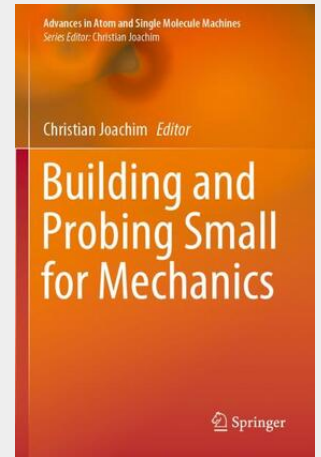


Joachim

Building and Probing Small for Mechanics

This book presents mechanics miniaturization trends explored step by step, starting with the example of the miniaturization of a mechanical calculator. The ultra-miniaturization of mechanical machinery is now approaching the atomic scale. In this book, molecule-gears, trains of molecule-gears, and molecule motors are studied -one molecule at a time- on a solid surface, using scanning probe manipulation protocols and in solution as demonstrated in the European project "MEMO". All scales of mechanical machinery are presented using the various lithography techniques currently available, from the submillimeter to the nanoscale. Researchers and nanomechanical engineers will find new inspirations for the construction of minute mechanical devices which can be used in diverse hostile environments, for example under radiation constraints, on the surface membrane of a living cell or immersed in liquid. The book is presented in a format accessible for university students, in particular for those at the Master and PhD levels.

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