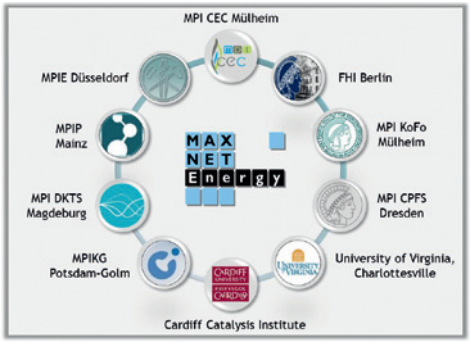
In this issue

Alexander A. Auer, et al.
MAXNET Energy – Focusing Research in Chemical Energy Conversion on the Electrocatlytic Oxygen Evolution

DOI 10.1515/green-2015-0021
Green 2015; 5(1-6): 7–21

Review: The MAXNET Energy research consortium is a Max Planck Society initiative consisting of ten institutions. Research is focused on electrocatalytic activation of small molecules like oxygen evolution.

Keywords: electrocatalysis, chemical energy conversion, oxygen evolution

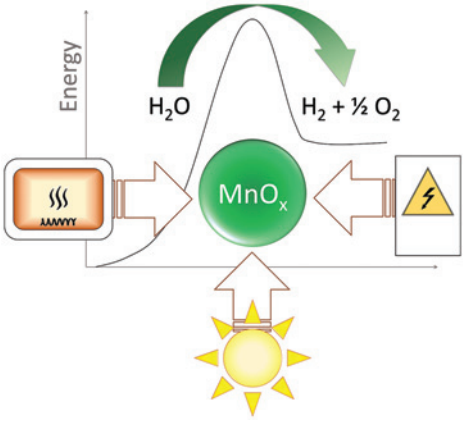


Simon Ristig, Niklas Cibura and Jennifer Strunk
Manganese Oxides in Heterogeneous (Photo)Catalysis: Possibilities and Challenges

DOI 10.1515/green-2015-0010
Green 2015; 5(1-6): 23–41

Review: A summary of the current status and the progress on the research regarding manganese oxides in photocatalysis and heterogeneous catalysis is given, outlining also the complexity of MnO_x systems.

Keywords: Oxygen evolution, oxygen activation, water splitting, selective oxidation, physicochemical properties of manganese oxides, nanostructured semiconductors

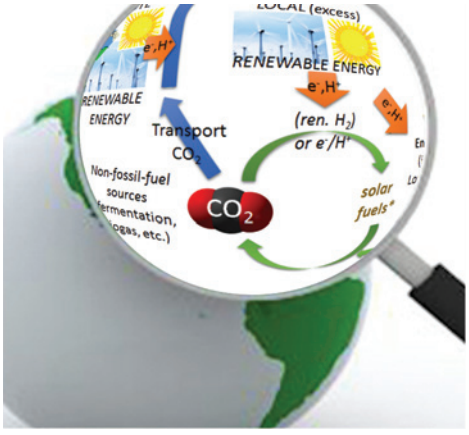


Salvatore Abate, Gabriele Centi and Siglinda Perathoner
Chemical Energy Conversion as Enabling Factor to Move to a Renewable Energy Economy

DOI 10.1515/green-2015-0011
Green 2015; 5(1-6): 43–54

Review: Chemical energy storage, with the development of drop-in carbon-based solar fuels, plays a central role in the future low-carbon economy, but it is necessary to consider its out-of-the-grid use.

Keywords: solar fuels, CO_2, chemical energy storage, renewable energy economy, sustainable energy and chemistry

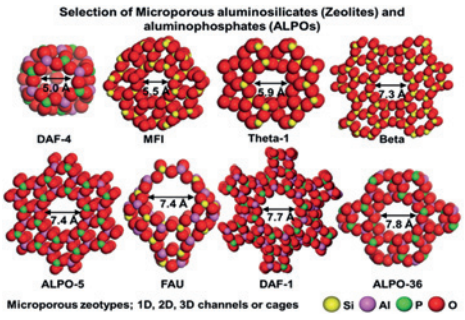


John Meurig Thomas
Opportunities for New Catalysts in the Present Confusing Scene in Renewable Energy

DOI 10.1515/green-2015-0012
Green 2015; 5(1-6): 55–58

Expert View: A prominent feature of present-day green chemistry is the use of nanoporous oxides, composed of earth-abundant elements, that can be readily fashioned into highly efficient single-site heterogeneous catalysts.

