



PROGRAMME

Tuesday, September 20th

- 15:00 - 18:00 ELGRA Management Committee Meeting
- 18:00 - 20:00 **Registration** (P. M. Nomikos Conference Center)

Wednesday, September 21st

- 08:00 - 08:45 **Registration** (P. M. Nomikos Conference Center)
- 08:45 - 09:30 **Opening Ceremony**
Addresses from:
Prof. Dr. Daniel Beysens, President of ELGRA
Prof. Dr. Taketoshi Hibiya, President of JASMA
Dr. Olivier Minster, Representative of ESA
Mr. Thodoris Rousopoulos, Greek Minister of the State
Prof. Dr. Thodoris D. Karapantsios, Vice- President of ELGRA & Organiser of the ELGRA - 05 Meeting
- 09:30 - 10:30 **Plenary Lectures/** Chairman: D. Beysens
- 09:30 THE ELIPS PROGRAMME OF ESA, THE SCIENCE & APPLICATIONS RETURN ON EUROPE'S INVESTMENT IN THE INTERNATIONAL SPACE STATION PROJECT
Olivier Minster, D. Jarvis, F. Molster, D. Voss, A. Pacros, E. Istasse, B. Elmann-Larsen, D. Schmitt, P. Sundblad, J. Hatton, M. Heppener
- 10:00 EURO-JAPAN COLLABORATION IN MICROGRAVITY FLUID PHYSICS AND RELATED RECENT PROGRESS IN THERMOCAPILLARY HYDRODYNAMICS
Hiroshi Kawamura
- 10:30 - 11:00 *Coffee Break*
- Hall A**
- 11:00 - 12:30 **Session: Physical Sciences (Convective Heat Transfer & Phase Change I)**
Chairpersons: C. Colin & M. Ishikawa
- 11:00 **Keynote Lecture:**
INTERFACE MOTION IN HEAT FLOW WITH EVAPORATION & CONDENSATION
Akira Onuki

- 11:30 BUBBLE SPREADING DURING THE BOILING CRISIS: MODELLING & EXPERIMENTING IN MICROGRAVITY
Vadim Nikolayev, Daniel Beysens, Yves Garrabos & Carole Lecoutre
- 11:50 ADVANCED SPACE RADIATOR CONCEPT WITH SELF REWETTING FLUIDS
Yoshiyuki Abe, Masayuki Nakagawa, Kotaro Tanaka, Akira Iwasaki
- 12:10 DEVELOPMENT OF CONVECTION IN BINARY MIXTURES WITH NEGATIVE SORÉ EFFECT
Shevtsova V.M., Melnikov D.E., Legros J.C

Hall B

- 11:00 - 12:30 **Session: Physical Sciences (Complex Matter/ Particles' Dynamics I)**
Chairpersons: V. Basios & X. Ruiz
- 11:00 **Keynote Lecture:**
MICROGRAVITY EXPERIMENTS ON THE FORMATION OF PLANETS
Jürgen Blum
- 11:30 QUANTUM GASES IN MICROGRAVITY
Hansjörg Dittus, Thorben Koenemann, Claus Lämmerzahl, Ernst M. Rasel, Tim van Zoest, Wolfgang Ertmer, Kai Bongs, Anika Vogel, Malte Schmidt, K. Sengstock, Achim Peters, Thilo Schuldt, Wojciech Lewoczko, Jakob Reichel, Thilo Steinmetz, Reinhold Walser, Wolfgang Schleich
- 11:50 APPLICATIONS OF QUANTUM ENTANGLEMENT ON A ISS- SPACEPLATFORM
Rupert Ursin, Thomas Jennewein, Markus Aspelmeyer, Anton Zeilinger
- 12:10 OPTIS – IMPROVED TESTS OF SPECIAL & GENERAL RELATIVITY
Hansjörg Dittus, Claus Lämmerzahl, S. Scheithauer, Stephan Schiller, Achim Peters, Etienne Samain, Ignazio Ciufolini, Lorenzo Iorio

