ORGANIC COMPOSITE MATERIALS

Advanced course

PROFESSOR MARC J.M. ABADIE
(Instructor)
NANYANG TECHNOLOGICAL UNIVERSITY,
SINGAPORE

Local Advisor:
Dr Teresa Mata
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30 JUNE - 01 & 03 JULY, 2011 (3 DAYS COURSE) / ALGARVE-PORTUGAL
COURSE OBJECTIVES:

The 3-day intensive course is aimed at presenting and review in depth the three major and essential parts of a composite: matrices, reinforcement agents and interface/interphase of the matrix/reinforcement agent. Relationship between these different parameters and their respective influence on the final mechanical properties will be discussed.

WHO SHOULD ATTEND THE COURSE:

The course is aimed at engineers and research scientists who are involved in the concept of composite products to solve engineering problems of the aeronautical, automobile, mechanical, civil and other engineering industries.

BENEFIT OF ATTEND THIS COURSE:

Have a better understanding of a composite and how the reinforcement agent can strengthen a material.

COURSE CONTENTS:

INTRODUCTION – PLASTICS EVERYWHERE

PART I.
REMINDERS ON POLYMER SCIENCE

PART II.
BASIC CONCEPTS

PART III.
COMPOSITE STRUCTURES – KINETICS

PART IV.
BONDING & STRENGTH OF COMPOSITES

PART V.
COMPOSITES MANUFACTURING

PART VI.
CALCULATIONS

PRELIMINARY SUGGESTED READINGS:

Basics in Polymer chemistry
PROFESSOR MARC J.M. ABADIE (INSTRUCTOR)
Nanyang Technological University,
Singapore

Currently Marc J.M. ABADIE is “Michael Fam” Visiting Professor at the School of Materials Science & Engineering at Nanyang Technological University in Singapore.
Marc J.M. ABADIE was Full Professor (1st class) at University Montpellier 2, Science and Technology of Languedoc and Head of Laboratory of Polymer Science and Advanced Organic Materials - LEMP/MAO –

- Doctor honoris causa from "Gh. Asachi" Technical University in Iasi - Romania.
- Emeritus Professor from Université Montpellier II S.T.L. and " POLYTEHNICA " University of Bucharest.
- Member of International Eurasian Academy of Sciences.
- Honour Member from Ukraine Academy of Sciences.
- Emeritus Professor @ Université Montpellier II S.T.L..

Qualification
A Chemical engineer from Pasteur University of Strasbourg (F) in 1961, Professor Abadie received his Master of Science (1961) and PhD 1963 (3rd cycle) and later his Doctorat es Science, on "Oxidative Degradation of PS by gamma Ray" in 1972 at the "Centre de Recherche sur les Macromolécules” CRM in Strasbourg (F) - Institut Charles Sadron, Pr Henri Benoit as adviser.

Professional Expertise
He was successively :
- Engineer R & D at SNPA/Total (1963 - 1967)
- Research Fellow at CNRS/CRM (1967 - 1972)
- Associate Professor at U. Montpellier (1972 - 1975)
- Senior Scientist Officer at "Propellants, Explosives and Rocket Motor Establishment" PERME/UK Ministry of Defence at Waltham Abbey - UK (1975 - 1976)
- Professor at U. Algiers and Director of Laboratory of Polymer Science (1976 - 1980)
- IBM'er in Endicott NY, USA (1982 - 1986)
- Michael Fam Fellow, Visiting Professor @ NTU, Singapore (2001 & 2005-2011)
- Emeritus Professor at U. Montpellier (since 2009)
Relevant Expertise

Professor Abadie’s present research concerns: Composites & Nanocomposites, High Performance Polymers, Adhesives, Photosensitive Products, Photoresists, Photocalorimetry and Biomaterials.

