

PROGRAM

IPDO – 2010

**INVERSE PROBLEMS, DESIGN
AND OPTIMIZATION
SYMPOSIUM**

**João Pessoa
August 25 – 27, 2010**

PROGRAM AT A GLANCE

	August 25, 2010	August 26, 2010	August 27, 2010
	Main Room	Main Room	Main Room
8:30–9:00	Opening of the IPDO		
9:00–10:00	Keynote Lecture 1	Keynote Lecture 3	Keynote Lecture 5
10:00–11:00	POROUS MEDIA & FLUID FLOW 1	SOLID MECHANICS & DYNAMICS 2	HEAT & MASS TRANSFER 3
10:00–10:20	IPDO-002	IPDO-008	IPDO-040
10:20–10:40	IPDO-032	IPDO-009	IPDO-041
10:40–11:00	IPDO-079	IPDO-012	IPDO-048
11:00–12:20	HEAT & MASS TRANSFER 1	SCATTERING 1	ALGORITHMS AND THEORETICAL ASPECTS 3
11:00–11:20	IPDO-004	IPDO-017	IPDO-045
11:20–11:40	IPDO-005	IPDO-018	IPDO-046
11:40–12:00	IPDO-006	IPDO-021	IPDO-050
12:00–12:20	IPDO-014	IPDO-022	IPDO-091
12:20–13:20	Lunch	Lunch	Lunch
13:20–14:20	Keynote Lecture 2	Keynote Lecture 4	Keynote Lecture 6
14:20–15:40	ALGORITHMS AND THEORETICAL ASPECTS 1	HEAT & MASS TRANSFER 2	ALGORITHMS AND THEORETICAL ASPECTS 4
14:20–14:40	IPDO-013	IPDO-027	IPDO-062
14:40–15:00	IPDO-019	IPDO-031	IPDO-065
15:00–15:20	IPDO-023	IPDO-034	IPDO-071
15:20–15:40	IPDO-033	IPDO-039	IPDO-090
15:40–16:00	Coffee-Break	Coffee-Break	Coffee-Break
16:00–17:20	SOLID MECHANICS & DYNAMICS 1	ALGORITHMS AND THEORETICAL ASPECTS 2	HEAT & MASS TRANSFER 4
16:00–16:20	IPDO-015	IPDO-035	IPDO-068
16:20–16:40	IPDO-020	IPDO-042	IPDO-087
16:40–17:00	IPDO-049	IPDO-043	IPDO-088
17:00–17:20	IPDO-070	IPDO-044	IPDO-089
17:20–17:40		IPDO-093	
18:30	Reception	Banquet	Closing of the IPDO

KEYNOTE LECTURES

Keynote Lecture 1 (9:00-10:00, August 25, 2010): THE IDENTIFICATION OF BLOOD PERFUSION COEFFICIENT IN BIO-HEAT TRANSFER, by Daniel Lesnic

Keynote Lecture 2 (13:20-14:20, August 25, 2010) THERMAL CONTROL OF A VENTILATED PLATE HEATED BY A MOVING SOURCE VIA STATE FEEDBACK USING A LOW ORDER MODEL, by Daniel Petit

Keynote Lecture 3 (9:00-10:00, August 26, 2010): A BAYESIAN INFERENCE APPROACH TO MULTISCALE INVERSE PROBLEMS USING A SEQUENTIAL MONTE CARLO METHOD, by Nicholas Zabaras

Keynote Lecture 4 (13:20-14:20, August 26, 2010): ON THE IDENTIFICATION OF OBSTACLES, INCLUSIONS OR CAVITIES, by Carlos Alves

Keynote Lecture 5 (9:00-10:00, August 27, 2010): AN INTRODUCTION TO EVOLUTIONARY MULTI-OBJECTIVE OPTIMIZATION, by Carlos Artemio Coello Coello

Keynote Lecture 6 (13:20-14:20, August 27, 2010): DESIGN OF MOLECULES FOR PARETO-OPTIMUM MULTIPLE FUNCTIONALITIES, by George S. Dulikravich

SCHOOL ON PHYSICAL PROPERTIES – PROJECT PROSUL **(Free for registered IPDO Participants)**

