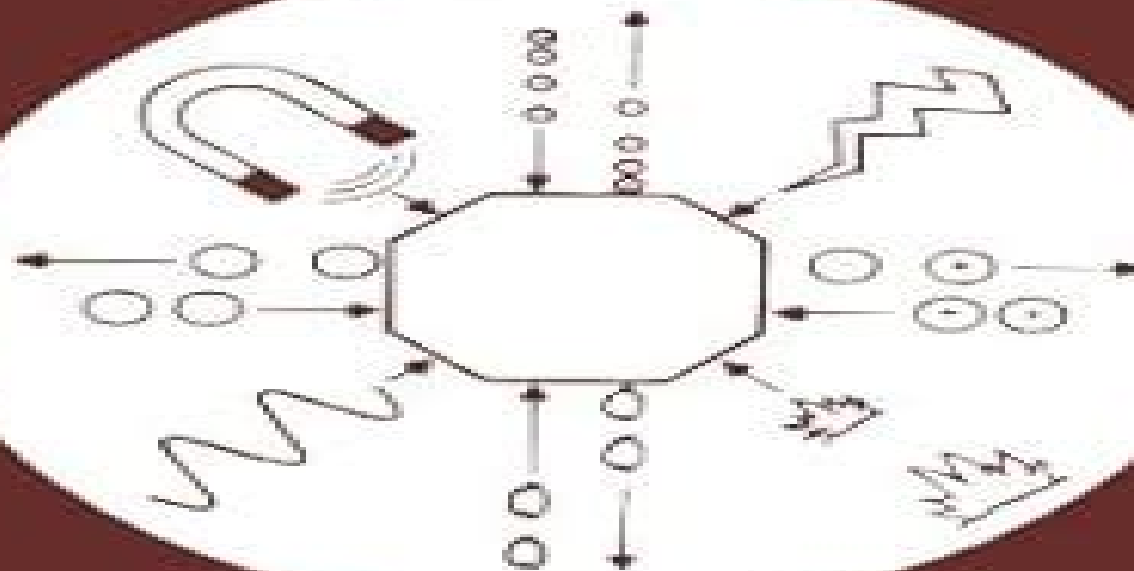


studies in surface science and catalysis



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FLUID CATALYTIC CRACKING V

MATERIALS AND TECHNOLOGICAL INNOVATIONS



elsevier

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(editors)

Fluid Catalytic Cracking V Materials And Technological Innovations

David Baud

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Fluid Catalytic Cracking V - Materials and Technological Innovations, 2001 *Fluid Catalytic Cracking V - Materials and Technological Innovations*, 2001 **Fluid Catalytic Cracking V** M.L. Occelli, P. O'Connor, 2001-04-27 Catalyst production for the transformation of crudes into gasoline and other fuel products is a billion dollar year business and fluid cracking catalysts FCCs represent almost half of the refinery catalyst market During the cracking reactions the FCC surface is contaminated by metals Ni V Fe Cu Na and by coke deposition As a result the catalyst activity and product selectivity is reduced to unacceptable levels thus forcing refiners to replace part of the recirculating equilibrium FCC inventory with fresh FCC to compensate for losses in catalyst performance About 1 100 tons day of FCC are used worldwide in over 200 fluid cracking catalyst units FCCUs It is for these reasons that refiners interest in FCC research has remained high through the years almost independantly of crude oil prices However recent oil company mergers and the dissolution of research laboratories have drastically decreased the number of researchers involved in petroleum refining research projects as a result the emphasis of research has shifted from new materials to process improvements and this trend is clearly reflected in the type of papers contained in this volume Modern spectroscopic techniques continue to be essential in the understanding of catalyst performance and several chapters in the book describe the use of ^{27}Al ^{29}Si and ^{13}C NMR to study variation in FCC acidity during aging and coke deposition In addition several chapters have been dedicated to the modeling of FCC deactivation and to the understanding of contact times on FCC performance Refiners efforts to conform with environmental regulations are reflected in chapters dealing with sulfur removal metals contaminants and olefin generation **Fluid Catalytic Cracking VI: Preparation and Characterization of Catalysts** Mario L. Occelli, 2004-07-06 This volume looks at the recent progress of this technology as reported in the 21 papers presented during the 219th National Meeting of the ACS in New York September 5 11 2003 In addition the volume focuses on the use of modern spectroscopic techniques for the generation of detailed structural analysis required for the advancement of the science of FCC design Other chapters look at the use and importance of solid state nuclear magnetic resonance NMR microcalorimetry and atomic force microscopy AFM to the study of FCCs and discussing strategies to control pollutant emissions from a refinery FCCU and looking at advances in FCC preparation *Impact of Zeolites and other Porous Materials on the New Technologies at the Beginning of the New Millennium* R. Aiello, F. Testa, G. Giordano, 2002-08-16 Crystalline solids with highly structured micro scale pores are called zeolites Their well defined structure and large contact surface make them extremely useful as catalysts Their most common use is in washing powders Different features are caused by the shape and size of the pores and the presence of different metals in the crystal structure Research is conducted both towards better understanding of the relations between form and function and towards identifying new possible uses This title presents a collection of contributions from internationally renowned researchers in the field of the Science and Technology of micro and mesoporous materials The aim of the

