

Discovery

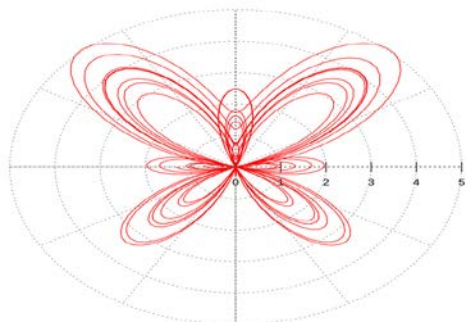
We SHARE to inspire and ignite ideas for Engineering Systems & Design (ESD) Pillar!

The titles featured here are to give you a peek into the wealth of resources we have. We hope, through this will encourage you to explore and read further. Share with us topics of importance to ESD and we can introduce relevant titles from some 400,000 eBooks we carry.

May 2016

FACULTY WORKS

Linear-vertex kernel for the problem of packing r -stars into a graph without long induced paths



By Anders Yeo, ESD

Integers $r \geq 2$ and $d \geq 3$ are fixed. G_d is the set of graphs with no induced path on d vertices. The authors analyze the problem of packing k vertex-disjoint copies of $K_{1,r}$ where $(k \geq 2)$ into a graph G with the kernelization perspective.

Source: [Information Processing Letters](#) (June 2016)

Foresight Study on Singapore Urban Mobility: Methodologies and Preliminary Insights



By Lynette Cheah, ESD

The authors present a projection of Singapore's urban transport and mobility up to 2030. They aim to emphasize long-term challenges and opportunities in the transport system and to establish networks between stakeholders.

Source: [Complex Systems Design & Management Asia](#) (January 2016)

LIFE CYCLE ASSESSMENT

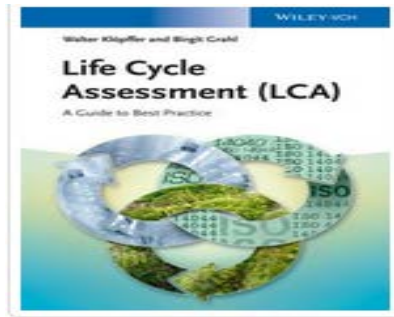
A comparative human health, ecotoxicity, and product environmental assessment on the production of organic and silicon solar cells



The authors performed a life cycle assessment case study involving organic photovoltaic technology using phenyl-C61-butyric acid methyl ester and poly(3-hexylthiophene). They discovered that from a life cycle perspective, organic solar cells are better than silicon solar cells.

Source: [Progress in Photovoltaics](#) (May 2016)

Life Cycle Assessment (LCA) : A Guide to Best Practice

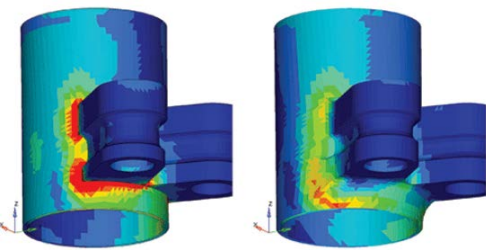


This book outlines the stages of a complete LCA analysis, using real-life data from a major LCA project on beverage packaging. Also included are measures as carbon and water footprinting, based on the most recent international standards and definitions.

Source: [Wiley-VOH](#) (2014)

OPTIMIZATION

Optimized development: defining design rules through product optimization techniques



The authors believe that optimization techniques should be applied in the early stage of the product design process, rather than towards the end of the product design process. These optimization techniques aim to emphasize how design variables influence a product's performance.

Source: [Computer-Aided Design and Applications](#) (February 2016)

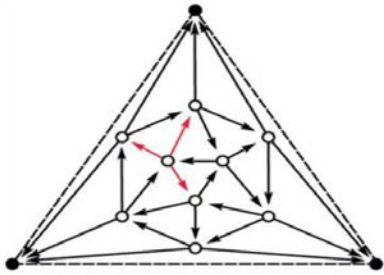
Optimization of coagulation-flocculation process for combined sewer overflow wastewater treatment using response surface methodology



A combined sewer overflow (CSO) problem in dry weather, with high organic pollutant loads and wide variations is a cause of urban river pollution in China. The authors discovered that both the initial COD concentration and coagulant dosage influenced COD removal efficiency.

Source: [Desalination and Water Treatment](#) (2016)

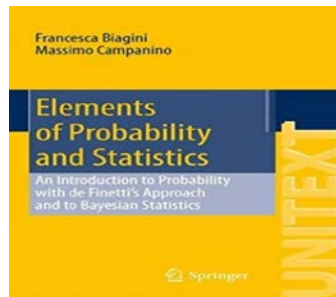
Combinatorial Topic Models using Small-Variance Asymptotics



Topic models are basic tools in unsupervised machine learning. The authors, evaluate topic modelling as a combinatorial optimization problem, and derived its objective function from Latent Dirichlet Allocation (LDA). They minimized the derived objective via combinatorial optimization, to form a new topic modeling algorithm. This algorithm was shown to perform better than all other LDA-based topic modeling approaches.

Source: [Cornell University Library](#) (April 2016)

Elements of Probability and Statistics



This book introduces elementary probability and Bayesian statistics through de Finetti's subjectivist approach. This approach does not require the introduction of sample space. Rather it introduces the concept of random numbers. Events then become a particular case of random numbers. At the same time, probability applied to events becomes a particular case of expectation. Properties of expectation and conditional expectation are derived via a coherence criterion.

Source: [Unitext](#) (2016)

For more articles or in-depth research, contact us at library@sutd.edu.sg!
An SUTD Library Service©2016