	August 25, 2010	August 26, 2010	August 27, 2010
	Room 2	Room 2	Room 2
11:00–12:20	To be announced	To be announced	To be announced
14:20–15:40	To be announced	To be announced	To be announced

LIST OF PAPERS

- IPDO-002 USING WAVELET TRANSFORM AND GEOPHYSICAL WELL LOGS TO MAKE LITHOLOGICAL DIFFERENTIATION ALONG BOREHOLES OF NAMORADO OILFIELD, CAMPOS BASIN, SOUTHEAST BRAZIL, by Abel Carrasquilla, and Jamilson Delesposte
- IPDO-004 MULTIOBJECTIVE OPTIMISATION OF A PIN-FIN HEAT SINK USING EVOLUTIONARY ALGORITHMS, by Siwadol Kanyakam, and Sujin Bureerat
- IPDO-005 ESTIMATION OF VOLUMETRIC HEAT CAPACITY AND THERMAL CONDUCTIVITY OF METALLIC MATERIALS, by Luís F. S. Carollo, Ana L. F. Lima e Silva, and Sandro M. M. Lima e Silva
- IPDO-006 COMPARISON OF INVERSE HEAT CONDUCTION TECHNIQUES, by Cristiano P. da Silva, Ana L. F. de Lima e Silva, Sandro M. de Lima e Silva
- IPDO-008 SUPPRESSING DAMAGE IDENTIFICATION ERRORS FROM SELECTED NATURAL FREQUENCIES AND MODE SHAPE POINTS, by Zhihai Xiang, Longqi Wang, and Masheng Zhou
- IPDO-009 LANDING GEAR FREE-FALL SIMULATION AND DAMPING OPTIMIZATION USING MATLAB, by Mário Maia Neto, Luiz Carlos Sandoval Góes, and Rui Charles Mendonça Furtado
- IPDO-012 PARAMETER ESTIMATION AND INVERSION OF FRACTURE MECHANICSBASED CRACK GROWTH MODELS UNDER UNCERTAINTY, by Shankar Sankararaman, You Ling, Christopher Shantz, and Sankaran Mahadevan
- IPDO-013 MODEL PARAMETER ESTIMATION WITH IMPRECISE INPUT/OUTPUT DATA, by Shankar Sankararaman, and Sankaran Mahadevan
- IPDO-014 SENSITIVITY ANALYSIS AND PARAMETER ESTIMATION OF HEAT TRANSFER AND MATERIAL FLOW MODELS IN FRICTION STIR WELDING, by Sebastián Pereyra, Guillermo Lombera, Gloria Frontini, and Santiago Urquiza
- IPDO-015 A BAYESIAN INFERENCE APPROACH TO ESTIMATE ELASTIC AND DAMPING PARAMETERS OF A STRUCTURE SUBJECTED TO VIBRATION TESTS, by Manoela T. Lopes, Daniel A. Castello, and Carlos F. Matt