Hall C

- 11:00 - 12:30 **Session: Life Sciences I**
Chairpersons: M. Cogoli- Greuter & M. Monici
- 11:00 **Keynote Lecture:**
LIFE SCIENCES EXPERIMENTS ON THE ISS: STATUS & PERSPECTIVE
Enno Brinckmann, Patrik Sundblad
- 11:30 LIFE SCIENCES FACILITIES ON-ORBIT & THE CAPABILITIES FOR EXPERIMENT PREPARATION, PERFORMANCE & EVALUATION ON GROUND
Marianne Schuber, Dieter Seibt, Paul Esser, Marianne Cogoli, Sonia Vadrucci, Daniele Henggeler
- 11:50 MOLECULAR TRANSDUCTION CHAIN FOR GRAVIOrientation IN FLAGELLATES
Donat-P. Häder, Peter Richter, Viktor Daiker & Michael Lebert
- 12:10 GRAVITY CHANGES CELL SHAPE
Jack J.W.A. van Loon, Meie C. van Laar, Jeroen P. Korterik, Frans B. Segerink, Rene J. Wubbels, Herman A. A. de Jong, Niek F. Van Hulst
- 12:30 - 15:30 *Visit to Acrotiri- Lunch*
- 15:30 - 17:20 *Coffee Break/ Poster Session*
- Poster Presentations**
- Physical Sciences
- THEORETICAL & EXPERIMENTAL INVESTIGATIONS OF SURFACE TENSION, PHASE SEPARATION & SOLIDIFICATION OF UNDERCOOLED Cu-(Co, Fe) ALLOYS
M. Kolbe, I. Egry, D. M. Herlach, L. Ratke, C. Antion, D. Chatain, S. Curio, L. Battezzati, E. Johnson, N. Pryds
- THE EFFECT OF SHEAR CONVECTION ON DIFFUSION MEASUREMENTS IN LIQUID METALS USING THE FOTON SHEAR CELL
Shinsuke Suzuki, Kurt-Helmut Kraatz, Günter Froberg

SIMPLIFIED BMTC GROUND DEMONSTRATOR
K. Kemmerle, J. Cornier, R. Binot, P. Schiller, P. Kern

ULTRASOUND DIAGNOSTICS FOR MSL
K. Kemmerle, P. Rank, Th. Peignier, M. Martella, W. Grill, S. Knauth, O. Lenkeit

EFFECTS OF GRAVITY & ROTATION ON
HYDROTHERMAL WAVES IN THIN LIQUID LAYER IN
DIFFERENTIALLY HEATED ANNULAR POOLS
Wan-Yuan Shi, You-Rong Li, Mikhail K. Ermakov,
Nobuyuki Imaishi

DYNAMICS OF VISCOUS LIPID VESICLES IN A
SHEAR FLOW
Maud-Alix Mader, Victoria Vitkova & Thomas Podgorski

STS-107 MISSION/ FACILITY FOR ADSORTION &
SURFACE TENSION STUDIES: RESULTS OF
THE EXPERIMENTS IN THE LOW-FREQUENCY
RANGE
G. Loglio, P. Pandolfini, F. Ravera, L. Liggieri, A.
Makievski, J. Krägel, R. Miller

RELATIONSHIP BETWEEN THE TRAVELING
TEMPERATURE WAVES IN LIQUID BRIDGE & IN
LIQUID LAYER
Y. Hoshino, E. Tagaya, H. Kawamura

OPTICAL EMISSION SPECTROSCOPIC STUDY FOR
DIAGNOSTICS IN HIGH GRAVITY DC-PLASMA CVD
DIAMOND GROWTH
Yoshiyuki Abe, Yuki Tanaka, Fabrizio Tappero, Yoshiki
Takagi & Giovanni Maizza

HEAT TRIGGERED DEGASSING OF CARBONATED
LIQUIDS UNDER MICROGRAVITY CONDITIONS
Nikolaos Divinis, Robert de Bruijn, Thodoris D.
Karapantsios, Margaritis Kostoglou, Vasilis Bontozoglou,
J. C. Legros

