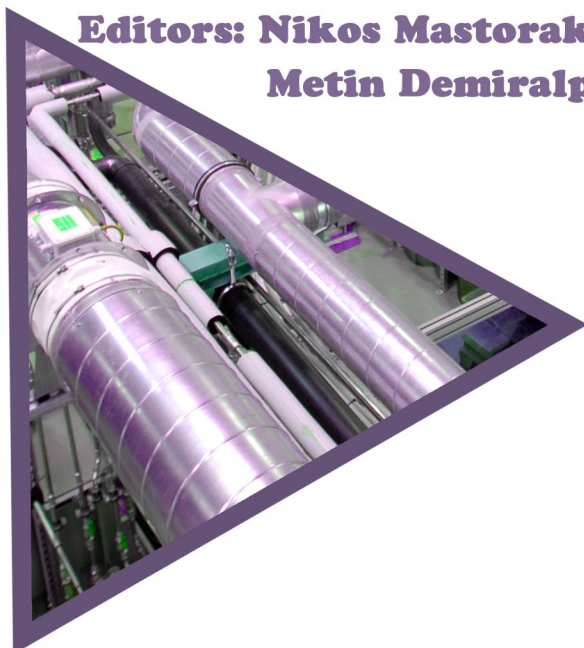




**Editors: Nikos Mastorakis, Valeri Mladenov,
Metin Demiralp, Zoran Bojkovic**

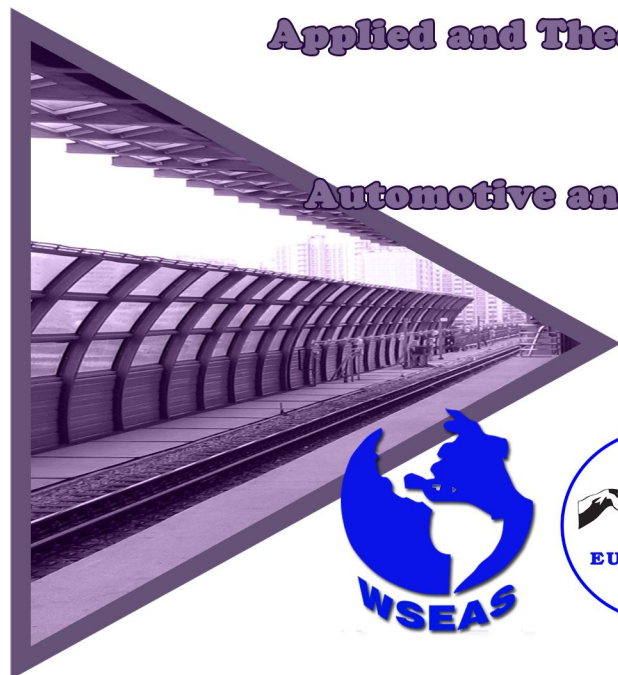


Recent Researches in Mechanics, Transportation & Culture

💧 **6th WSEAS International Conference on
Applied and Theoretical Mechanics (MECHANICS '10)**

💧 **International Conference on
Automotive and Transportation Systems (ICAT '10)**

💧 **International Conference on
Arts and Culture (ICAC '10)**



Vouliagmeni, Athens, Greece, December 29-31, 2010

PRINT VERSION ISSN: ELECTRONIC VERSION ISSN:

ISSN: 1792-5460

ISSN: 1792-5479

ISSN: 1792-7293

ISSN: 1792-7307

ISSN: 1792-7358

ISSN: 1792-7366

ISBN: 978-960-474-264-6





RECENT RESEARCHES in MECHANICS, TRANSPORTATION and CULTURE

**6th WSEAS International Conference on APPLIED and
THEORETICAL MECHANICS (MECHANICS '10)
International Conference on AUTOMOTIVE and
TRANSPORTATION SYSTEMS (ICAT '10)
International Conference on ARTS and CULTURE (ICAC '10)**

**Vouliagmeni, Athens, Greece
December 29-31, 2010**

RECENT RESEARCHES in MECHANICS, TRANSPORTATION and CULTURE

**6th WSEAS International Conference on APPLIED and
THEORETICAL MECHANICS (MECHANICS '10)
International Conference on AUTOMOTIVE and
TRANSPORTATION SYSTEMS (ICAT '10)
International Conference on ARTS and CULTURE (ICAC '10)**

**Vouliagmeni, Athens, Greece
December 29-31, 2010**

Published by WSEAS Press
www.wseas.org

Copyright © 2010, by WSEAS Press

All the copyright of the present book belongs to the World Scientific and Engineering Academy and Society Press. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the Editor of World Scientific and Engineering Academy and Society Press.

