

Program

(Updated, July 14, 2005)

INTERDISCIPLINARY TRANSPORT PHENOMENA IN MICROGRAVITY AND SPACE SCIENCES IV

August 7-12, 2005

Tomar, Portugal

Conference Chair & Scientific Secretary:

Prof. S.S Sadhal

University of Southern California, USA

Co-Chairs:

Prof. V.K. Dhir, UCLA, USA

Prof. Naomi Chayen, Imperial College, UK

Prof. H. Ohta, Kyushu University, Japan

Prof. R.W. Smith, Queen's University, Canada

Engineering Conferences International

6 MetroTech Center

Brooklyn, NY 11201

Fax: 1-718-260-3754

Telephone (main): 1-718-260-3743

www.engconfintl.org/5aw.html

SUNDAY, AUGUST 7, 2005

- | | |
|----------------------|--------------------------|
| 17:30 - 19:30 | Registration |
| 18:30 - 20:00 | Dinner |
| 20:00 - 21:30 | Opening Reception |

IMPORTANT ANNOUNCEMENTS

ECI Conferences are smoke-free. Please do not smoke at any conference function.
Please turn off (or turn to vibrate) your cell phone during technical sessions

THIS PROGRAM IS SUBJECT TO CHANGES

	MONDAY, AUGUST 8, 2005	
07:00 – 08:00	Breakfast	
08:00 – 08:15	Opening Remarks and Welcome: S.S. Sadhal (Conference Chair)	
08:15	Technical Sessions Begin	
	Session 1: Materials Technology I: Containerless Processing Session Chairs: Reginald W. Smith and Jeffrey J. Derby	
08:15 – 9:15	1. KEYNOTE LECTURE: DIRECT NUMERICAL SIMULATION OF TURBULENT FLOWS IN AN ELECTROMAGNETICALLY POSITIONED DROPLETS IN MICROGRAVITY (Paper 59) <u>Ben Q. Li</u> , Washington State University, Sloan 207, MME, Pullman, WA, 99163, USA X. Ai, Washington State University	
9:15 – 9:45	2. MICROGRAVITY EXPERIMENTS ON THE EFFECT OF INTERNAL FLOW ON SOLIDIFICATION OF FeCrNi STAINLESS STEELS (Paper 49) <u>Alaina Hanlon</u> , University of Massachusetts 160 Governors Dr, Amherst, MA, 01003, USA Douglas M. Matson, Tufts University, Medford, MA, USA Robert W. Hyers, University of Massachusetts, Amherst, MA	
9:45 – 10:15	3. STUDY ON INTERNAL FLOW AND SURFACE DEFORMATION OF LARGE DROPLET LEVITATED BY ULTRASONIC WAVE (Paper 50) <u>Yutaka Abe</u> , University of Tsukuba 1-1-1 Tennoudai, Tsukuba, Ibaraki, 305-8573, Japan Daisuke Hyuga, University of Tsukuba Syogo Yamada, Toyota Motors Corporation Kazuyoshi Aoki, Toshiba Corporation Masahiro Kawaji, University of Toronto	
10:15 – 10:45	Tea/Coffee Break	
10:45 – 11:15	4. CONTAINERLESS MEASUREMENTS OF THERMOPHYSICAL PROPERTIES OF $Ti_8Zr_{54}Cu_{20}Al_{10}Ni_8$ (Paper 58) <u>Rich C. Bradshaw</u> , University of Massachusetts 160 Governors Dr. ELab 220, Amherst, MA, 01003, USA M.E. Warren, R.W. Hyers, University of Massachusetts J.R. Rogers, NASA MSFC T.J. Rathz, University of Alabama A.K. Gangopadhyay, K.F. Kelton, Washington University	
11:15 – 11:45	5. NONCONTACT THERMOPHYSICAL PROPERTY MEASUREMENT BY LEVITATION OF A THIN LIQUID DISK , Sungho Lee, Kenichi Ohsaka, Alexei Rednikov & <u>S.S. Sadhal</u> Aerospace & Mechanical Engineering, University of Southern California, Los Angeles, CA 90089-1453	
11:45 – 12:15	Informal Discussion	
12:30 – 13:30	Lunch	
13:30 – 15:00	Session 2: Materials Technology II Session Chairs: Ben Q. Li and Takeshi Okutani	
13:30 – 14:00	1. TRANSIENT DYNAMICS AND DIRECTIONAL SOLIDIFICATION PROCESSES IN SPACIAL PLATFORMS (Paper 10) <u>Xavier Ruiz</u> , Applied Physics Lab. Univ. Rovira i Virgili Marcel i Domingo s/n (Campus San Pere Sescelades), Tarragona, Tarragona, 43007, Spain Mikhail Ermakov, Institute for Problems in Mechanics, RAS. Moscow, Russia	

