications are wide-ranging, from large strain industrial deformation texturing to production of precision micro-fluidic devices, making this book of interest to both advanced graduate students and to practising professionals.

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Editorial Review

Review
"This is an excellent book on inelastic deformation and fracture of polymers from a mechanistic point of view. It is written by a leading researcher who has studied this subject at the Massachusetts Institute of Technology for more than thirty years. A large part of the book is based on the author's own contribution to the field. It is concisely written yet contains sufficient details. This book is a good reference for graduate students as well as engineers in the field."
SuPing Lyu, MRS Bulletin

About the Author
Ali S. Argon is Quentin Berg Professor Emeritus at the Department of Mechanical Engineering at Massachusetts Institute of Technology (MIT). He is recognized world-wide as an authority on the mechanical behaviour of engineering solids, he has published over 300 papers and three books and he is one of the internationally most widely cited authors in materials science. He has received a number of honours and awards including membership in the US National Academy of Engineering, Fellowship in the American Physical Society, Distinguished Life Membership in the Sigma Alpha Mu (International Professional Society of Materials and Engineering), the Heyn Medal of the German Materials Society and a US Senior Scientist Award of the Alexander von Humboldt Society for Research in Germany.

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