



International Journal of **Management Science and Engineering Management**

Edited by *International Committee of Management Science and Engineering Management, WAU*

Published by *World Academic Union (World Academic Press)*

Academic House, 113 Mill Lane, Wavertree Technology Park, Liverpool, L13 4AH, UK
www. World Academic Union .com; www. World Academic Press .com

CONTENTS

ARTICLE

003. **Optimal assembly line balancing using tabu search with partial random permutation technique**
Supaporn Suwannarongsri, Deacha Puangdownreong
019. **An application of fuzzy set theory for supply chain coordination**
Santanu Sinha, S. P. Sarmah
033. **Economic growth and control strategies under the environmental pressure: Economic advance-retreat course analysis II**
Feng Dai, Jianping Du, Songtao Wu
054. **Value streams based strategy: modeling for lean management performance**
V. Cruz Machado, José Tavares
063. **Engineering management or management of technology? A bibliometric study of IEEE TEM**
Alan Pilkington
071. **The use of employee participation in the USA and Spanish companies**
Juan A. Marin-Garcia, Tomas Bonavia, Cristóbal Miralles

England, UK
www.msem.org.uk
editor@msem.org.uk

Graphic Designer:
Miss Li

Bibliographic

ISSN: 1750-9653 (print), 1750-9661 (online), Quarterly
Edited by International Committee of Management Science, WAU
Published by World Academic Union (World Academic Press)
Publisher Contact: 113, Academic House, Mill Lane
Wavertree Technology Park
Liverpool L13 4AH, England, UK
Email: publishing@wau.org.uk
publishermail@gmail.com
U R L: www.World Academic Union.com

International Journal of **Management Science and Engineering Management**

Editorial Board (contact email: editor@MSEM.org.uk)

Editor in Chief

Prof. Jiuping Xu

Ph.D. of Applied Mathematics and Ph.D. of Physical Chemistry
School of Business and Administration, Sichuan University, Chengdu 610064, P.R. China
E-mail: china@msem.org.uk

Co-Editor in Chief

Prof. B. Lev

Ph.D. of Operations Research/Management Science
School of Management
The University of Michigan – Dearborn, Dearborn,
USA.
E-mail: omegajournal@umd.umich.edu

Prof. Juan Ignacio Ramos Sobrados

Ph.D. of Mechanical and Aerospace Engineering and
Ph.D. of Engineering
Departamento de Lenguajes y Ciencias de la
Computación,
Universidad de Málaga, E.T.S. Ingenieros
Industriales, Málaga, Spain
E-mail: jirs@lcc.uma.es

Prof. Nicolas Markatos

Ph.D. of Advanced Chemical Engineering and
Technology
Department of Chemical Engineering
National Technical University of Athens
Athens, Greece
E-mail: N.Markatos@ntua.gr

Standing Members of Editorial Board

Prof. Anthony Shun Fung Chiu

Ph.D. of Business Administration
Research Scientist Center for Eng. and Sustainable
Development Research
De La Salle University – Manila,
E-mail: anthonyshfchiu@pltdsl.net

Dr. Andres Medaglia

Ph.D. of Operations Research
Departamento de Ingeniería Industrial,
Universidad de los Andes
Bogotá D.C., Colombia
E-mail: amedagli@uniandes.edu.co

Prof. Christodoulos A. Floudas

Ph.D. of Chemical Engineering
Department of Chemical Engineering
Princeton University, Princeton, USA
E-mail: floudas@titan.princeton.edu

Dr. Youhua Chen (Frank)

Ph.D. of Engineering Management
Dep. of Systems Eng. and Engi. Management
The Chinese University of Hong Kong Shatin
Hong Kong
E-mail: yhchen@se.cuhk.edu.hk

Prof. Douglas C. Montgomery

Ph.D. of Engineering
Department of Industrial Engineering
Arizona State University, Arizona, USA
E-mail: doug.montgomery@asu.edu

Prof. Edwin Cheng

Ph.D. of Operations Research
Department of Logistic
The Hong Kong Polytechnic University
Hong Kong
E-mail: lgtcheng@inet.polyu.edu.hk

Prof. Edgar David

Ph.D. of Strategy
Division of Business Information Management
Glasgow Caledonian University, UK(Caledonian)
E-mail: d.a.edgar@gcal.ac.uk