14:00 – 14:30	2. A NUMERICAL ANALYSIS OF SHEAR-THINNING IN HEAVY-METAL FLUORIDE GLASSES (Paper 56) Reginald W. Smith, Department of Mechanical and Materials Engineering, Queen's University, Nicol Hall, Kingston, Ontario, K7L 3N6, Canada B.J. Yang, Advanced Materials Technology, Caterpillar Inc., Mossville, IL 61552, USA I.R. Dunkley, Department of Mechanical and Materials Engineering, Nicol Hall, Queens University, Kingston, Ontario K7L 3N6, Canada	
14:30—15:00	3. EFFECT OF INPUT DIFFUSIVITY IN AN AXIS SYMMETRIC MASS DIFFUSIVITY MODEL FOR LIQUID METALS WITH AN APPLIED MAGNETIC FIELD (Paper 61), Y.Y. Khine ^a , R. M. Banish ^{a,b} ^a Center for Materials Research, University of Alabama in Huntsville, Huntsville, AL 35899, USA ^b Department of Chemical and Materials Engineering, University of Alabama in Huntsville, Huntsville, AL 35899, USA	
15:00 – 15:20	TEA/COFFEE BREAK	
15:20 – 17:16	Session 3: Crystal Growth Session Chairs: Michael Banish and Shinsuke Suzuki	
15:20 – 16:20	1. KEYNOTE LECTURE: DEVELOPING QUANTITATIVE, MULTI-SCALE MODELS FOR MICROGRAVITY CRYSTAL GROWTH (Paper 07) Jeffrey J. Derby, CEMS, University of Minnesota 421 Washington Ave, SE, Minneapolis, MN, 55455-0132, USA Lisa Lun, Paul Sonda, Andrew Yeckel, University of Minnesota Thomas Jung, Georg Mueller, University of Erlangen	
16:20 – 16:48	2. EFFECT OF MICROGRAVITY AND MAGNETIC FIELD ON METALLURGICAL AND CRYSTALLINE STRUCTURE OF MAGNETOSTRICTIVE SMFe₂ SYNTHESIZED BY UNIDIRECTIONAL SOLIDIFICATION (Paper 04) Takeshi Okutani, Hideaki Nagai, Mikito Mamiya, Martin Castillo, National Institute of Advanced Industrial Science and Technology AIST Tsukuba Central 5, 1-1-1 Higashi, Tsukuba, Ibaraki, 305-8565, Japan	
16:48 – 17:16	3. CONVECTION EFFECTS ON CRYSTALLINITY IN THE GROWTH OF IN_{0.3}GA_{0.7}AS CRYSTALS BY THE TRAVELING LIQUIDUS-ZONE (TLZ) METHOD (Paper 57) Kyoichi Kinoshita, Japan Aerospace Exploration Agency 2-1-1, Sengen, Tsukuba, Ibaraki, 305-8505, Japan Y. Ogata, S. Adachi and S. Yoda, Japan Aerospace Exploration Agency T. Tsuru, H. Miyata and Y. Muramatsu, Advanced Engineering Services Co. Ltd	
17:16 – 17:35	Coffee/Tea Break	
17:35 – 19:30	Session 4: Diffusion Processes Session Chairs: P.S. Ayyaswamy and Kyoichi Kinoshita	
17:35 – 18:03	1. FLUCTUATIONS IN DIFFUSION PROCESSES IN MICROGRAVITY (Paper 29) Stefano Mazzoni, INFN and Dipartimento di Fisica, via Celoria 16, 20136 Milano, Italy Roberto Cerbino, Alberto Vailati, Marzio Giglio, INFN and Dipartimento di Fisica	