All papers of the present volume were peer reviewed by two independent reviewers. Acceptance was granted when both reviewers' recommendations were positive.
See also: <http://www.worldses.org/review/index.html>

ISSN: 1792-5460
ISSN: 1792-7293
ISSN: 1792-7358
ISBN: 978-960-474-264-6



World Scientific and Engineering Academy and Society



European Society for Environmental Research
and Sustainable Development

RECENT RESEARCHES in MECHANICS, TRANSPORTATION and CULTURE

**6th WSEAS International Conference on APPLIED and
THEORETICAL MECHANICS (MECHANICS '10)
International Conference on AUTOMOTIVE and
TRANSPORTATION SYSTEMS (ICAT '10)
International Conference on ARTS and CULTURE (ICAC '10)**

**Vouliagmeni, Athens, Greece
December 29-31, 2010**

Editors:

Prof. Nikos Mastorakis, Technical University of Sofia, BULGARIA
Prof. Valeri Mladenov, Technical University of Sofia, BULGARIA
Prof. Metin Demiralp, Istanbul Technical University, TURKEY
Prof. Zoran Bojkovic, University of Belgrade, SERBIA

International Program Committee Members:

Evangelos Sapountzakis, GREECE	A. Venetsanopoulos, CANADA
Manouchehr Amiri, IRAN	K. Benra, GERMANY
Viktor Baranov, RUSSIA	S. Sohrab, USA
Tomas Bodnar, CZECH REPUBLIC	Jill Mesirov, USA
L. Borges, PORTUGAL	Shoshana Wodak, CANADA
Fernando Carapau, PORTUGAL	Serafim Batzoglou, USA
Paulo Correia, PORTUGAL	Raffaele Giancarlo, ITALY
Paul Deuring, FRANCE	Andrzej Kolinski, POLAND
Alexander Dmitriev, RUSSIA	
Bernard Ducomet, FRANCE	
Paschalis Grammenoudis, GERMANY	
Alexander Gvozdev, RUSSIA	
Toshiaki Hishida, JAPAN	
Joao Janela, PORTUGAL	
Roger Khayat, CANADA	
Stanislav Krasmar, CZECH REPUBLIC	
Petr Kucera, CZECH REPUBLIC	
Aouni Lakis, CANADA	
Vladislav Malinin, RUSSIA	
Alexey Markin, RUSSIA	
Nikolay Matchenko, RUSSIA	
Bugaru Mihai, ROMANIA	
Jiri Neustupa, CZECH REPUBLIC	
Juan Ospina, COLOMBIA	
Adelia Sequeira, PORTUGAL	
Yoshihiro Shibata, JAPAN	
Nickolay Smirnov, RUSSIA	
Maria Specovius-Neugebauer, GERMANY	
Aleksander Treschev, RUSSIA	
Nikolay Tutyshkin, RUSSIA	
Werner Varnhorn, GERMANY	
Kobelev Vladimir, GERMANY	
Joseph Sifakis, FRANCE	
Lotfi A. Zadeh, USA	
Leon O. Chua, USA	
K. R. Rao, USA	
Dimitri Bertsekas, USA	
Biswa N. Datta, USA	
Irwin Sandberg, USA	
P. Pardalos, USA	
A. Manikas, UK	
T. Kaczorek, POLAND	
Wlodzislaw Duch, POLAND	
Sidney Burrus, USA	
Leonid G. Kazovsky, USA	
Georgios B. Giannakis, USA	
Nikolaos G. Bourbakis, USA	
Brian A. Barsky, USA	
Ryszard S. Choras, POLAND	
Wasfy B. Mikhael, USA	
M. Kostic, USA	

Preface

This year the 6th WSEAS International Conference on APPLIED and THEORETICAL MECHANICS (MECHANICS '10), the International Conference on AUTOMOTIVE and TRANSPORTATION SYSTEMS (ICAT '10) and the International Conference on ARTS and CULTURE (ICAC '10) were held in Vouliagmeni, Athens, Greece, December 29-31, 2010. The conferences remain faithful to their original idea of providing a platform to discuss mechanics of nanomaterials, fluid-structure interaction, impact and multibody dynamics, dynamic instability and buckling, manufacturing processes, mechatronics, aerodynamics and aeroelasticity, heat and mass transfer, aerodynamics, electric and hybrid vehicles, electronic transport, heavy vehicle systems, powertrains, vehicle design, creative computing, cultural management, digital culture and electronic tourism, entertainment technology and management, architecture, social science etc. with participants from all over the world, both from academia and from industry.

Their success is reflected in the papers received, with participants coming from several countries, allowing a real multinational multicultural exchange of experiences and ideas.

The accepted papers of these conferences are published in this Book that will be indexed by ISI. Please, check it: www.worldses.org/indexes as well as in the CD-ROM Proceedings. They will be also available in the E-Library of the WSEAS. The best papers will be also promoted in many Journals for further evaluation.

