



## Book review

**Ring opening Metathesis Polymerisation and Related Chemistry: State of the Art and Visions for the New Century. NATO Science Series, II. Mathematics, Physics and Chemistry, vol. 56**

Edited by E. Khosravi, T. Szymanska-Buzar, Kluwer Academic Publishers, Dordrecht, 2002. 493+xix pp.; ISBN: 1-4020-0558-X, EUR 180, USD 166

This 488 page volume brings together 41 of the main lectures and short presentations from the NATO Advanced Study Institute (ASI) on Ring Opening Metathesis Polymerisation (ROMP) and Related Chemistry that took place in Polanica-Zdroj, Poland from the 3rd to the 15th September, 2000. The collection, from 21 named contributors, has been well-organised and formatted into four sections that highlight developments in the area and attempt to discuss possible visions for the future. Part I (Ring Opening Metathesis Polymerisation) consists of five papers, and begins with a brief introduction and summary to ROMP and related chemistry (e.g. ring closing metathesis, RCM), by K.J. Ivin. One of the most important recent advances in this area of chemistry is the rapid development of new ruthenium-based 'Grubbs' catalysts, which is addressed in this section both mechanistically (R.H. Grubbs) and from an industrial standpoint (A. Muhlebach). The section concludes with two papers (J.J. Rooney and A.M. Kenwright) which discuss in detail the various structures (e.g. blockiness and tacticity) of the polymeric materials arising from ROMP, focusing on the application of high resolution NMR spectroscopy to determine the ratios of different microstructures present poly(norbornene) derivatives.

Next come 18 papers grouped together in Part II (Application of Ring Opening Metathesis Polymerisation), and these cover a wide range of uses including synthesis of organic/inorganic composites (W.J. Feast), macromolecular engineering (Y. Gnanou and A. Demonceau), the development of novel materials with interesting biological (M. North) and electronic (F. Stelzer) properties, applications of materials as solid-supports for further catalytic transformations (M.R. Buchmeister), applications to industrial processes (F. Lefebvre) and use of ring opening metathesis in the synthesis of natural compounds (E.Sh. Finkelshtein). Each contribution is clearly presented, explaining the relevant background and detailing the recent results from the author in the area under discussion. Overall,

this section provides a good synopsis of some of the current topics of interest that benefit from the wide applicability of the ROMP process and the number of monomers suitable for ROMP. It should be of interest to chemists from a range of sub-disciplines.

The ten papers that comprise Part III have been grouped under the general heading Acyclic Diene Metathesis (ADMET) and Other Related Chemistry. The first few contributions are concerned with the synthesis of functionalised materials, such as main-group metal-containing polymers (K.B. Wagener), processable *p*-phenylenevinlylenes (E. Thorn-Csányi) and silicon-containing materials (B. Marciniec) using ADMET. Application of metal-carbyne complexes in ROMP and ADMET, and metathesis of alkynes (K. Weiss) have also been included under this general heading. The final section of the book groups together eight of the short presentation from the meeting and as such is much more diverse in its content, ranging from mass spectrometric analysis of olefin metathesis and polymerisation (B. Salih), ultrasound-assisted metathesis (I. Dragutan) and a DFT study of ethylene metathesis on a representative heterogeneous catalyst (J. Handzlik).

Overall this volume brings together contributions from the work of a diverse group of scientists and as such should be of use to any researchers who wish to update their knowledge on the current state of affairs within ROMP and related chemistry. Interest in the subject material ought not be restricted to polymer chemists, but should also appeal, for example, to inorganic chemists with an interest in the development of catalyst systems, to organic chemists who may benefit from application of the metathesis reaction in their synthesis and to analytical chemists who can apply various techniques in the characterisation of the products of metathesis reactions. Altogether this is a well-rounded review of recent subject material and now available to those people who were unable to attend the meeting itself.

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