conference is to create an international forum where researchers from academia as well as from industry can discuss ideas and evaluate the impact of zeolites and other porous materials on new technologies at the beginning of the new millennium Gives the most recent developments in the origin synthesis and characterisation of zeolitic materials Outlines the impact and application of zeolites in various industrial processes An adjourned state of art in the field of zeolites and other porous materials

Zeolites and Ordered Mesoporous Materials: Progress and Prospects Jiri Cejka, 2005-08-09 Zeolites are the most frequently used industrial catalysts Their applications range from oil refining petrochemistry and the synthesis of special chemicals to environmental catalysis Rapid progress in basic research and the development of new processes has resulted in the first Federation of European Zeolite Associations FEZA School on Zeolites Zeolites and Ordered Mesoporous Materials Progress and Prospects reflects the programme of the first School on Zeolites held in Prague on August 20 21 2005 Readers gain insight into the synthesis of the ever expanding spectrum of zeolites zeotypes and ordered mesoporous materials including the use of zeolites and mesoporous materials as catalysts in organic conversions These range from the fascinating ship in bottle systems via cascade reactions to bulk applications in oil refining and petrochemistry Contributions from world experts enhance the book with select chapters on trends in the molecular sieves field zeolite structures ion exchange properties of zeolites advanced applications with unique technologies and opportunities and a chapter on natural zeolites Contains contributions from world experts in the field Includes an account of the frontier topic of high throughput techniques Reviews the application of quantum chemical methods to zeolite science to show the necessity of combining experimental and theoretical approaches

Science and Technology in Catalysis Masakazu Anpo, M. Onaka, H. Yamashita, 2003-07-09 Selected Plenary Lectures New Catalysts for Controlled Living Atom Transfer Radical Polymerization ATRP Catalysis and Applications of Gold Nanoparticles Oral Presentations Ionic Liquids as New Solvents and Catalysis for Petrochemical and Refining Processes High Throughput Experiment on the Investigation of Oxidation Catalysts with Gas Sensor System Poster Presentations Development of a Low Temperature Dioxin Decomposition Catalyst Studies on Unique Properties of Polyolefins Prepared with Metallocene Catalyst Systems Index

Practical Advances in Petroleum Processing Chang Samuel Hsu, Paul R. Robinson, 2007-01-10 Includes topics not found together in books on petroleum processing economics automation process modeling online optimization safety environmental protection Combines overviews of petroleum composition refinery processes process automation and environmental protection with comprehensive chapters on recent advances in hydroprocessing FCC lubricants hydrogen management Gives diverse perspectives both geographic and topical because contributors include experts from eight different countries in North America Europe and Asia representing oil companies universities catalyst vendors process licensors consultants and engineering contractors

Oxide-based Systems at the Crossroads of Chemistry C. Colella, S. Coluccia, Aldo Gamba, 2001-11-27 This volume includes papers presented at the second International Workshop on Oxide based Systems at the Crossroads of Chemistry held at Villa Olmo in

Como Italy 8-11 October The selected papers present the highlights of recent research in the field of oxide structure A wide range of oxidic materials including real oxides zeolites and layer structured systems is considered and described in terms of preparation methods structural characterization and the relation between active sites structure and catalytic properties The application of the most powerful simulation and physical chemical techniques show their usefulness in discovering and explaining structural and dynamic properties of complex materials Moreover the development of sophisticated spectroscopical and analytical techniques are shown to significantly improve the growth of surface oxide science generating new tools for the knowledge of catalyst structure and reaction mechanisms An interesting feature is the inclusion of papers which show the mutual roles of experiment and theoretical models