Conferences such as these can only succeed as a team effort, so the Editors want to thank the International Scientific Committee and the Reviewers for their excellent work in reviewing the papers as well as their invaluable input and advice.

The Editors

Table of Contents

<u>Plenary Lecture 1: Radiative Properties of Nanoscale Multilayer Structures</u>	11
<i>Seyed Amir Abas Oloumi</i>	
<u>Plenary Lecture 2: Comparison between Functional Angles of Cutting Tools at Turning and Face Milling Operation</u>	13
<i>Valentin Ditu</i>	
<u>Bridging the Digital Divide: An Analysis of the Training Program at Malaysian Telecenters</u>	15
<i>Norizan Abdul Razak, Zaharah Hassan, Rosseni Din, Kamaruzaman Jusoff</i>	
<u>Developing Digital Literacy among Women Entrepreneurs</u>	24
<i>Jamaluddin Bin Aziz, Norizan Abdul Razak</i>	
<u>From Agricultural Society to Digital Inclusion Society: A Case Study for Felda Community</u>	29
<i>Jalaluddin Abdul Malek, Norizan Abdul Razak, Ali Salman, Fariza Mohd Nor, Mohd Yusoff Abdullah</i>	
<u>Developing Women E-Entrepreneurs: A Malacca Case Study</u>	35
<i>Norizan Abdul Razak, Zaharah Hassan</i>	
<u>Implementation of New Perspectives for Intermodal Transport at the Thriassio Pedio Operational Study</u>	47
<i>Emmanuel G. Zafiris, Aristides G. Karlaftis</i>	
<u>Interactive Virtual Architecture: Back-Curating Flight and Visitors as Tramway-Driver</u>	51
<i>Penesta Dika</i>	
<u>Didactic Approaches to the Curriculum Area of Language and Communication from the Perspective of Curricular Innovations</u>	56
<i>Andreia Irina Suciu, Liliana Mata</i>	
<u>“Prelude” For Solo Clarinet (1987) By Krzystof Penderecki</u>	62
<i>Goldbach Felix Constantin</i>	
<u>A Baseline Study on the Readiness of Islanders in Using ICT: A Case Study of Pulau Perhentian</u>	67
<i>Noor Maizura Mohamad Noor, Norizan Abdul Razak, Suriyani Muhamad</i>	
<u>Development of E-Commerce Skill Among Terengganu Single Mothers</u>	75
<i>Norizan Abdul Razak, Noraida Haji Ali, Nora’aini Ali, Noor Maizura Mohamad Noor</i>	
<u>Effects of Donors and Acceptors on Radiative Properties of Nanoscale Multilayer Structures at Infrared Wavelengths</u>	82
<i>S. A. A. Oloomi, A. Saboonchi, A. Sedaghat</i>	
<u>Effects of Incidence Angle on Thermal Radiative Properties of Nanoscale Semiconductors</u>	90
<i>S. A. A. Oloumi, A. Saboonchi, A. Sedaghat</i>	

<u>An Innovative Way of Implementing the Technology Group Concept</u>	95
<i>Cristina Gavrus, Maria-Cornelia Ivan, Nicolae-Valentin Ivan</i>	
<u>Comparison between Functional Angles of Cutting Tools at Turning and Face Milling Operation</u>	101
<i>Valentin Ditu, Badea Lepadadescu</i>	
<u>Design of Wheeled Caster with Damper for Silent Wagon</u>	108
<i>Atsushi Suda, Kiyoshi Ioi</i>	
<u>Simulation of Heat and Mass Transfer from a Droplet of Two-Pieces Solution with Solvent Vapor by the Finite Volume Method</u>	114
<i>Sadegh Torfi, Seyed Mohammad Hosseini Nejad, Eisa Novieri, Kolsoumeh Ogbi</i>	
<u>Sensitivity Analysis of Structures, Problems and Applications</u>	120
<i>Abayomi Omishore</i>	
<u>Uncertainty Forecasting in Civil Engineering</u>	126
<i>Abayomi Omishore</i>	
<u>About the Influence of Mass Distribution on the Dynamic Longitudinal Reactions along a Short Passenger Train during Braking Actions</u>	129
<i>Catalin Cruceanu, Razvan Oprea, Marius Spiroiu, Camil Craciun, Sorin Arsene</i>	
<u>Bit Run Optimization through Simulation: A Case Study</u>	135
<i>Eisa Novieri, Sadegh Torfi, Seyed Mohammad Hosseini Nejad</i>	
<u>Numerical Simulations of Transient Flow Occurrence in Pipelines by Appropriate Division Of The Pipeline Length Method</u>	141
<i>Mehdi Salmanzadeh, Sadegh Torfi, Seyed Rasool Mosavifar</i>	
<u>Authors Index</u>	148

