This article was downloaded by:

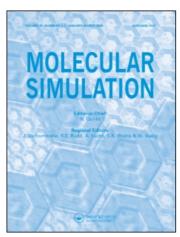
On: 14 January 2011

Access details: Access Details: Free Access

Publisher Taylor & Francis

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-

41 Mortimer Street, London W1T 3JH, UK



Molecular Simulation

Publication details, including instructions for authors and subscription information: http://www.informaworld.com/smpp/title~content=t713644482

Guest editorial

D. M. Heyes

To cite this Article Heyes, D. M.(2005) 'Guest editorial', Molecular Simulation, 31: 13, 865

To link to this Article: DOI: 10.1080/08927020500314043 URL: http://dx.doi.org/10.1080/08927020500314043

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: http://www.informaworld.com/terms-and-conditions-of-access.pdf

This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.



Guest editorial

D. M. HEYES

An auxetic material is one that dilates laterally when it is stretched, and conversely contracts when it is compressed. There are a number of naturally occurring materials exhibiting this counter-intuitive behaviour, including a number in the living world (as usual, Nature gets there first). The effect originates from a concerted and coupled response of the members used in construction. Auxetic materials are interesting both for their novelty and the many uses to which they can be put.

Since the late 1980s a range of synthetic auxetic materials has been constructed from, for example, composites, foams, and micro-porous polymers. These are perhaps best referred to as 'constructions' and 'structures'. The progress made in the field in the last two decades has been immense. Nevertheless, a significant challenge remains in how best to design and synthesise materials where this property originates at the molecular level, which this Special Issue addresses.

The importance of this subject has been recognised in the UK with the establishment of the Auxetic Materials Network, 'AUXNET'. An international workshop on 'Auxetics and Related Systems' was held in Będlow near Poznań, Poland in June 2004, which brought together researchers from many countries and disciplines. This meeting inspired this Special Issue. Although there is significant literature already in this field, some of the fundamental issues leading to auxeticity still need to be established. For molecular-based auxetics, molecular simulation is proving an invaluable tool in this respect, as the articles in this issue demonstrate.

This Special Issue contains papers which cover the fundamental requirements for auxeticity, as well as articles dealing with the molecular modelling of generic and specific systems, both inorganic and organic in composition. Many of the papers are collaborations between different groups. This issue is groundbreaking in being entirely devoted to theoretical and simulation papers, providing a snapshot of the breadth and depth of current activity in the field. It surveys the work being carried out, the present state of knowledge and highlights areas where there still remain uncertainties and challenges.

D. M. Heyes University of Surrey