18:03 – 18:32	2. EFFECT OF GRAVITY ON THE DYNAMICS OF FLUCTUATIONS IN A FREE DIFFUSION EXPERIMENT (Paper 30) Fabrizio Croccolo, Dorian Brogioli, Alberto Vailati, Marzio Giglio, Dipartimento di Fisica and Istituto Nazionale per la Fisica della Materia, Università di Milano, Via Celoria 16, Milano, MI, I-20133, Italy, Dave Cannell, Department of Physics and iQUEST, University of California, Santa Barbara
18:32 – 19:01	3. PRE-FLIGHT DIFFUSION EXPERIMENTS ON LIQUID METALS UNDER 1G-CONDITIONS FOR THE FOTON-M2 MISSION (Paper 28) <u>Shinsuke Suzuki</u> , Institute for Materials Science and Technology, Technical University of Berlin Hardenbergstr.36, PN2-3, Berlin, D-10623, Germany Kurt-Helmut Kraatz, Institute for Materials Science and Technology, Technical University of Berlin Günter Frohberg, Institute for Materials Science and Technology, Technical University of Berlin
19:01 – 19:30	4. A NUMERICAL STUDY OF THE INFLUENCE OF G-JITTER ON MEASUREMENTS OF LIQUID DIFFUSION COEFFICIENTS (Paper 55) <u>Reginald W. Smith</u> , Department of Mechanical and Materials Engineering, Queen's University Nicol Hall, Kingston, Ontario, K7L 3N6, Canada B.J. Yang, Advanced Materials Technology, Caterpillar Inc., Mossville, IL 61552, USA B.Ma, Department of Mechanical and Materials Engineering, Nicol Hall, Queens University, Kingston, Ontario K7L 3N6, Canada
19:30 – 20:30	Dinner
20:30 – 21:30	Informal Discussions/Social Hour

	TUESDAY, AUGUST 9, 2005
07:00 – 08:00	Breakfast
08:00 – 10:00	Session 5: Protein Crystal Growth I Session Chairs: Christo Nanev and Naomi Chayen
08:00 – 09:00	1. KEYNOTE LECTURE: BIO-MOLECULAR CRYSTAL GROWTH: DOES GRAVITY PLAY A KEY ROLE? Vivian Stojanoff, Senior Scientist, National Synchrotron Light Source, Brookhaven National Laboratory, Upton, NY 11973, USA.
09:00 – 09:30	2. HYPERGRAVITY AS A CRYSTALLIZATION TOOL (Paper 13) <u>Christo Nanev</u> , Institute of Physical Chemistry, Bulgarian Academy of Sciences bl.11, Sofia, 1113, Bulgaria Ivajlo Dimitrov, Institute of Physical Chemistry, Bulgarian Academy of Sciences, 1113 Sofia, Bulgaria
09:30 – 10:00	3. MACROMOLECULAR CRYSTALLIZATION IN MICROGRAVITY GENERATED BY A SUPERCONDUCTING MAGNET (Paper 24) <u>Nobuko I. Wakayama</u> , National Institute for Materials Science 3-13 Sakura, Tsukuba, Ibaraki, 305-0003, Japan D. C. Yin, Northwestern Polytechnical University K. Harata, National Institute of Advanced Industrial Science and Technology T. Kiyoshi, National Institute for Materials Science Y. Tanimoto, Hiroshima University
10:00 – 10:20	Coffee/Tea Break