Plenary Lecture 1

Radiative Properties of Nanoscale Multilayer Structures



Dr. Seyed Amir Abas Oloumi

Department of Textile and Material Engineering
Islamic Azad University, Yazd Branch (IAUY), YAZD
IRAN

E-mail: Amiroloomi@iauyazd.ac.ir

Abstract:

In order to achieve high-accuracy temperature measurements in rapid thermal processing (RTP), it is critical to be able to determine the radiative properties of silicon wafers with thin-film coatings such as silicon dioxide and silicon nitride. In this work, the directional, spectral, and temperature dependency of the radiative properties for the Nanoscale multilayer structures are modeled consisting of silicon and related materials such as silicon dioxide, and silicon nitride. This work discusses on visible and infrared wavelengths.

Infrared imaging is used extensively for both military and civilian purposes using radiative properties of silicon and other relevant materials. Military applications include target acquisition, surveillance, night vision, homing and tracking. Non-military uses include thermal efficiency analysis, remote temperature sensing, short-ranged wireless communication, spectroscopy, and weather forecasting.

This work uses the transfer-matrix method for calculating the radiative properties of silicon. For this purpose, doped silicon is used, the coherent formulation is applied, and the Drude model for the optical constants of doped silicon is employed. Results show that average reflectance changes from 0.3015 to 0.2060 for donor concentrations of 10^{17} cm^{-3} and 10^{19} cm^{-3} , respectively, indicating that average reflectance decreases with increasing concentration.

A donor concentration of 10^{19} cm^{-3} yields an average emittance of about 2.46 times higher than that yielded by a concentration level of 10^{17} cm^{-3} . An acceptor concentration of 10^{19} cm^{-3} has an average emittance of about 2.14 higher than that of a concentration equal to 10^{17} cm^{-3} .

At infrared wavelengths, lower reflectance occurs at higher concentrations and emittance increases with increasing concentration. Results also show that donors and acceptors act similarly with respect to spectral radiative properties at infrared wavelengths.

Brief Biography of the Speaker:

EDUCATION

2004–Now Ph.D. degree in Fluid Mechanics Engineering

Dept. of Mechanical Engineering, Isfahan University of Technology

Subjects studied included: Advanced Mathematics EE, Viscous Flow, Turbulent Flow, Hydrodynamics Instabilities, Radiation Heat Transfer, Boundary Layer, Advanced Gas Turbine, and Parallel Programming. Ph.D. thesis: "An Investigation and Simulation of Nano-Scale Materials Heat Transfer"

Recent Papers:

- Oloomi, S.A.A, Sabounchi, A and Sedaghat, A. "Predict Thermal Radiative Properties of Nanoscale Multilayer Structures", "the IASTED International Conference on Nanotechnology and Applications", pp. 113-118, Crete-Greece, (2008).

- Oloomi, S.A.A, Sabounchi, A and Sedaghat, A. "Computing Thermal Radiative Properties of Nanoscale Multilayer", "World Academy of Science, Engineering and Technology", vol. 37, pp. 922-928, (2009).
- Oloomi, S.A.A, Sabounchi, A and Sedaghat, A. "Modeling Thermal Radiative Properties of Nano scale Multilayer with Incoherent Formulation ", "World Academy of Science, Engineering and Technology", vol. 37, pp. 929-934, (2009).

Member of Iranian Society of Nanotechnology

Member of Iran Elites Society

Research Interests:

- NanoScaled Material Properties
- NanoScaled Energy Transport
- NanoScaled System Heat Transfer Mechanisms
- Heat Transfer
- Parallel Programming
- Computational Fluid Mechanics

Plenary Lecture 2

Comparison between Functional Angles of Cutting Tools at Turning and Face Milling Operation



Professor Valentin Ditu

Faculty of Technological Engineering
Manufacturing Technology Department
Transilvania University of Brasov, Romania
E-mail: vditu@unitbv.ro

Abstract: The paper makes a comparison between the functional angles at parting by turning and face milling operation where is taking into account the importance of correct position of the tool. In the same time is shown that at face milling operation in compariosn with turning operation the functional angles have not decisive importance on the cutting process due to small variation of them in comparison to constructive angles.

Brief Biography of the Speaker: Valentin Ditu is professor at the Faculty of Technological Engineering and Manufacturing Technology Department of Transilvania University of Brasov Romania. He graduated in 1975 and he obtained his PhD. In the field of special effects that appears at cutting operations. He is author and co-author of 10 books and more than 100 papers in national and international conferences. He ia autor of 18 practical achievements and author of some invention licences. His research interests are in Manufacturing engineering processes, Management and Education technology. He worked in many projects with different factories in the field of cutting tools performances.