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## Book Reviews

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### **1 Handbook on Globalization and Higher Education**

**by: R. King, S. Marginson and R. Naidoo**

**Published 2011**

**by Edward Elgar Publishing Limited, The Lypiatts**

**15 Lansdown Road, Cheltenham, Glos GL50 2JA, UK, 541pp**

**ISBN: 978-1-84844-585-7**

Globalisation, whatever its demerits, has aided global scholarship in ways unimaginable only a few years ago.

In one important sense, the notion of time and space compression underpins almost every element of this book. But it does so only by being perceived as a platform for allowing wider imaginings and strategies for higher education institutions and systems. Moreover, although policy internationalisation, competition and mimicry testify to the increasing importance of social networks globally – both as coordinating arrangements and as power arenas – it is how these networks are shaped by particular standards, norms and models that remains important; this continues to generate significant forms of difference as well as convergence for higher education systems.

The book contains the following chapters:

*Part I – Generic:* Introduction to Part I, imagining the global, rethinking development: higher education and the new imperialism, the university as a global institution, three forms of the knowledge economy: learning, creativity and openness, global institutions: the organisation for economic cooperation and development, extra-national provision, global institutions, higher education and development, globalisation, higher education and inequalities: problems and prospects.

*Part II – Case studies:* Introduction to Part II, regional responses to globalisation challenges: the assertion of soft power and changing university governance in Singapore, Hong Kong and Malaysia, global toolboxes, local tool making: the contradictions of external evaluation in South African higher education reform, globalisation and higher education in Canada, globalisation, internationalisation and the world-class university movement: the China experience, European higher education and the process of integration, neoliberal globalisation and higher education policy in India, globalisation and higher education in South Korea: towards ethnocentric internationalisation or global commercialisation of higher education? The invisible topics on the public agenda for higher education in Argentina, globalisation, a knowledge-based regime and higher education: where do Mexican universities stand? Globalisation in the USA: the case of California, the strange death of the liberal university: research assessments and the impact of research.

*Part III – Global governance:* Introduction to Part III, strategising and ordering the global, governing knowledge globally: science, structuration and the open society, governing quality, convergences and divergences in steering higher education systems, the Bologna process: from the national to the regional to the global, and back, the standardisation of higher education, positional competition and the global labour market, measuring world-class excellence and the global obsession with rankings.

In their various ways, the chapters examine and seek to explain the current epoch changing eddies affecting our universities and in relation to which universities are important causal agents. They provide a diversity of terrains and a plurality of perceptions that highlight the continuing durability of universities and their enhanced cultural, political and economic centrality to contemporary nations in the current wave of globalisation.

This comprehensive and accessible handbook will prove an invaluable reference tool for researchers, academics and students with an interest in higher education from economics, international studies and public policy perspectives, as well as for higher education policymakers, and funding and governance bodies.

The expert contributors reveal the strategies, practices and governance mechanisms developed by international and regional organisations, national governments and by higher education institutions themselves. They analyse local responses to dominant global templates of higher education and the consequences for knowledge generation, social equity, economic development and the public good.

## **2 International Handbook on the Economics of Corruption**

**by: S. Rose-Ackerman**

**Published 2006**

**by Edward Elgar Publishing Limited, The Lypiatts**

**15 Lansdown Road, Cheltenham, Glos GL50 2JA, UK, 615pp**

**ISBN: 978-1-84542-242-4 (cased)**

**ISBN: 978-1-84720-745-6 (paperback)**

The handbook begins with an introductory essay by the editor, followed by two chapters written by leading exponents of cross-country research. However, the focus of the handbook is on research at the micro level, where policy can be made and evaluated. These microeconomic studies fall into several overlapping categories. The first group includes studies that link corrupt incentives to institutional structures, particularly the organisation of the state. The second draws implications from surveys of households or businesses and from controlled experiments. The third concentrates on particular sectors such as education, tax administration, public works, customs services, and pharmaceuticals. Finally, two chapters assess corruption in the transition away from socialism in Europe and Asia.

- *Part I – Corruption and poor governance around the world:* Causes and consequences of corruption: what do we know from a cross-section of countries, measuring governance using cross-country perceptions data, measuring institutions?
- *Part II – Corruption and institutional structure:* Bargaining for bribes: the role of institutions, democratic institutions and corruption: incentives and constraints in

politics, decentralisation, corruption and government accountability, corruption, hierarchies and bureaucratic structure, determinants of corruption in developing countries: the limits of conventional economic analysis.

- *Part III – Corruption in the transition from socialism*: The effectiveness of anti-corruption programs: preliminary evidence from the post-communist transition countries, corruption in China and Russia compared: different legacies of central planning.
- *Part IV – Surveys and experiments*: Why are some public officials more corrupt than others? Corruption and the demand for regulating capitalists, corruption in international business transactions: the perspective of Norwegian firms, laboratory experiments on corruption.
- *Part V – Sectoral anti-corruption policies*: How corruption affects service delivery and what can be done about it, corruption and the management of public works in Italy, corruption in tax administration: lessons from institutional reforms in Uganda, the economics of anti-corruption: lessons from a widespread customs reform, a prescription for abuse? Pharmaceutical selection in Bulgarian healthcare.