- IPDO-017 SIZING NANOPARTICLES FROM DYNAMIC LIGHT SCATTERING MEASUREMENTS: II. EVALUATION OF PARTICLE SWARM OPTIMIZATION STRATEGIES, by Leonardo A. Bermeo, Luis A. Clementi, Eduardo Caicedo, Jorge R. Vega, and Mario A. Muñoz
- IPDO-018 SIZING NANOPARTICLES FROM DYNAMIC LIGHT SCATTERING MEASUREMENTS: I. A BAYESIAN APPROACH FOR SOLVING THE INVERSE PROBLEM, by Luis A. Clementi, Helcio R. B. Orlande, Jorge R. Vega, and Luis M. Gugliotta
- IPDO-019 SOLVING MULTIOBJECTIVE OPTIMIZATION PROBLEMS USING AN IMMUNE METAPHOR AND THE GAME THEORY, by Pawel Jarosz, and Tadeusz Burczynski
- IPDO-020 PARAMETER ESTIMATION AND APPROXIMATE CONFIDENCE REGIONS APLIED ON VISCOELASTIC MATERIAL CHARACTERIZATION, by H. V. Souza, D. A. Castello, N. Roitman, and C. Magluta
- IPDO-021 EQUIVALENT ULTRASONIC IMPEDANCE IN MULTILAYER MEDIA. A PARAMETER ESTIMATION PROBLEM, by María G. Messineo, Gloria L. Frontini, Guillermo E. Eliçabe, and Luis Gaete Garretón
- IPDO-022 BAYESIAN ANALYSIS APPLIED TO THE ESTIMATION OF PARTICLE SIZE DISTRIBUTION FROM LIGHT SCATTERING MEASUREMENTS, by Fernando A. Otero, Gloria L. Frontini, Guillermo E. Eliçabe, and Helcio R. B. Orlande
- IPDO-023 RESTORING IMAGES WITH A HOPFIELD NEURAL NETWORK UNDER A MULTISCALE APPROACH, by Jose Demisio Simoes da Silva, Ana Paula Abrantes de Castro, and Elcio Hideiti Shiguemori
- IPDO-027 A COMPARISON OF EXTENDED KALMAN FILTER APPROACHES USING NON-LINEAR TEMPERATURE AND ULTRASOUND TIME-OF-FLIGHT MEASUREMENT MODELS FOR HEATING SOURCE LOCALIZATION OF A TRANSIENT HEAT TRANSFER PROBLEM, by Michael R. Myers, Ariosto B. Jorge, and D. GregWalker
- IPDO-031 AN INVERSE ANALYSIS OF THE RADIATIVE TRANSFER IN A HETEROGENEOUS MEDIUM, by Diego C. Knupp, and Antônio J. Silva Neto
- IPDO-032 A 2D INVERSE PROBLEM WITH APPLICATIONS TO SECONDARY OIL RECOVERY, by Gabriela B. Savioli, Elena M. Fernández-Berdaguer, and María de los A. Morelli

- IPDO-033 COMPARATIVE ANALYSIS OF OPTIMIZATION ALGORITHMS FOR INDUSTRIAL APPLICATIONS, by Edmar Alino da Cruz Silva, and João Luiz F. Azevedo
- IPDO-034 KALMAN FILTERING FOR TRANSIENT SOURCE TERM MAPPING FROM INFRARED IMAGES, by Helcio R. B. Orlande, Olivier Fudym, Henrique M. Fonseca, and Francisco Sepulveda
- IPDO-035 CONSTRAINED EFFICIENT GLOBAL OPTIMIZATION USING PARTICLE SWARM OPTIMIZATION, BY EDOUARD GENGEMBRE, Olivier Fudym, Bruno Ladevie, and Antoine Thuillier
- IPDO-039 DYNAMIC OBSERVERS BASED ON GREEN'S FUNCTION APPLIED TO ANALYSIS OF DRILLING PROCESS, by Priscila F. B. de Sousa, Valério L. Borges, Márcio B. da Silva, Gilmar Guimarães
- IPDO-040 COMPARATIVE ANALYSIS OF STOCHASTIC AND PATTERN SEARCH METHODS APPLIED TO THERMOECONOMIC OPTIMIZATION OF A COMPLEX COGENERATION SYSTEM MODELED IN A PROCESS SIMULATOR , by Thiago S. Pires, Manuel E. Cruz, and Marcelo J. Colaço
- IPDO-041 IDENTIFICATION OF A PRESSURE DEPENDENT HEAT TRANSFER COEFFICIENT, by A. Fraguera, J. A. Infante, A. M. Ramos, and J. M. Rey
- IPDO-042 ESTIMATION OF SPACE-DEPENDENT SINGLE SCATTERING ALBEDO IN RADIATIVE TRANSFER PROBLEMS USING DIFFERENTIAL EVOLUTION ALGORITHM, by Fran Sérgio Lobato, Valder Steffen Jr, and Antônio J. Silva Neto
- IPDO-043 AN INVERSE SOURCE PROBLEM FOR THE STATIONARY DIFFUSION-ADVECTION-DECAY EQUATION, by Denis M. de Sousa, and Nilson C. Roberty
- IPDO-044 STAR SHAPE SOURCES RECONSTRUCTION IN THE MODIFIED HELMHOLTZ EQUATION DIRICHLET PROBLEM, by Nilson C. Roberty, and Marcelo L. S. Rainha
- IPDO-045 USING X-RAY TRANSFORM FOR CONSTANT BY PARTS FUNCTIONS RECONSTRUCTION, by Alberto R. F. Teixeira, and Nilson C. Roberty
- IPDO-046 PRICING OF AIR TRAFFIC CONTROL SERVICES: A DUAL INVERSE APPROACH TO BILEVEL PROGRAMMING, by Rabah Guettaf, Moussa Larbani, Catherine Mancel, and Félix Mora-Camino