Keywords: materials chemistry, sustainability, catalysts

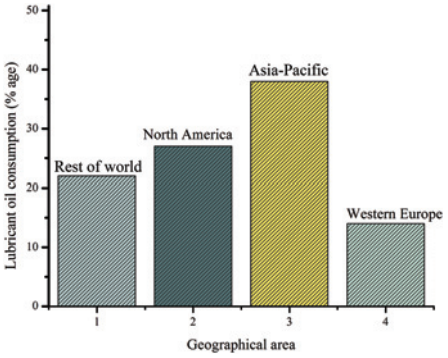


Yashvir Singh, Rajnish Garg and Suresh Kumar
Aspects of Non-edible Vegetable Oil-Based Bio-lubricants in the Automotive Sector

DOI 10.1515/green-2015-0003
Green 2015; 5(1-6): 59–72

Review: There is only little literature in case of non-edible vegetable oil-based bio-lubricants. The present study can support and encourage research on using the non-edible oil-based bio-lubricants as alternatives.

Keywords: bio-lubricant, automobile, applications



Rosaria Ciriminna, Francesco Meneguzzo, Lorenzo Albanese and Mario Pagliaro
Guidelines for Integrating Solar Energy in Sicily's Buildings

DOI 10.1515/green-2015-0014
Green 2015; 5(1-6): 73–82

Review: Rendering of Palermo's Theatre Biondo with building-integrated state-of-the-art PV modules, currently undergoing the authorization process. This study provides guidelines for the architectural integration of both main solar technologies in Sicily.

Keywords: BIPV, BIST, photovoltaic, solar thermal, solar energy education, solar architecture

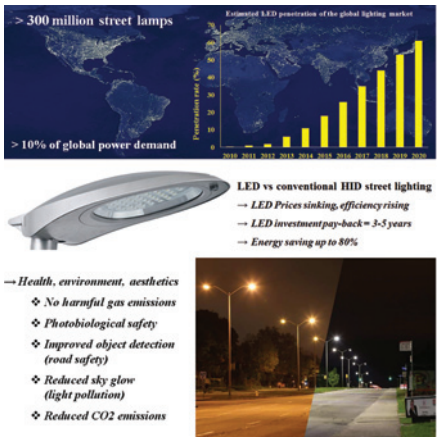
Rosaria Ciriminna, Lorenzo Albanese, Francesco Meneguzzo and Mario Pagliaro

LED Street Lighting: A Looking Ahead Perspective

DOI 10.1515/green-2015-0020
Green 2015; 5(1-6): 83–94

Review: The path to sustainable global shift of street lighting – 300 million lamps – to LED technology is comprehensively analyzed, including clear benefits and criticalities, along with health, environmental and aesthetic issues.

Keywords: LED lighting, light pollution, road lighting, energy management, lighting design, systems approach



Sachin Muralee Krishna, Nimal Madhu M, Vivek Mohan, Reshma Suresh M P and Jai Govind Singh

A Generalized Approach for Enhanced Solar Energy Harvesting Using Stochastic Estimation of Optimum Tilt Angles: A Case Study of Bangkok City

DOI 10.1515/green-2015-0015
Green 2015; 5(1-6): 95–107

Original Article: From four diffused radiation models, the best sky model is opted, for which solar radiation PDFs are estimated with K-S test. Then, monthly, seasonal and yearly optimal tilt angles are calculated with PSO-TVAC for Bangkok.

Keywords: tilt angle, diffused radiation models, particle swarm optimization (PSO), error analysis, probabilistic uncertainty, solar energy harvesting