Program & Abstracts

7th International Symposium on Radiative Transfer
RAD-13 4 Pine Bay Holiday Resort, Kusadasi 2 - 8 June, 2013

Speakers instructions: To allow time for discussion, speakers’ presentations should be limited to 20 minutes.

Â SUNDAY JUNE 2, 2013 15:30 - 18:00 Â REGISTRATION
MONDAY JUNE 3, 2013
7:30 - 8:30 Â â € Â â € Â â € REGISTRATION
8:30 - 8:45 Â â € Â â € Â â € WELCOMING REMARKS (B.W. Webb / D. Lemonnier / F. Arinâ€§)Â

INTRODUCTION LECTURE
Chair: M. P. Mengüç
8:45 â€œ 9:45 Â â € Â â € Reflections on Radiative Transfer
Â â € Â â € Â â € Â â € Â â € Â â € Â â € Â â € Â â € J. Howell

POYNTING AWARD CEREMONY
9:45 â€œ 10:00 Â â € OFFICIAL PRESENTATION OF THE POYNTING AWARD

SESSION 1 â€œ RADIATIVE TRANSFER MODELS - I
Chair: R. Vaillon
10:00 - 10:30 Application of High Resolution NVD and TVD Differencing Schemes to the Discrete Ordinates Method Using Unstructured Grids
Â P. Coelho
10:30 - 11:00 Coffee Break
11:00 - 11:30 Solution Convergence Acceleration of Discretized Radiative Transfer Equation Using Synthetic Iteration Method
Â V. P. Budak, O. V. Shagalov
11:30 - 12:00 THE DRESOR METHOD FOR RADIATIVE HEAT TRANSFER IN SEMITRANSPARENT GRADIENT INDEX CYLINDRICAL MEDIUM
12:00 - 12:30 ANALYSIS OF ACCELERATION TECHNIQUES FOR LINEARIZED RADIATIVE TRANSFER CODES
Â D. S. Efremenko, A. Doicu, D. Loyola, T. Trautmann
12:30 - 14:30 BREAK

SESSION 2 â€œ RADIATIVE TRANSFER MODELS - II
Chair: P. Coelho
14:30 - 15:00 NULL COLLISION MONTE CARLO ALGORITHMS: A MESHLESS TECHNIQUE TO DEAL WITH RADIATIVE PROBLEMS IN HETEROGENEOUS MEDIA
Â M. Galtier, M. El Hafi, V. Eymet, R. Fournier, G. Terrée
15:00 - 15:30ASYMPTOTIC ANALYSIS OF RADIATIVE TRANSFER EQUATION WITH RANDOM EXTINCTION COEFFICIENT
Â A. K. Prinja, E. D. Fichtl
15:30 - 16:00 MESHLESS METHOD FOR SOLVING MULTIDIMENSIONAL TRANSIENT RADIATIVE TRANSFER
Â C. A. Wang, H. Sadat, M. Lazard, V. Le Dez
16:00 - 16:30 Coffee Break

SESSION 3 - RADIATIVE TRANSFER IN COMBUSTION SYSTEMS
Chair: H. C. Zhou
16:30 - 17:00 THERMAL RADIATION EFFECTS IN RANS SIMULATIONS OF A 2D AXISYMMETRIC TURBULENT DIFFUSION FLAME
Â F. R. Centeno, F. H. R. Franâ€§a, C. V. Da Silva
17:00 - 17:30 EFFECTS OF WATER VAPOUR TO THE AIR STREAM ON SOOT VOLUME FRACTION AND FLAME TEMPERATURE IN A LAMINAR COFLOW
Â EHTYLENE FLAME
Â F. Liu, J.-L. Consalvi, A. Fuentes, G. J. Smallwood
18:30 - 20:00 WELCOME

COCKTAIL
TUESDAY JUNE 4, 2013

DEDICATION LECTURE 1
Chair: P. F. Hsu
8:30 - 9:30
THERMAL THERAPY WITH METAL NANOPARTICLE ASSISTED LASER HEATING
Y. Bayazitoglu, S. Kheradmand, T. K. Tullius

SESSION 4 - RADIATIVE PROPERTIES OF SOLIDS AND HETEROGENEOUS MEDIA - I
Chair: H. Berberoglu
9:00 - 10:00
PREDICTION OF THERMAL RADIATIVE PROPERTIES OF SEMICONDUCTORS FROM FIRST PRINCIPLE
A H. Bao, X. Ruan
10:00 - 10:30
THERMAL PERFORMANCE OF BLACK CUPRIC OXIDE SUBMICRON-PARTICULATE COATINGS: EXPOSURE TEMPERATURE MEASUREMENT
A H. Gonome, M. Baneshi, J. Okajima, A. Komiya, S. Maruyama
10:30 - 11:00 Coffee Break