10:20 – 12:15	Session 6: Protein Crystal Growth II Session Chairs: S.S. Sadhal and Xavier Ruiz
10:20 – 10:50	1. IS THE CRYSTAL GROWTH UNDER LOW SUPERSATURATIONS INFLUENCED BY THE TENDENCY TO A MINIMUM OF THE SURFACE FREE ENERGY? (Paper 14) Christo Nanev, Institute of Physical Chemistry, Bulgarian Academy of Sciences bl.11, Sofia, 1113, Bulgaria
10:50 – 11:20	2. UPSIDE DOWN PROTEIN CRYSTALLISATION: DESIGNING MICROBATCH EXPERIMENTS FOR MICROGRAVITY (Paper 47) <u>Prof. Naomi Chayen</u> , Imperial College London Sir Alexander Fleming Building, Exhibition Road, South Kensington, London, SW7 2AZ, United Kingdom Sahir Khurshid, Imperial College London
11:20 – 11:50	3. CAN LOW MAGNETIC FIELD IMPROVE THE QUALITY OF MACROMOLECULAR CRYSTALS? (Paper 54) V.Stojanoff, Brookhaven National Laboratory, National Synchrotron Light Source, Upton, NY 11973, USA.
11:47 – 12:15	4. ENHANCEMENT AND SUPPRESSION OF PROTEIN CRYSTAL NUCLEATION UNDER THE INFLUENCE OF SHEAR FLOW (Paper 48) <u>Anita Penkova</u> , Institute of Physical Chemistry, Bulgarian Academy of Sciences Acad. G. Bonchev Str., bl. 11, Sofia, 1113, Bulgaria Weichun Pan, Department of Chemical Engineering, University of Houston, Houston TX 77204, USA Peter G. Vekilov, Department of Chemical Engineering, University of Houston, Houston TX 77204, USA
12:30 – 13:30	Lunch
13:30 – 15:30	Session 7: Biotransport Phenomena I Session Chairs: David Eckmann and P.S. Ayyaswamy
13:30 – 14:35	1. KEYNOTE LECTURE: MODELING HEAT AND MASS TRANSFER FOR LIVING ON MARS (Paper 12) <u>Masamichi Yamashita</u> , Institute of Space and Astronautical Science /JAXA 3-1-1, Yoshinodai, Sagamihara, Kanagawa, 229-8510, Japan Yoji Ishikawa, Obayashi Corporation Yoshiaki Kitaya, Osaka Prefecture University Eiji Goto, Chiba University Mayumi Arai, Hirofumi Hashimoto, Kaori Tomita-Yokotani, Masayuki Hirafuji, Katsunori Omori, Akira Tani, Kyoichiro Toki, Osamu Fujita, Space Agriculture Task Force
14:35 – 15:10	2. HEAT AND GAS EXCHANGES BETWEEN PLANTS AND ATMOSPHERE UNDER MICROGRAVITY CONDITIONS (Paper 27) Yoshiaki Kitaya, Graduate School of Life and Environmental Sciences, Osaka Prefecture University Gakuen-cho., Sakai, Osaka, 599-8531, Japan
15:10 – 15:30	Tea/Coffee Break

15:30 – 18:30	Session 8: Biotransport Phenomena II Session Chairs: Masamichi Yamashita and Vivian Stojanoff
15:30 – 16:30	1. KEYNOTE LECTURE GAS EMBOLISM AND SURFACTANT-BASED INTERVENTION: IMPLICATIONS FOR LONG DURATION SPACE BASED ACTIVITY (Paper 39) <u>David M. Eckmann</u> , University of Pennsylvania 3400 Spruce Street - 6 Dulles HUP Anesthesia, Philadelphia, PA, 19104-4283, USA Jie Zhang, University of Pennsylvania
16:30 – 17:00	2. DIGESTA PROPULSION: MODEL OF CASCADING KINEMATICS AND UNSTEADY PERISTALSIS (MOCK-UP) SIMULATION (Paper 19) C.P. Arun, Appl. Math. & Operations Research, Cranfield University 13 Petronius Way, Colchester, Essex, England, CO4 9FY, United Kingdom
17:30 – 18:00	3. NUMERICAL MODELING OF THE TRANSPORT TO AN INTRAVASCULAR BUBBLE IN A TUBE WITH A SOLUBLE/INSOLUBLE SURFACTANT (Paper 42) <u>Portonovo S. Ayyaswamy</u> , University of Pennsylvania Department of Mechanical Engineering, School of Engineering and Applied Science, 220 S 33 rd Street, Philadelphia, PA, 19104-6315, USA Jie Zhang, University of Pennsylvania David Eckmann, University of Pennsylvania
18:00 – 18:30	4. ONE MATHEMATICAL MODEL OF PROPAGATION OF MICROORGANISMS IN MICROGRAVITY (Paper 41, not received) T. E. Smolens'ka, Dniepropetrovsk National University Nauchna str., 13, Dniepropetrovsk, 49050, Ukraine O. O. Kochubey, Dniepropetrovsk National University D. V. Yevdokymov, Dniepropetrovsk National University
18:30 – 19:30	Informal Discussion
19:30 – 20:30	Dinner
20:30 – 21:30	Social Hour