- IPDO-048 TEMPERATURE DEPENDENT THERMAL BOUNDARY RESISTANCE AT A METAL-PHASE CHANGE MATERIAL USING THE TIME RESOLVED PUMP PROBE TECHNIQUE, by Jean-Luc Battaglia, Vincent Schick, Clément Rossignol, and Claudia Wiemer
- IPDO-049 ON NONLOCAL STRAIN DAMAGE, by Francesco Marotti de Sciarra
- IPDO-050 AN ITERATIVE SEARCH METHOD FOR THE CHOICE OF AN OPTIMAL REGULARIZATION PARAMETER IN A PROBLEM OF IMAGE RESTORATION BASED ON THE MINIMIZATION OF TIKHONOV'S FUNCTIONAL, by Dalmo Stutz, and Antônio J. Silva Neto
- IPDO-062 LAND FLUXES FOR THE BIO-GEO-CHEMICAL CYCLES ESTIMATED BY ARTIFICIAL NEURAL NETWORKS, by Fabiana F. Paes, Fernando M. Ramos, and Haroldo F. Campos Velho
- IPDO-065 A NEW SCHEME FOR PARTICLE FILTER WITH STATISTICAL MOMENTS NOT DEFINED, by Haroldo F. de Campos Velho, and Helaine Cristina M. Furtado
- IPDO-068 THERMAL AND EXPERIMENTAL ANALYSIS OF THE GTAW PROCESS, by Ana Paula Mázaró Cângani, Valtair Antônio Ferraresi, Gilmar Guimarães, and Solidônio Rodrigues de Carvalho
- IPDO-070 A CRITERION FOR THE NUMBER OF BOUNDARY DATA SETS NEEDED FOR ESTIMATING INTERIOR ELASTIC PROPERTIES, by A Narayana Reddy, and G K Ananthasuresh
- IPDO-071 SPARSE MATRIX SOLVER ON THE GPU: CONJUGATE GRADIENT METHOD APPLIED TO SOLVE AN INVERSE THERMAL TOMOGRAPHY PROBLEM, by Jonas L. Ansoni, Analice C. Brandi, Grazieli L. C. Carosio, Paulo Seleglim Jr., and Anderson de Marco
- IPDO-079 METHODOLOGY FOR ROBUST INVERSE DESIGN OF AIRFOILS AND TURBOMACHINERY CASCADES, by Cleber Juliano B. dos Reis, and Nelson Manzanares Filho
- IPDO-087 SHAPE OPTIMIZATION FOR INVERSE ELECTROMAGNETIC CASTING PROBLEMS, by Alfredo Canelas, Jean R. Roche, and José Herskovits
- IPDO-088 INTEGRAL TRANSFORM AND INVERSE PROBLEM OF PARAMETER ESTIMATION FOR MASS TRANSFER IN THE DRYING PROCESS, by Cristiane Kelly Ferreira da Silva, Andréa Samara Santos de Oliveira, José Pereira Alencar Júnior, Carlos Antonio Cabral dos Santos, and Zaqueu Ernesto da Silva

- IPDO-089 NETWORK SIMULATION METHOD APPLIED IN AN INVERSE PROBLEM OF THERMAL DIFFUSIVITY ESTIMATION, by Andréa Samara S. de Oliveira, Zaqueu E. da Silva, Carlos A. C. dos Santos, and Francisco A. Belo
- IPDO-090 PROPERTIES OF THE SCATTERING DATA OF THE 3D INVERSE SCATTERING PROBLEM, by Miklos Horvath
- IPDO-091 COMBINED PARAMETER AND STATE ESTIMATION IN SIMULATION BASED FILTERING APPLIED TO A SOLIDIFICATION PROBLEM, by Wellington B. Silva, Helcio R. B. Orlande, and Marcelo J. Colaço
- IPDO-093 EXPERIENCE USING IOSO OPTIMIZATION TECHNOLOGY FOR REAL-LIFE COMPLEX APPLICATIONS, by I. N. Egorov, G.V.Kretinin, I.L. Leshchenko, and K.S. Fedechkin