

Program

International Symposium on RADIATION TRANSFER VI Sealife Hotel, Antalya, Turkey 13-18 June, 2010 SUNDAY JUNE 13, 2010 15:30 - 18:00 REGISTRATION

MONDAY JUNE 14, 2010 7:30 - 8:30 REGISTRATION 8:30 - 9:00 WELCOMING REMARKS Webb/Lemonnier/Arin

SESSION 1 - INVERSE RADIATIVE TRANSFER Chair: K.J. Daun 9:00 - 9:30 NEW DEVELOPMENTS IN FREQUENCY DOMAIN OPTICAL TOMOGRAPHY. PART I. FORWARD MODEL AND GRADIENT COMPUTATION O. Balima, J. Boulanger, A. Charrette, D.

NEW DEVELOPMENTS IN FREQUENCY DOMAIN OPTICAL TOMOGRAPHY. PART II. APPLICATION WITH A L-BFGS ASSOCIATED TO AN INEXACT LINE SEARCH O. Balima, J.

Marceau 10:00 - 10:30 RECONSTRUCTION OF VARYING REFRACTIVE INDEX MEDIA USING THE RADIATIVE TRANSFER EQUATION, ITS ADJOINT, AND A LEAST-SQUARE GRADIENT-BASED ITERATIVE INVERSION J. Boulanger, O. Balima, A. Charrette 10:30 - 11:00 Coffee Break

ESTIMATION OF ARBITRARY REFRACTIVE INDEX DISTRIBUTION IN A ONE-DIMENSIONAL SEMITRANSSPARENT GRADED INDEX MEDIUM A. Namjoo, S. M. H. Sarvari, D. Lemonnier, V. Le Dez 11:30 - 12:00 IDENTIFICATION OF MATHEMATICAL MODEL OF MULTILAYER THERMAL INSULATION N. Arin, V. M. Gonzalez

12:00 - 12:30 INVERSE BOUNDARY DESIGN OF A SQUARE ENCLOSURE WITH FREE CONVECTION S. Payan, S. M. H. Sarvari 12:30 - 14:30 BOUNDARY VALUE PROBLEM OF RADIATION Chair: M. P. Mengüç 14:30 - 15:00 DIRECT CALCULATION OF ENERGY STREAMLINES IN NEAR-FIELD THERMAL RADIATION S. Basu, L. Wang, Z. M. Zhang 15:00 - 15:30 THERMAL EMISSION IN MID INFRARED FROM A BILAYER STRUCTURE K. Joulain, P. Ben-Abdallah 15:30 - 16:00 DIRECTIONAL CHARACTERISTICS OF THERMAL RADIATION EMITTED FROM MICROSTRUCTURED SURFACE D. Hirashima, K.

16:00 - 16:30 NEAR-FIELD AND FAR-FIELD MODELLING OF SURFACE WAVES SCATTERED BY AFM TIP J. Muller, G. Parent, S. Fumeron, G. Jeandel, D. Lacroix 16:30 - 17:00