	WEDNESDAY, AUGUST 10, 2005
07:00 – 08:00	Breakfast
08:00 – 10:20	Session 9: Fluid Dynamics in Space Systems Session Chairs: R. Balasubramaniam and Kathleen Stebe
08:00 – 09:00	1. KEYNOTE LECTURE: MODELING FLOW AND TRANSPORT IN SPACE EXPLORATION SYSTEMS (Paper 53) J. Iwan D. Alexander, National Center for Space Exploration Research Case Western Reserve University, Cleveland, Ohio, 44106, USA
09:00 – 09:30	2. MICROGRAVITY EXPERIMENT OF ON-ORBIT FLUID TRANSFER TECHNIQUE USING SWIRL FLOW (Paper 16) <u>Osamu KAWANAMI</u> , University of Hyogo 2167 Shosha, Himeji, Hyogo, 671-2201, Japan Ryoji IMAI, Ishikawajima-Harima Heavy Industries Co., Ltd. Haruhiko OHTA, Kyushu University Hisao AZUMA, Osaka Prefecture University Itsuro HONDA, Yousuke KAWASHIMA, University of Hyogo

09:30 – 10:00	3. HYDROSTATIC COMPRESSIBILITY PHENOMENA: NEW OPPORTUNITIES FOR NEAR CRITICAL RESEARCH IN MICROGRAVITY (Paper 21) V.I. Polezhaev, A.A. Gorbunov, S.A. Nikitin, E.B. Soboleva, The Institute for Problems in Mechanics RAS Prospect Vernadskogo 101, b.1, Moscow, 119526, Russia
	4. ASYMPTOTIC ANALYSIS OF MATHEMATICAL MODELS OF SOME SLOW HYDRODYNAMIC PROCESSES (Paper 40, paper not received) D.V. Yevdokymov, Dniepropetrovsk National University Nauchna str., 13, Dniepropetrovsk, 49050, Ukraine T: +(38) (0562) 460091, F: +(38) (056) 7765833, devd@mail.ru
10:00 – 10:30	Coffee/Tea Break
10:30 – 12:25	Session 10: Interfacial Phenomena I Session Chairs: Iwan Alexander and R. Balasubramaniam
10:30 – 11:30	1. KEYNOTE LECTURE: SURFACTANTS ON HIGHLY DEFORMING DROP INTERFACES (Paper 45) <u>Kathleen J. Stebe</u> , Johns Hopkins University 3400 N Charles St., Baltimore, Maryland, 21218, USA Fang Jin, Johns Hopkins University Nivedita Gupta, University of New Hampshire Charles D. Eggleton, Univeristy of Maryland Baltimore County Tse Min Tsai, National Technical University, Singapore
11:30 – 12:00	2. THERMOCAPILLARY FLOW IN DOUBLE-LAYER FLUID STRUCTURES (Paper 06) <u>Nivedita R. Gupta</u> , University of New Hampshire Department of Chemical Engineering, Durham, NH, 03824, USA Hossein Haj-Hariri, University of Virginia Ali Borhan, Pennsylvania State University
12:00 – 12:25	Informal Discussion
12:30 – 13:30	Lunch
13:40 – 19:00	Optional Excursion, Ad hoc Discussion Sessions
19:30 – 21:30	Banquet