### **3 Intelligent Nanomaterials**

**by: A. Tiwari, A.K. Mishra, H. Kobayashi and A.P.F. Turner**

**Published 2011**

**by Scrivener Publishing, 3 Winter Street, Suite 3, Salem, MA 01970**

**Co-published John Wiley & Sons, Inc. Hoboken New Jersey 838pp**

**ISBN: 978-0-470-93879-9**

The creation of new materials is one of the fundamental driving forces of industry and lays the foundation for new products to enhance the wealth and well-being of society. The last three decades has seen extraordinary advances in the generation of new materials based on both fundamental elements and composites, driven by advances in synthetic chemistry and often drawing inspiration from nature. The concept of an intelligent material envisions additional functionality built into to the molecular structure, such that a desirable response occurs under defined conditions. The last decade has seen the emergence of particular material properties engineered by exploiting the extraordinary behaviour of nanostructures.

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Divided into four parts: inorganic materials; organic materials; composite materials; and biomaterials, the 22 chapters cover the latest research and developments in the processing, properties, and applications of intelligent nanomaterials. Included are molecular device materials, biomimetic materials, hybrid-type functionalised polymers-composite materials, information- and energy-transfer materials, as well as environmentally friendly materials.

This book aims to provide an up-to-date introduction to the fascinating field of intelligent nanomaterials. In general description, this large and fairly comprehensive volume includes 22 chapters divided into four main areas: inorganic materials, organic materials, composite materials, and biomaterials. It covers the latest research and developments in intelligent nanomaterials: processing, properties, and applications. Included are molecular device materials, biomimetic materials, hybrid-type functionalised polymers-composite materials, information- and energy-transfer materials, as well as environmentally friendly materials. The book is written for a large readership including university students and researchers from diverse backgrounds such as chemistry, materials science, physics, biological science and engineering. It can be used not only as a textbook for both undergraduate and graduate students but also as a review and reference book for researchers in the materials science, bioengineering, pharmacy, biotechnology and nanotechnology.

#### **4 Substrate Surface Preparation Handbook**

**by: M. Robertson**

**Published 2010**

**by Artech house, Boston, London, 685 Canton Street**

**Norwood, MA 02062, USA, 195pp**

**ISBN: 13: 978-1-60807-213-2**

The book contains the following chapters: introduction, preparation: before the start, lapping, polishing, specific processes and materials, specialised techniques, surface finish, optics, semiconductor device deconstruction, metallurgical polishing and microscopy, laboratory setup, using interferometry, bibliography, glossary, appendix: the workshop, grazing incidence interferometer.

*Substrate Surface Preparation Handbook* serves as a practical, one-stop reference, covering the technologies developed to produce flat surfaces with nanometer accuracy for the subsequent building of semiconductor devices and integrated circuits. This hands-on resource offers detailed guidance in the entire substrate surface preparation process, from lapping and polishing to specialised techniques and surface properties.

Supported with over 125 illustrations, this unique book provides a complete understanding of important maintenance methods and the full range of equipment available in the field. Practitioners gain the know-how and confidence needed to produce desired results when processing a sample of new material, rather than wasting time and money on a trial and error approach. Moreover, this authoritative book presents in-depth discussions on key applications, such as optics production and semiconductor device delamination.

Polishing has come of age. Starting from the loin-clothed individual cleaning off the excess glass on the base of a blown-glass work of art using a large rotating stone, it has progressed to being now used in large-scale processes. Processes with atomic-scale precision, over many cycles, on the large-diameter silicon wafers are used in the mass production of electronic integrated circuits. In such areas of application, few nanometer-thick layers of precious metals on electronic devices must be polished to atomic tolerances, so that the next structured layer of the device can be registered and deposited to the required accuracy.

**5 Fourier Transforms in Radar and Signal Processing, Second Edition****by: D. Bradwood****Published 2010****by Artech house, Boston, London, 685 Canton Street****Norwood, MA 02062, USA, 263pp****ISBN: 13: 978-1-60807-197-5**

Fourier transforms are used widely, and are of particular value in the analysis of single functions and combinations of functions found in radar and signal processing. Still, many problems that could have been tackled by using Fourier transforms may have gone unsolved because they require integration that is difficult and tedious. This newly revised and expanded edition of a classic Artech House book provides an up-to-date, coordinated system for performing Fourier transforms on a wide variety of functions. Along with numerous updates throughout the book, this second edition includes a significant new chapter on periodic waveforms that introduces an original treatment of the digital Fourier transform using the technique.