3- RADIATIVE TRANSFER IN COMBUSTION AND INDUSTRIAL SYSTEMS Chair: N. Selçuk 17:00 - 17:30 EFFICIENCY ANALYSIS OF RADIATIVE SLAB HEATING IN A WORKING BEAM TYPE REHEATING FURNACE S. H. Han, D. Chang 17:30 - 18:00 THERMAL RADIATION TRANSFER IN LAMINAR DIFFUSION FLAMES AT NORMAL AND MICROGRAVITY F. Liu, G. J. Smallwood, W. Kong 18:00 - 18:30 THE INFLUENCE OF PARTICLE SIZE ON THE MODELING OF RADIATIVE PROPERTIES AND SOLUTION METHOD OF THE RADIATIVE TRANSFER EQUATION IN SIMULATIONS OF NONPREMIXED TURBULENT JET FLAMES M. F. Modest 19:30 - 20:30 WELCOME COCKTAIL TUESDAY JUNE 15, 2010 DEDICATION LECTURE 1 Chair: B. W. Webb 8:30 - 9:30 RADIATIVE PROPERTIES OF STATISTICALLY ANISOTROPIC NON-BEERIAN POROUS MEDIA J. Taine, F. Bellet SESSION 4 - RADIATION TRANSFER IN NON-BEERIAN POROUS MEDIA I Chair: R. Vaillon 9:30 - 10:00 DISCRETE VS CONTINUUM LEVEL SIMULATION OF RADIATIVE TRANSFER IN SEMITRANSSPARENT TWO-PHASE MEDIA J. Petrasch, D. Haussener 10:30 - 11:00 CONTINUUM RADIATIVE TRANSFER MODELING IN MEDIA CONSISTING OF OPTICALLY DISTINCT COMPONENTS IN THE LIMIT OF GEOMETRICAL OPTICS W. Lipka, J. Petrasch, D. Haussener 10:30 - 11:00 Coffee Break 11:00 - 11:30 RADIATIVE CONDUCTIVITY OF NON-BEERIAN POROUS MEDIA: APPLICATION TO DEGRADED ROD BUNDLES OF A NUCLEAR CORE M. Chahlaoui, F. Bellet, L. Foucher, F. Fichot, J. Taine 11:30 - 12:00 A New Explanation of the Extinction Paradox. pART i M. J. Berg, C. M. Sorensen, A. Chakrabarti 12:00 - 12:30 of the Extinction Paradox. pART ii M. J. Berg, C. M. Sorensen, A. Chakrabarti BREAK SESSION 5 - RADIATION TRANSFER IN NON-HOMOGENEOUS SYSTEMS - II Chair: F. Liu 14:30 - 15:00 AN EFFECT OF COHERENT SCATTERING BY ABSORPTION OBSERVED IN THE NEAR-INFRARED PROPERTIES OF NANOPOROUS SILICA L. Dombrovsky, S. Lallich, F. Enguehard 15:00 - 15:30 SOOT PARTICLE SIZING BY INVERSE ANALYSIS OF MULTIANGLE ELASTIC LIGHT SCATTERING D. W. Burr, K. J. Daun, O. Link, K. A. Thomson, G. J. Smallwood 15:30 - 16:00 ATTENUATION OF SOLAR RADIATION BY WATER MIST FROM THE ULTRAVIOLET TO THE INFRARED RANGE L. Dombrovsky, V. Soloviev, B. W. Webb 16:00 - 16:30 SCATTERING BY INTERACTING NANOPARTICLES F. N. D'Almeida, M. J. Oukutucu 16:30 - 17:00 Coffee Break

SESSION 6 - COUPLED RADIATIVE TRANSFER Chair: S. Maruyama 17:00 - 18:00 INFLUENCE OF THE LARGE EDDY SIMULATION SUBGRID-SCALES ON THERMAL RADIATION IN A NON-ISOTHERMAL TURBULENT PLANE M. Roger, P. J. C.

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18:30 STEFAN PROBLEM IN A SEMITRANSSPARENT MEDIUM AT DIFFERENT ABSORPTION ABILITIES OF BOUNDARIES N. A. Rubtsov, S. D. Sleptsov WEDNESDAY JUNE 16

LECTURE 2 Chair: L. Dombrovsky

8:30 - 9:30 RADIATION IN FLUX: FROM STEAM TO NANO SESSION 7 - GAS RADIATION IN FLUX: FROM NARROW BAND TO SPECTRUM SLMB PARAMETERS: A TRANSFORMATION TECHNIQUE TO ALLOW MEANINGFUL MODEL COMPARISONS F. Andr , R. Vaillon 10:00 - 10:30 BAND MODEL FOR CALCULATION OF THERMAL RADIATION IN COMBUSTION ENVIRONMENTS WITH HIGH CO CONCENTRATION H. Hofgren, Z. Yan, B. Sunden 10:30 - 11:00 COMPARISON OF TWO STATISTICAL NARROW BAND MODELS FOR NON-GRAY GAS RADIATION IN PLANAR PLATES H. Chu, Q. Cheng, H. Zhong 11:00 - 11:30 THE SLW-1 MODEL FOR EFFICIENT PREDICTION OF RADIATIVE TRANSFER IN HIGH TEMPERATURE GASES V. Soloviev, D. Lemonnier, B. W. Webb 12:00 - 12:30 Gas Mixtures in Hypersonic Nonequilibrium Flows A. Bansal, M. F. Modest, D. A. Levin FREE AFTERNOON

THURSDAY JUNE 17, 2010 DEDICATION LECTURE 3 Chair: M. F. Modest 8:30 - 9:30 THE METHOD OF DISCRETE ORDINATES FOR TRANSIENT SIMULATION OF RADIATIVE HEAT TRANSFER N. Sel uk

SESSION 8 - RADIATION TRANSFER MODELS AND APPLICATION Chair: D. Lemonnier 9:30 - 10:00 RADIATIVE TRANSFER IN ISOTROPICALLY SCATTERING TWO-LAYERED THREE DIMENSIONAL RECTANGULAR ENCLOSURES Z. Alta , M. Tekkalmaz 10:00 - 10:30 RADIATIVE TRANSFER EQUATION FOR HORIZONTAL HOMOGENEOUS SLABS Budak, V. A. Klyuykov, S. V. Korokin 10:30 - 11:00 Coffee Break