	THURSDAY, AUGUST 11, 2005
07:00 – 08:00	Breakfast
08:00 – 10:00	Session 11: Interfacial Phenomena II Session Chairs: Amitabh Narain and S.S. Sadhal
08:00 – 08:40	1. ELECTROWETTING DROPLET ACTIVATION FOR LOW GRAVITY ENVIRONMENT (Paper 08) Kamran Mohseni, University of Colorado MS 429, Dept. of Aerospace Eng., Boulder, CO, 80309-429, USA
08:40 – 09:20	2. DYNAMICS OF SPONTANEOUS CAPILLARY PENETRATION INTO CAPILLARIES (Paper 18) <u>Ali Borhan</u> , The Pennsylvania State University 122 Fenske Laboratory, University Park, PA, 16802, U.S.A. Anthony Fick, The Pennsylvania State University
09:20 – 10:10	3. FLOW RATE LIMITATION IN OPEN CAPILLARY CHANNEL FLOWS (CCF) (Paper 31) <u>Dennis Haake</u> , ZARM, University of Bremen Am Fallturm, Bremen, Bremen, 28359, Germany Uwe Rosendahl, ZARM, University of Bremen Antje Ohlhoff, University of Applied Science, FH Bielefeld Michael Dreyer, ZARM, University of Bremen
10:10 – 10:30	Coffee/Tea Break
10:30 – 12:20	Session 12: Interfacial Phenomena III Session Chairs: Vadim Polezhaev and Ali Bohran
10:30 – 11:00	1. WETTING BY SOLUTIONS OF SOLUBLE SURFACTANTS: THE ROLE OF THE MASS TRANSFER CONDITION THROUGH THE CONTACT LINE (Paper 34) <u>Enrique Rame</u> , National Center for Microgravity Research NASA-Glenn Research Center, MS 110-3, Cleveland, Ohio, 44126, USA TSean T. Conroy, Barry B. Luokkala, Kalyani Varanasi, Stephen Garoff, Carnegie Mellon University
11:00 – 11:30	3. ANALYSIS OF HEAT AND MASS TRANSFER DURING CONDENSATION OVER A POROUS SUBSTRATE (Paper 44) <u>R. Balasubramaniam</u> , National Center for Space Exploration Research on Fluids and Combustion NASA John H. Glenn Research Center, Mail Stop 110-3, Cleveland, OH, 44135, USA V. Nayagam, National Center for Space Exploration Research on Fluids and Combustion M.M. Hasan, NASA John H. Glenn Research Center L. Khan, Cleveland State University
11:30 – 12:00	4. DIRECT COMPUTATIONAL SIMULATIONS AND EXPERIMENTS FOR CONDENSATION INSIDE TUBES AND CHANNELS (Paper 43) <u>Amitabh Narain</u> , Michigan Technological University 1400 Townsend Drive, Houghton, MI, 49931, USA W. Xiaomin, L. Phan, A. Siemionko, J. H. Kurita, Michigan Technological University
12:00 – 12:20	Informal Discussion
12:30 – 13:30	Lunch

13:30 – 14:30	Session 13: Drops and Bubbles Session Chairs: Felix Weinberg and P.S. Ayyaswamy
13:30 – 14:00	1. GENERATION AND DISPERSION OF SMALL UNIFORM BUBBLES IN MG (Paper 11) <u>Jordi Carrera</u> , Dept. Estructura i Constituents de la Matèria. Univ. Barcelona Avinguda Diagonal 647 (Facultat de Física), Barcelona, Barcelona, 08028, Spain Xavier Ruiz, Applied Physics Lab. Univ. Rovira i Virgili Laureano Ramírez-Piscina, Física Aplicada. Univ. Politecnica de Catalunya Jaume Casademunt, Dept. Estructura i Constituents de la Materia. Univ. Barcelona Michael Dreyer, Center of Applied Technology and Microgravity, University of Bremen, Germany.
14:00 – 14:30	2. COALESCENCE OF DROPS AND BUBBLES IN TUBE FLOW (Paper 25) <u>Eisa AlMatroushi</u> , United Arab Emirates University Dept. of Chemical and Petroleum Engineering, Al-Ain, P. O. Box:17555, UAE
14:30 – 14:50	Tea/Coffee Break

14:50 – 17:20	Session 14: Electrostatic & Electromagnetic Phenomena Session Chairs: Derek Dunn-Rankin and Enrique Rame
14:50 – 15:50	1. KEYNOTE LECTURE HEAT TRANSFER ENHANCEMENT BY ELECTRIC FIELDS IN SEVERAL HEAT EXCHANGE REGIMES (Paper 62), <u>Walter Grassi</u> , Department of Energetics - University of Pisa, Via Diotisalvi 2, Pisa, PI, 56126, Italy, <u>Daniele Testi</u> , Department of Energetics - University of Pisa
15:50 – 16:20	2. CANCELING BUOYANCY OF GASEOUS FUEL FLAMES IN A GRAVITATIONAL ENVIRONMENT USING AN ION DRIVEN WIND (Paper 38) <u>Michael James Papac</u> , University of California Irvine 4200 Engineering Gateway, Irvine, CA, 92697-3975, USA Derek Dunn-Rankin, University of California Irvine
16:20 – 16:50	3. NUMERICAL COMPUTATION ON MAGNETOTHERMAL AIR JET IN GRAVITATIONAL AND NON-GRAVITATIONAL FIELDS (Paper 52) <u>Masato Akamatsu</u> , Akita Prefectural University 84-4 Tsuchiya-Ebinokuchi, Honjo, Akita, 015-0055, Japan <u>Mitsuo Higano</u> , Akita Prefectural University <u>Hitoshi Ogasawara</u> , Akita Prefectural University
16:50 – 17:20	4. AUGMENTATION OF HEAT TRANSFER ON THE DOWNWARD SURFACE OF A HEATED PLATE BY ION INJECTION (Paper 03), <u>Walter Grassi</u> , Department of Energetics - University of Pisa, Via Diotisalvi 2, Pisa, PI, 56126, Italy <u>Daniele Testi</u> , <u>Davide Della Vista</u> , <u>Gabriele Torelli</u> Department of Energetics - University of Pisa
17:20 – 17:40	Tea/Coffee Break
17:40 – 19:40	Session 15: Space Systems Session Chairs: Herman Merte and Yoshiyuki Abe
17:40 – 18:40	I. KEYNOTE LECTURE: USING LARGE ELECTRIC FIELDS TO CONTROL TRANSPORT IN MICROGRAVITY (Paper 37) <u>Derek Dunn-Rankin</u> , MAE Dept., University of California, Irvine, California, 92697-3975, USA, <u>Felix J. Weinberg</u> , Imperial College London