Dr. Erhan Kozan

Ph.D. of Management Science
School of Management Science
Queensland University of Technology
Brisbane, Australia
E-mail: e.kozan@qut.edu.au

Prof. Gianni Di Pillo

Ph.D. of Computing Engineering
Department of Computer and Systems Science
University of Rome "La Sapienza", Rome, Italy
E-mail: dipillo@dis.uniroma1.it

Dr. Gang Hao

Ph.D. of Business Administration
Department of Management Science
The University of Hong Kong
Hong Kong
E-mail: msghao@cityu.edu.hk

Prof. H.O. Sam

Ph.D. of Management
Business Studies
Hang seng School of Commerce
Hong Kong
E-mail: samho@otl.hssc.edu.hk

Prof. Hong Yan

Ph.D. of Industrial Administration
Department of Logistics
Hong Kong Polytechnic University
Hong Kong
E-mail: lgthyan@polyu.edu.hk

Prof. Jan Joachim Ruckmann

Ph.D. of Mathematical Programming
Universidad de las Americas depot
Fisicay matematicas STA.catarinamaritir
Cholula, Mexico
E-mail: janj.ruckmann@udlap.mx

Prof. Jianming Jia

Ph.D. of Decision Science
Department of Marketing
The Chinese University of Hong Kong
Hong Kong
E-mail: jjia@cuhk.edu.hk

Prof. Kok Lay Teo

Ph.D. of Electrical Engineering
Department of Mathematics and Statistics
Curtin University of Technology
Perth Western, Australia
E-mail: K.L.Teo@curtin.edu.au

Prof. Masao Fukushima

Ph.D. of Applied Mathematics and Physics
Department of Applied Math and Physics
Graduate School of Informatics, Kyoto University
Kyoto, Japan
E-mail: fuku@amp.i.kyoto-u.ac.jp

Prof. Panos M. Pardalos

Ph.D. of Computer and Information Sciences
Department of Industrial and Systems Engineering
University of Florida
Florida, USA
E-mail: pardalos@ufl.edu

Dr. Rene Henrion

Ph.D. of Nonlinear Optimization
Weierstrass Institute for Applied Analysis and
Stochastics
Berlin, Germany
E-mail: henrion@wias-berlin.de

Prof. Saibal Chattopadhyay

Ph.D. of Statistics
Operations Management Group
Indian Institute of Management Calcutta
Calcutta, India
E-mail: chattopa@iimcal.ac.in

Dr. Siham El-Kafafi

Ph.D. of Environmental Management
Management Manukau Institute of Technology
Manukau Business School
Auckland, New Zealand
E-mail: siham.elkafafi@manukau.ac.nz

Prof. Shmuel S. Oren

Ph.D. of Engineering Economic Systems
Dep. of Industrial Engineering and Operations
Research
University of California at Berkeley
Berkeley, USA
E-mail: oren@ieor.berkeley.edu

Dr. Yong Tan

Ph.D. of Business Administration and Ph.D. of
Physics
University of Washington Business School
Seattle, WA 98195-3200
Email: ytan@u.washington.edu

Dr. Song Wang

Ph.D. of Numerical Analysis
School of Mathematics and Statistics
University of Western Australia
Perth, Australia
E-mail: swang@maths.uwa.edu.au

Prof. Soon-Yi Wu

Ph.D. of Mathematics
Department of Mathematics
National Cheng Kung University
Taiwan, China
E-mail: soonyi@mail.ncku.edu.tw

Prof. Desheng Dash Wu

Ph.D. of Operations Research
RiskLab, University of Toronto
Toronto, ON M5S 3G3 Canada
Email: dash@risklab.ca

Prof. Xiaoqi Yang

Ph.D. of Applied Mathematics
Department of Applied Mathematics
Hong Kong Polytechnic University
Hong Kong
E-mail: mayangxq@polyu.edu.hk

Editorial office:

MSEM Editorial office
Academic House, 113 Mill Lane, Wavertree Technology Park
Liverpool L13 4AH, England, UK
Email: msem@WorldAcademicUnion.com, editor@msem.org.uk

China editorial office:

R. Wang (director), Z. Zhang, MSEM Editorial Office
School of Business and Administration, Sichuan University
Chengdu, 610064, P. R. China
Email: china@msem.org.uk