By building upon Woodward's well-known 'Rules and Pairs' method and related concepts and procedures, this book establishes a unified system that makes implicit the integration required for performing Fourier transforms on a wide variety of functions. It details how complex functions can be broken down into their constituent parts for analysis. Professionals can now concentrate on functional relationships instead of getting bogged down in the details of integration. This approach to implementing Fourier transforms is illustrated with many specific examples from digital signal processing, as well as radar and antenna array operation. Some striking results are obtained in the fields of interpolation, distortion compensation (for which a new Fourier transform pair is defined), broadband radar beam patterns, and sector beam patterns. The method could well be of interest and value to users of the Fourier transform in other areas of application.

DVD included. Contains MATLAB® programs that implement many of the results presented in this book. These can be run easily with the user's own parameter values.

**6 Physical Testing of Plastics****by: T.R. Crompton****Published 2012****by Smithers – A Smithers Group company, Shawbury****Shrewsbury, Shropshire, SY4 4NR, UK, 386pp****ISBN: 978-1-84735-485-3****ISBN: 978-1-84735-486-0****ISBN: 978-1-84735-487-7**

Physical testing of plastics can be conveniently broken down into several groups for the purpose of discussion. Major types of testing~ are those used to evaluate their mechanical, thermal, electrical and miscellaneous properties such as hardness, specific gravity, optical, viscoelastic, and rheological characteristics.

All of these aspects of polymer testing are included in this book in sufficient detail to enable the chemist, engineer or designer to evaluate the suitability of existing or newly developed polymeric materials for their particular needs.

In the past, the results of standard tests such as tensile strength, Izod impact strength, and softening point were given major emphasis in the technical literature on plastics. More recently, however, with the increasing use of plastics in more critical applications, there has been a growing awareness of the need to supplement such information with data obtained from tests more closely simulating operational conditions.

The selection of a suitable plastic material for a particular application must take account of several factors. These are likely to include the following:

- the operating environment experienced by the component (e.g., exposure to extremes of temperature, mechanical forces, fire, radiation or electrical charge)
- the primary production method (e.g., moulding, extrusion, pultrusion, forming)
- assembly technique: must the component be bonded, welded or fastened mechanically?
- the cost of the material.

Aesthetic and decorative features: is the surface finish important? Must the component be transparent? Will it be painted or plated?

The book will also be of interest, in addition to designers and engineers, to chemists, material scientists and also undergraduates and postgraduates.

The book contains the following chapters:

- *Mechanical properties of polymers*: Introduction, tensile strength, flexural modulus, elongation at break, strain at yield, impact strength characteristics of polymers, shear strength, elongation in tension, deformation under load, compressive set, mould shrinkage, coefficient of friction, fatigue index, toughness, abrasion resistance or wear, effect of reinforcing agents and fillers on mechanical properties, application of dynamic mechanical analysis, rheology and viscoelasticity, physical testing of rubbers and elastomers, physical testing of polymers powders.
- *Thermal properties of polymers*: Linear coefficient of expansion, mould shrinkage, distortion temperature, brittleness temperature, melting temperature, maximum operating temperature, melt flow index, VICAT softening point, thermal conductivity, specific heat, maximum filming temperature, heat at volatilisation, glass transition temperature, thermomechanical analysis, dynamic mechanical analysis, differential thermal analysis and thermogravimetric analysis, nuclear magnetic resonance spectroscopy, dielectric thermal analysis, inverse gas chromatography, alpha, beta and gamma transitions.
- *Electrical properties*: Volume resistivity, dielectric strength, dielectric constant, dissipation factor, surface arc resistance, tracking resistance, electrical resistance and resistivity, electrical conductivity, electronically conducting polymers, applications of dielectric thermal analysis.
- *Other physical properties*: Surface hardness, specific gravity and bulk density, gas barrier properties, optical properties, monitoring of resin cure, adhesion studies, viscoelastic and rheological properties.

- *Thermal stability*: Thermogravimetric analysis, differential thermal analysis, differential scanning calorimetry, thermal volatilisation analysis, evolved gas analysis, Fourier-transform infrared spectroscopy and differential scanning calorimetry Fourier-transform infrared spectroscopy, mass spectroscopy, pyrolysis-mass spectrometry, the effect of metals on heat stability.
- *Thermo-oxidative stability*: Thermogravimetric analysis, differential scanning calorimetry, evolved gas analysis, infrared spectroscopy, electron spin resonance spectroscopy, matrix-assisted laser desorption/ionisation, mass spectrometry, imaging chemiluminescence, pyrolysis-based techniques.
- *Assessment of polymer stability*: Light stability, protective action of pigments and stabilisers, gamma radiation, electron irradiation, irradiation by carbon ion beam, irradiation by alpha particles and protons, prediction of the service lifetimes of polymers, water absorption, chemical resistance, hydrolytic stability, resistance to gases, resistance to solvents.
- *Selecting a suitable polymer*: Selection of a polymer to be used in the manufacture of a battery case, selection of a polymer that will be in continuous use at high temperatures, selection of a polymer with excellent ultraviolet stability.