18:40 – 19:10	2. A PHYSICAL INTERPRETATION FOR THE CONIC SECTIONS: APPLICATION TO THE EARTH'S BOW SHOCK (Paper 20) C.P. Arun, Appl. Math. & Operations Research, Cranfield University 13 Petronius Way, Colchester, Essex, England, CO4 9FY, United Kingdom
19:30—20:30	Dinner
20:30 – 21:30	Informal Discussion and Social Hour

	FRIDAY, AUGUST 12, 2005
07:00 – 08:00	Breakfast
08:00 – 10:00	Session 16: Boiling Phenomena Session Chairs: Haruhiko Ohta and Walter Grassi
08:00 – 09:00	1. KEYNOTE LECTURE: SOME PARAMETER BOUNDARIES GOVERNING MICROGRAVITY POOL BOILING MODES (Paper 17) Herman Merte, Jr., University of Michigan 2026 GG Brown, Ann Arbor, MI, 48109-2125, USA
09:00 – 09:30	2. SOME EXPERIMENTS ON HEAT TRANSFER ENHANCEMENT IN SUBCOOLED BOILING (Paper 35) <u>Yuka Shimane</u> , Graduate School of Science and Technology, Tokyo University of Science, 2641 Yamasaki, Noda, Chiba, 278-8510, Japan Mitsuyasu Itoh, Graduate School of Science and Technology, Tokyo University of Science Koichi Suzuki, Department of Mechanical Engineering, Tokyo University of Science
09:30 – 10:00	3. SUBCOOLED FLOW BOILING WITH MICROBUBBLE EMISSION IN A NARROW CHANNEL (Paper 36) <u>Koichi Suzuki</u> , Department of Mechanical Engineering, Tokyo University of Science 2641 Yamasaki, Noda, Chiba, 278-8510, Japan Hiroshi Kawamura, Department of Mechanical Engineering, Tokyo University of Science
10:00 – 10:15	Coffee/Tea Break
10:15 – 12:30	Session 17: Thermal Management of Space Systems Session Chairs: Koichi Suzuki and Osamu Kawanami
10:15 – 11:15	1. KEYNOTE LECTURE: SELF-REWETTING FLUIDS - BENEFICIAL AQUEOUS SOLUTIONS (Paper 26), Yoshiyuki Abe, AIST 1-1-1 Umezono, Tsukuba, Ibaraki, 305-8568, Japan
11:15 – 11:45	2. A STRUCTURE OF HIGH-PERFORMANCE EVAPORATORS FOR SPACE APPLICATION (Paper 15) <u>Haruhiko Ohta</u> , Kyushu University Dept. Aeronautics and Astronautics, 6-10-1 Hakozaki, Higashi-ku, Fukuoka, Fukuoka-ken, 812-8581, Japan Yasuhisa Shinmoto, Toshiyuki Mizukoshi, Yosuke Ishikawa, Kyushu Univ.
11:45 – 12:15	3. ENHANCEMENT OF CONVECTIVE HEAT TRANSFER ON A FLAT PLATE BY ARTIFICIAL ROUGHNESS AND VIBRATION (Paper 51) M.A. Saleh, Zagazig University, Faculty of Eng. 10 zid ben sabb, Zagazig, Professor, 123456, Egypt
12:15 – 12:30	Closing Remarks and wrapup
12:30 – 13:30	Lunch (or optional boxed lunch)