Spectroscopic Properties of Inorganic and Organometallic Compounds G Davidson, 2007-10-31 Spectroscopic Properties of Inorganic and Organometallic Compounds provides a unique source of information on an important area of chemistry Divided into sections mainly according to the particular spectroscopic technique used coverage in each volume includes NMR with reference to stereochemistry dynamic systems paramagnetic complexes solid state NMR and Groups 13-18 nuclear quadrupole resonance spectroscopy vibrational spectroscopy of main group and transition element compounds and coordinated ligands and electron diffraction Reflecting the growing volume of published work in this field researchers will find this Specialist Periodical Report an invaluable source of information on current methods and applications Specialist Periodical Reports provide systematic and detailed review coverage in major areas of chemical research Compiled by teams of leading experts in their specialist fields this series is designed to help the chemistry community keep current with the latest developments in their field Each volume in the series is published either annually or biennially and is a superb reference point for researchers www.rsc.org/spr

Zeolites and Mesoporous Materials at the Dawn of the 21st Century A. Galarneau, F. Di Renzo, F. Fajula, J. Védrine, 2001-08-13 The Zeolites and Mesoporous Materials at the Dawn of the 21st Century Proceedings are the expression of the oral and poster communications which were presented during the 13th International Zeolite Conference IZC They are subdivided into 32 thematic sessions starting from the genesis of materials to their applications through their characterisation The paper volume contains the full texts of the 5 plenary and 6 keynote lectures and informative summaries of 150 oral and 540 poster presentations These contributions have been selected among the 903 submissions received from a total of 57 countries In order to gather all the communications in a handy document the full texts of oral and poster presentations are available in CD-ROM Besides the fields of zeolite science always represented at IZC synthesis characterisation catalysis etc some subjects strengthened their position mesoporous materials theory and modelling new areas emerge advanced materials environmental and life sciences and older ones regain interest natural zeolites The understanding and development of the unique properties of porous materials relies on a unique blend of multidisciplinary knowledge material science with the implication of organic and colloid chemistry to prepare micro and mesoporous materials surface and adsorption science

sustained by theory and modelling to understand the peculiar behaviour of molecules in confined systems special branches of catalysis physics chemical engineering and life science to design novel applications The gathering of these elements is at the basis of a fruitful and evolutionary zeolite science as it is hopefully reflected by these proceedings **Natural Gas Conversion VIII** Fabio Bellot Noronha, Martin Schmal, Eduardo Falabella Sousa-Aguiar, 2011-09-22 This volume contains peer reviewed manuscripts describing the scientific and technological advances presented at the 8th Natural gas Conversion Symposium held in Natal Brazil May 27 31 2007 This symposium continues the tradition of excellence and the status as the premier technical meeting in this area established by previous meetings The manuscripts have been divided into eight different topics Industrial Processes Economics Technology Demonstration and Commercial Activities Production of Hydrogen from Methane Methanol and Other Sources Production of Synthesis Fischer Tropsch Synthesis of Hydrocarbons From Synthesis Gas to Catalytic Combustion From Natural Gas to Chemicals Light Hydrocarbons and Production and Conversion These are the most interesting subjects in the utilization of natural gas with recent scientific innovation and technological advances The book is of interest to all students and researchers active in utilization of natural gas Research comes from the most important industries and research centres in the field Features new studies from all around the world Important for consulting and updating research and development data **Petroleum Biotechnology** Rafael