SESSION 5 - INVERSE RADIATIVE TRANSFER
Chair: A. V. Nenarokomov
11:00 - 11:30
A COMPARATIVE STUDY IN OPTICAL TOMOGRAPHY WITH REGULARIZATION TOOLS
A O. Balima
11:30 - 12:00
LASER ABSORPTION TOMOGRAPHY RECONSTRUCTION THROUGH THE LEVEL SET METHOD
A M. G. Twynstra, K. J. Daun, S. L. Waslander
12:00 - 12:30
SENSITIVITY ANALYSIS AND RETRIEVAL OF INCLUSION PROPERTIES IN PARTICIPATING MEDIA BASE ON THE SHORT PULSE LASER INCIDENCE
A D. L. Wang, H. Qi, B. Zhang, X. Sun, L.M. Ruan
12:30 - 14:30 BREAK

SESSION 6 - RADIATIVE PROPERTIES OF SOLIDS AND HETEROGENEOUS MEDIA - II
Chair: K. Daun
14:30 - 15:00
SPECTRAL RADIATIVE PROPERTIES OF 3DOM CERIA PARTICLES
A V. M. Wheeler, J. Andrianalisoa, K. K. Tamma, W. LipiDski
15:00 - 15:30
EXPERIMENTAL STUDY OF THE EFFECTIVE BRDF OF A COPPER FOAM SHEET
A W.J. Zhang, J.M. Zhao, L.H. Liu
15:30 - 16:00 SIMPLIFIED APPROACHES TO RADIATIVE TRANSFER SIMULATIONS IN LASER-INDUCED HYPERTHERMIA OF SUPERFICIAL TUMORS
A L. A. Dombrovsky, J. H. Randrianalisoa, W. LipiDski, V. Timchenko
16:00 - 16:30 Coffee Break

SESSION 7 - RADIATIVE PROPERTIES OF SOLIDS AND HETEROGENEOUS MEDIA - III
Chair: W. Lipinski
16:30 - 17:00
RADIATION CHARACTERISTICS MEASUREMENTS OF ANABAENA CYLINDRICA
A R. L. Heng, E. Lee, L. Pilon
17:00 - 17:30 RADIATIVE TRANSFER IN VACUUM THERMAL INSULATION OF SPACE VEHICLES
A I. V. Gritsevich, L. A. Dombrovsky, A. V. Nenarokomov

WEDNESDAY JUNE 5, 2013

DEDICATION LECTURE 2
Chair: J. Howell
8:30 - 9:30
NANO-SCALE RADIATIVE HEAT TRANSFER TO SOLVE GLOBAL WARMING AND ENVIRONMENTAL ISSUES
S. Maruyama
SESSION 8 – RADIATIVE TRANSFER IN SOLAR ENERGY SYSTEMS
Chair: G. Flamant 9:30 - 10:00
COMPUTATIONAL AND EXPERIMENTAL STUDY OF A MULTI-LAYER ABSORPTIVITY ENHANCED THIN FILM SILICON SOLAR CELL
S. Hajimirza, J. R. Howell 10:00 - 10:30
RADIATION TRANSFER IN COMMON OUTDOOR PHOTOBIOREACTORS E. Lee, X. He, R. Munipalli, L. Pilon
10:30 - 11:00Coffee Break
11:00 - 11:30LIGHT TRANSPORT ANALYSIS OF SMART WINDOWS FOR SOLAR ENERGY HARVESTING O. Taylan, T.E. Murphy, H. Berberoglu

SESSION 9 – NANOSCALE RADIATIVE TRANSFER-I
Chair: B. Wong 11:30 - 12:00
RADIATIVE PROPERTIES TAILORING OF MICROSCALE GRATING WITH COMB-DRIVE MICROACTUATOR Y. Jiao, L. H. Liu, P. F. Hsu 12:00 - 12:30ENERGY DENSITY ABOVE A RESONANT METAMATERIAL IN THE GHZ: AN ALTERNATIVE TO NEAR-FIELD THERMAL EMISSION DETECTION K. Joulain, J. Drevillon, Y. Ezzahri
12:30 - 14:30FREE AFTERNOON

THURSDAY JUNE 6, 2013

DEDICATION LECTURE 3
Chair: L. Dombrovsky 8:30 - 9:30
RADIATIVE HEAT TRANSFER MODELING IN HIGH TEMPERATURE PARTICULATE SYSTEMS G. Flamant, C. Caliot