- He is/was consultant for IBM, DuPont Electronics, Ethyl Corp. and Dental Medical Diagnostic Systems in the USA.
- He is/was consultant for Rhône-Poulenc, Elf, LETI, Stento, Delta, IBM, SPAD, Ivoclar AGP, Celliose, Gem Plus, Euracil and Veritas in France; Wacker Chemie GmbH in Germany & Lamberti spa in Italy.
- Over 370 papers (372 peer reviewed publications), 11 books and 9 patents.
- He received the 1991 ADER Award for transferring technology to the Industry.
- He is appointed Expert Witness and Expert to the Commission of the European Communities.
- He created in 1988 STEPI "European Technical Symposium on Polyimides and other High-Performance Polymers" which held in Montpellier every other two/three years; last STEPI 7 was held on May 9-11, 2005; the next one - STEPI 8 was on June 9-11, 2008 @ Polytech'Montpellier, France; next STEPI, STEPI 9 will be in May 2011.

Thesis

32 "Mémoires d'Ingénieur" - 61 "Diplômes d'Etudes Approfondies"


Recent Award

Dedicated to the 70th birthday of Professor Marc J.M. Abadie

Contents: October 2009, Volume 21, No. 5
Recent Publications (2008-2010)

338 - Preparation and Characterization of Sulfonated Polyphenylquinoxalines
High Performance Polymers. OnlineFirst [PDF] ; 0:0954008307082446v1 (2008)

339 – Aromatic Polyethers Based on 3,5-Dinitodiphenysulfone

340 - Effect of Filler Type, Content and Size on the UV Photocuring Dental Materials
Zoubida Seghier, Ambroise Diby, Vanda Yu. Voytekunas, Philip H. N. Cheang & Marc J.M. Abadie

341 - Proton-Conducting Polymers and Membranes Carrying Phosphonic Acid Groups
Alexandre L. Rusanov,Petr V. Kostoglodov,Marc J. M. Abadie,Vanda Yu. Voytekunas and Dmitri Yu. Likhachev

342 - New Metalized Polyimide Films - Structure & Physical Properties
The Open Chemical Engineering Journal, Bentham Open, 2, 67-73, 2008

343 - The Application of Thiol-ene Reaction on Preparing UV Curable Bismaleimide-containing Liquid Formulations
Shiliang Fan, Freddy Y.C. Boey & Marc J.M. Abadie

344 - A possible new ultrasonic thermo-pellicular effect and applications
T. A. Iclanzan, D. V. Stan and M. J. M. Abadie
Journal International Journal of Material Forming
Publisher Springer Paris / ISSN 1960-6206 (Print) 1960-6214 (Online)
Category Symposium MS11: Processing of polymers / DOI 10.1007/s12289-008-0282-y
Subject Collection Engineering / Springer Link Date Tuesday, April 08, 2008

345 - Thermo-destruction in the surface layer of polyvinyl chloride during extrusion
Vitali T. Lipik, Marc J.M. Abadie & Nikolay R. Prokoptchuk

346 - Kinetic Study of the UV-initiated Cationic Polymerization of Cycloalophatic Diepoxide Resins
Vanda Yu. Voytekunas, Feng Lin Ng & Marc J.M. Abadie
347 – Sulfonated Polynaphthylimides as Proton- Conducting Membranes for Fuel Cells
Russian Chemical Reviews, Vol 78 (1), pp. 53-75, 2009

348 - Polymeric Microcapsules with Potential for Materials Self-healing

349 - New Sulfonated Dinitrocompounds And Sulfonated Poly(Arylene Ethers) Therefrom

350 - New Polyphenylquinoxalines Based On TNT-Derived 3,5-Bis(Phenylglyoxalyl)Diphenyl Sulfide

351 - New Sulfonated Diamines And Sulfonated Polynaphthylimides Therefrom

352 - Aromatic Nucleophilic Nitrosubstitution Activated From The Meta Position For The Synthesis Of Poly(Arylene Ethers)

353 - Synthesis And Features Of Thermal Imidization Of Polyimide Compositions
A.I. Hloba, E.T. Krutko, M. J.M. Abadie