11:00 - 11:30 A DIRECT SPECTRAL COLLOCATION METHOD FOR RADIATIVE HEAT TRANSFER INSIDE A PLANE-PARALLEL PARTICIPATING MEDIUM WITH A GRADED INDEX

11:30-12:00 COMPUTATIONAL EFFICIENCY OF THE FINITE ELEMENT METHOD BASED ON THE SECOND-ORDER RADIATIVE TRANSFER EQUATION J. M. Zhao, J. Y. Tian

Absorption-scattering coupling for the infrared signature of an aluminized solid rocket motor Pautrizel, A. Roblin, P. Perez, V. Riolland 12:30 - 14:30 BREAK

SESSION 9 - RADIATIVE PROPERTIES I Chair: A. Nenarokomov

14:30 - 15:00 AESTHETIC AND THERMAL PERFORMANCES OF BLACK CUPRIC OXIDE AND TITANIUM DIOXIDE NANO-PARTICULATE COATINGS M. Baneshi, S. Mariani 15:30 AN EXPERIMENTAL METHOD FOR MAKING SPECTRAL EMITTANCE AND SURFACE TEMPERATURE MEASUREMENTS OF OPAQUE SURFACES T. J. Moore, M. R. Maynes, L. L. Baxter 16:30 Coffee Break 16:30 - 18:30 POSTER PRESENTATIONS 20:00 - 23:00 GALA DINNER

FRIDAY JUNE 18, 2010 SESSION 9 - RADIATIVE PROPERTIES II Chair: M. R. Jones

9:30 - 10:00 RADIATIVE CHARACTERISTICS OF SURFACE STRUCTURE ON HUMAN SKIN J. Yamada, K. Nakamura, T. Ogawa, H. Yokoshiwa, S. Takata 10:00 - 10:30 RADIATIVE PROPERTIES OF FOREST FIRES G. Parent, Z. Acem, A. Collin, Break

11:00 - 12:30 OPEN FORUM 12:30 END OF RAD-VI SYMPOSIUM 14:00 - 17:00 JOINT COMMITTEE MEETING POSTER PRESENTATIONS

Thursday, June 17 17:00 19:00 P1 INITIAL RESULTS FROM THE COUPLED AND EXTENDED SCIATRAN VERSION INCLUDING RADIATION PROCESSES WITHIN THE WATER M. Blum, V. Rozanov, T. Dinter, A. Bracher P2A FVM BASED ON A CELL VERTEX SCHEME FOR THE SOLUTION OF THE RTE IN 3D COMPLEX GEOMETRIES L. Trovalet, G. Jeandel, P. Coelho, F. Asllanaj P3 NUMERICAL SIMULATION OF TURBULENT NATURAL CONVECTION AND GAS RADIATION IN DIFFERENTIALLY HEATED CAVITIES USING FVM, DOM AND LES R. Capdevila, C. D. P rez-Segarra, O. Lehmkuhl, G. Colomer P4 SIMULATION OF RADIATIVE TRANSFER IN A NUCLEAR REACTOR DURING THE REFLOODING STEP IN A LOCA SITUATION J. Gerardin, A. Hassini, N. Seiler, P. Boulet P5 TECHNIQUE FOR MEASUREMENT OF NEAR-FIELD RADIATION HEAT TRANSFER BETWEEN PARALLEL PLANES WITH NANO-SCALE SPACING K.D. Webb, M. P. Meng , H. Ert rk, B. Ba_1m P6 COUPLING RADIATION MODELLING WITH TURBULENT COMBUSTION IN LARGE EDDY SIMULATION D. Poitou, J. Amaya, M. El Hafi, B. Cuenot P7 PREDICTION OF THERMAL RADIATIVE PROPERTIES IN POROUS MEDIA: A MONTE-CARLO RAY TRACING METHOD J. Y. Rolland, B. Rousseau, J. Vicente P8 PROPER ORTHOGONAL DECOMPOSITION USED TO EVALUATE ABSORPTION LINE BLACK BODY DISTRIBUTION FUNCTION G. Weceł, Z. Ostrowski, Z. R. Bialecki P9 THERMAL IMPACTS ON PERFORMANCES OF NANOSCALE-GAP THERMOPHOTOVOLTAIC ENERGY CONVERSION DEVICES M. Francoeur, M. P. Meng , R. Vaillon