Vazquez-Duhalt, Rodolfo Quintero-Ramirez, 2004-09-18 This book is one of a kind in the field of petroleum biorefining and biological upgrade of petroleum it presents a critical review as well as an integrated overview of the potential biochemical processes bridging the gap between academia and industry It addresses today's demanding production challenges taking into account energy efficient and environmentally friendly processes and also looks at the future possibility of implementing new refinery systems Suitable for those practitioners the petroleum industry students and researchers interested in petroleum biotechnology Covers a new application field for biotechnology Looks at innovative processes for the petroleum industry Presents examples of modern environmental processes *Scientific Bases for the Preparation of Heterogeneous Catalysts* E. Gaigneaux, D.E. De Vos, P.A. Jacobs, J.A. Martens, P. Ruiz, G. Poncelet, P. Grange, 2002-08-29 It has become a tradition that every four years the Universit Catholique de Louvain and the Katholieke Universiteit Leuven jointly organize a symposium devoted to the scientific bases for the preparation of heterogeneous catalysts These meetings bring together researchers from academia and industry and offer a forum for discussions on the chemistry involved in the preparation of industrial heterogeneous catalysts This volume containing the Proceedings of the 8th International Symposium on Scientific Bases for the Preparation of Heterogeneous Catalysts consists of papers summarizing most of the 139 oral communications and posters selected by the international scientific committee composed of 27 experts in the field of catalyst preparation holding an industrial or academia appointment The contributions focus on the aspects of catalyst preparation The main topics are new approaches in catalyst preparation advanced preparations of nanoporous and mesoporous catalysts catalysts preparation for

special performances and purposes catalysts for environmental purposes and molecular catalysis Emphasis is put on the role that catalysis can play as an essential element of sustainable development *Handbook of Zeolite Science and Technology* Scott M. Auerbach, Kathleen A. Carrado, Prabir K. Dutta, 2003-07-31 The Handbook of Zeolite Science and Technology offers effective analyses of salient cases selected expressly for their relevance to current and prospective research Presenting the principal theoretical and experimental underpinnings of zeolites this international effort is at once complete and forward looking combining fundamental concepts with the most sophisticated data for each scientific subtopic and budding technology Supplying over 750 figures and 350 display equations this impressive achievement in zeolite science observes synthesis through the lens of MFI ZSM 5 and silicalite Chapters progress from conceptual building blocks to complex research presentations **Introduction to Zeolite Molecular Sieves** Jiri Cejka, Herman van Bekkum, A. Corma, F.

Schueth, 2007-10-02 Introduction to Zeolite Molecular Sieves 3rd Edition presents a collection of the most important results and ideas in the field of molecular sieve chemistry and technology the most important experimental techniques related to the research activities in molecular sieves and identifies new areas of molecular sieve chemistry Chapters start at a reasonably simple entry level but also covers the present state of the art in the field Topics covered include structure synthesis characterization ion exchange adsorption diffusion separations and natural zeolites 6 years since the last edition this book brings together the rapid development within the field of molecular sieve chemistry and applications Accessible to newcomers to the field also containing valuable information for experienced researchers 27 chapters written by renowned scientists in their field including updates on some 2nd edition chapters **Mesoporous Crystals and Related**

Nano-Structured Materials Osamu Terasaki, 2004-05-25 Mesoporous Crystals and Related Nano Structures Materials contains the invited lectures to be presented at the symposium on Mesoporous Crystals and Related Nano Structures Materials Stockholm Sweden June 1 2 2004 This book highlights the core research that has led to such a fruitful and exciting field Passing on first hand the synthesis of this novel material makes this book an important reference material to researchers young and old This book highlights the core research that has led to the fruitful and exciting field of mesoporous materials It provides an overview of the studies which have led to the discovery of mesoporous materials as well as first preparations of mesoporous materials by researchers across the world This book not only serves as important reference material but also as a source of scientific inspiration to all researchers working in the field of mesoporous materials

Carbon Dioxide Utilization for Global Sustainability Sang-Eon Park, Jong-San Chang, Kyu-Wan Lee, 2004-10-27 Addressing global environmental problems such as global warming is essential to global sustainability Continued research leads to advancement in standard methods and produces new data Carbon Dioxide Utilization for Global Sustainability Proceedings of the 7th ICCDU International Conference on Carbon Dioxide Utilization reflects the most recent research results as well as stimulating scientific discussions with new challenges in advancing the development of carbon dioxide utilization Drawing on

a wealth of information this well structured book will benefit students researchers and consultants looking to catch up on current developments in environmental and chemical engineering Provides comprehensive data on CO₂ utilisation Contains up to date information including recent research trends Is written for students researchers and consultants in environmental and chemical engineering **Catalyst Deactivation 2001** J.J. Spivey,G.W. Roberts,B.H. Davis,2001-09-21 This proceedings contains the papers presented at the 9th International Symposium on Catalyst Deactivation held in Lexington KY USA on 7 10 October 2001 Molecular sieves ,2005

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