SESSION 10 – NANOSCALE RADIATIVE TRANSFER-II
Chair: K. Joulain 9:30 - 10:00
COUPLING OF NEAR-FIELD THERMAL RADIATIVE HEATING AND PHONON MONTE CARLO SIMULATION: ASSESSMENT OF TEMPERATURE GRADIENT IN N-DOPED SILICON THIN FILM B. T. Wong, M. Francoeur, V. N. S. Bong, M. P. Meng Aiü/4ÅŞ
10:00 - 10:30NEAR-FIELD THERMAL EMISSION BY METAMATERIALS S. J. Petersen, S. Basu, M. Francoeur
10:30 - 11:00Coffee Break
11:00 - 11:30THE GENERALIZED K-MOMENT METHOD FOR THE MODELLING OF CUMULATIVE K-DISTRIBUTIONS OF H2O AT HIGH TEMPERATURE F. André, V. P. Solovjov, L. Hou, R. Vaillon, D. Lemonnier
12:00 - 14:30BREAK
14:30 - 17:30POSTER PRESENTATIONS
20:00 - 23:00GALA DINNER
FRIDAY JUNE 7, 2013

8:45 – 10:00    RAYMOND VISKANTA AWARD CEREMONY

SESSION 12 â€“ GAS RADIATION - II 10:00 - 10:30
EXTENSION OF THE EXACT SLW MODEL TO NON-ISOTHERMAL GASEOUS MEDIA    V. P. Solovjov, D. Lemonnier, B. W. Webb
10:30 – 11:00 Coffee Break
11:00 - 11:30 QUANTIFICATION OF MODEL-FORM UNCERTAINTY IN THE CORRELATED-K DISTRIBUTION METHOD FOR RADIATION HEAT TRANSFER    J. Tencer, J.R. Howell

SESSION 13 â€“ NANOSCALE RADIATIVE TRANSFER - III 11:30-12:00
ON OPTIMAL OPTICAL PROPERTIES FOR NEAR-FIELD RADIATIVE HEAT TRANSFER MAXIMIZATION BETWEEN TWO SEMI-INFINITE PLANES AT ROOM TEMPERATURE    E. Neffzaoui, Y. Ezzahri, J. Drevillon, K. Joulain
12:00 - 12:30 ANALYSIS OF NEAR FIELD-EMISSION WITHIN NANO-GAPS USING FINITE DIFFERENCE TIME DOMAIN METHOD    J. Didari, M. P. Mengùç
12:30 - 14:30 BREAK
14:30 - 16:00 OPEN FORUM
16:00 END OF RAD-13 SYMPOSIUM

POSTER PRESENTATIONS
Thursday, June 6 14:30 – 17:30
P01 RADIATIVE TRANSFER THROUGH A PMMA SAMPLE. PART 1: SPECTROSCOPIC STUDY AND OPTICAL INDICES
Z. Acem, J. Gérardin, G. Parent, A. Collin, P. Boulet


P04 CONTROL OF THE THERMAL RADIATIVE PROPERTIES OF SiC FOAMS    J. Drevillon, K. Joulain, B. Rousseau, G. Dominguez, J. Vicente

P05 INFLUENCE OF THE FORMING CONDITIONS ON THE RADIATIVE PROPERTIES OF SEMI-CRYSTALLINE POLYMERS    D. Hakoume, D. Delaunay, B. Rousseau

P06 ANALYSIS OF THERMAL RADIATION HEAT TRANSFER ON A VERY HIGH TEMPERATURE GAS-COOLED REACTOR    A. Sakurai, H. Tanikawa, M. Yamada

P07 EXPERIMENTAL, NUMERICAL INVESTIGATION OF COUPLED HEAT, MASS TRANSPORT IN A PARTICIPATING MEDIUM    O. Isik, O. Temel, S. U. Onbasli

P08 IDENTIFICATION OF TEMPERATURE, RADIATIVE PROPERTIES IN SEMITRANSSPARENT MEDIA USING HIGH TEMPERATURE SPECTRAL DIRECTIONAL EMISSION: APPLICATION TO CARBON FELT    A. Delmas, F. Andrê, J. M. Bouilly, Y. Aspa

P09 OPTIMIZATION OF HIGH TEMPERATURE VOLUMETRIC SOLAR ABSORBER MADE OF SILICON CARBIDE CERAMIC FOAM    A. Mey, C. Caliot, G. Flamant

P10 ANALYTICAL SOLUTION OF P1 APPROXIMATION IN RECTANGULAR ENCLOSURE WITH GRAY MEDIUM    H. Saliholu, H. Etarâ’, V. P. Solovjov, D. Lemonnier, B. W. Webb

P11 A WIDE-ANGLE CERMET-BASED SOLAR SELECTIVE ABSORBER FOR HIGH TEMPERATURE APPLICATIONS    A. Sakurai, H. Tanikawa, M. Yamada

P12 VERIFICATION OF PRECISE PREDICTIVE EXPRESSION OF EMMITTANCE SPECTRA FOR POWDERY COAL ASH    A. Tsuda, T. Okazaki, A. Gwosdz