354 - The Ultrasonic Thermo-Pellicular Effect In Plastics Technology
T.A. Iclanzan, D.V. Stan, M.J.M. Abadie
355 - Copolymers Of Acrylates And Polyheteroarylenes Obtained By Radical Photopolymerization

356 - Kinetics Studies of UV-Curable Epiclon Hp-7200 Based Resin Systems
V.Yu. Voytekunas, F.L. Ng, C.L. Koh, M.J.M. Abadie

357 - Cationic Photo-polymerization of Biodegradable Poly (ε-caprolactone)
Sing Shy Liow, Leonardus K. Widjaja, Vitali T. Lipik & Marc J.M. Abadie
eXPRESS Polymer Letters, Vol 3, No 3, pp. 159-167 (2009)

358 - Copolymers Formation by Photopolymerization of (Meth)acrylates Containing Dissolved Polyheteroarylenes
Dmitriy A. Sapozhnikov, Tat’yana V. Volkova, Antonina A. Sakharova, Rashid G. Gasanov, Jean-Yves Sanchez, Vanda Yu. Voytekunas, Marc J.M. Abadie, Yakov S. Vygodskii

359 - Kinetic Analysis of UV-curable Epoxy Resins for Micromachining Applications
Voytekunas Vanda Yu., Ng Feng Lin, Koh Chai Ling & Abadie Marc J.M.

360 - Photoinduced polymerization of dental composite materials: Kinetics and optimization.
Vitali T. Lipik, Vanda Yu. Voytekunas, Marc J. M. Abadie

361 - Manufacturing technique of composite material based on wood and polymer
Vitali T. Lipik, Marc J. M. Abadie

362 - Diallyl Tartrate as a Multifunctional Monomer for Biopolymer Synthesis
Kanishka I. K. Herath, Lay Poh Tan, Christina L. L. Chai & Marc J. M. Abadie

363 - Synthesis of Biodegradable Thermoplastic Elastomers BTPE Based on ε-Caprolactone
Vitali T. Lipik, Leonardo K. Widjaja, Sing S. Liow, Subramanian S. Venkatraman & Marc J.M. Abadie

364 - New Sulfonated Polynaphthylimides: Synthesis and Investigation"
365 - New Polyaryleneoxides Containing Sulfonic Acid Side Groups

366 - TNT-Based Sulfonated Polynaphthylimides Useful as Proton Exchange Membranes for Fuel Cells (PEMFCs)

367 – New Poly(arylene ether)s Containing Side Sulfo Groups

368 - Photochemical crosslinking of the low molecular weight vinylcontaining polysiloxanes with organic azides
Nadezda V. Zelentsova, Sergei V. Zelentsov, Mark J.M. Abadie, and Elena N. Makareeva

369 - Thermoplastic Biodegradable Elastomers Based on ε-Caprolactone and L-Lactide Block Copolymers: A New Synthetic Approach

370 - Effects of transesterification and degradation on properties and structure of polycaprolactone-polylactide copolymers.

371 - Influence of structure of biodegradable triblock polymer PLA-(PCL-co-PLA)-PLA on mechanical properties.
Vitali T. Lipik, Subbu S. Venkatraman and Marc J.M. Abadie
Journal – Vysokomolekulyarnye soedineniya (VMS) (In Russian) - Polymer Chemistry: Series A (In English) Will be published in November 2010 (Number 10).

372 - Thermoplastic biodegradable elastomers based on ε-caprolactone and l-lactide block co-polymers: A new synthetic approach.

373 - Optimization of Synthesis of Poly(ε-caprolactone) by Ring Opening Polymerization. Vitali Lipik, Marc J.M. Abadie
Iranian Polymer Journal, Submitted (2010)

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NOTE: this course is limited to a small number of participants, reserve your place soon!

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30 JUNE - 01 & 03 JULY, 2011 / ALGARVE-PORTUGAL

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