THE ROLE OF GRAVITY IN THE FORMATION OF
CHEMICAL GARDENS
Juan Manuel Garcia- Ruiz & Luis Gago Duport

CRYSTALLISATION FROM LOW TEMPERATURE

SOLUTIONS UNDER MICROGRAVITY: NEW
CHALLENGES IN THE PREPARATION OF HIGHLY
PERFECT MATERIALS
J. M. Garcia- Ruiz & J. Gómez Morales

SELF-ASSEMBLY OF HIERARCHICAL CATALYSTS
AND ADSORBENT MATERIALS FROM ORDERED
LIQUID PHASES (OLPS)
C. Kirschhock, J. Martens, J. Vermant, G. Nicholis, P.
Gaspard, V. Basios, P. Behrens, H. Gies, D.
Vlassopoulos, B. Jacoby

PK-3 PLUS - THE NEXT STEP OF COMPLEX PLASMA
EXPERIMENTS ONBOARD THE ISS
M. Kretschmer, H. Thomas, G.E. Morfill, A. Lipaev, V.
Fortov, O. Petrov & the PK-3 Plus Team

AIR BUBBLES UNDER VERTICAL VIBRATIONS
Pascal Kurowski, Philippe Petitjeans, Hervé Caps,
Farzam Zoueshtigh

THERMAL DIFFUSIVITY PREDICTION OF LIQUID
METALS WITH AN APPLIED MAGNETIC FIELD
R. Michael Banish & Yu Yu Khine

DIFFUSION CO-EFFICIENT OF THE PROTEIN IN
VARIOUS CRYSTALLIZATION SOLUTIONS: THE KEY
TO GROWING HIGH QUALITY CRYSTALS IN SPACE
Hiroaki Tanaka, Izumi Yoshizaki, Sachiko Takahashi,
Mari Yamanaka, Seijiro Fukuyama, Masaru Sato,
Satoshi Sano, Moritoshi Motohara, Tomoyuki Kobayashi
& Susumu Yoshitomi

JAXA-GCF PROJECT --- HIGH-QUALITY PROTEIN
CRYSTALS GROWN UNDER MICROGRAVITY
ENVIRONMENT FOR BETTER UNDERSTANDING OF
PROTEIN STRUCTURE
Masaru Sato, Hiroaki Tanaka, Koji Inaka, Shinichi
Shinozaki, Ari Yamanaka, Sachiko Takahashi, Mari
Yamanaka, Erika Hirota, Shigeru Sugiyama, Mitsuyasu
Kato, Chie Saito, Satoshi Sano, Moritoshi Motohara, Tai
Nakamura, Tomoyuki Kobayashi & Susumu Yoshitomi

INFLUENCE OF INTERFACIAL HEAT EXCHANGE ON
THE FLOW ORGANIZATION IN LIQUID BRIDGE
Alexander Mialdun, Valentina Shevtsova

THE DECLIC PROGRAM FOR THE INTERNATIONAL SPACE STATION

Yves Garrabos, Carole Lecoutre, Fabien Palencia, Daniel Beysens, Vadim Nikolayev, Pierre Evesque

DIFFUSIVE MASS TRANSPORT IN SOLUTION CRYSTAL GROWTH

Fermin Otálora

Life Sciences

rDNA & NopA100 SUBNUCLEOLAR LOCALIZATION IS AFFECTED BY CLINOROTATION

Margarita Sobol, Fernando Gonzalez-Camacho, Victoria Rodriguez-Vilarino, Elizabeth Kordyum, Francisco Javier Medina

GROUND-BASED STUDIES ON GRAVISENSITIVE PROTISTS (STUDIES ON 2D & 3D CLINOSTATS)

Ruth Hemmersbach, Sebastian Strauch, Dieter Seibt, Marianne Schuber, Donat-P. Häder

CYTOSKELETON CROSS-TALK DURING CELL MOTILITY IN MODELED MICROGRAVITY

Galleri G., Meloni M.A., Cogoli-Greuter M., Cogoli A., Liuzzo M.I., Pippia P.

MODELLED MICROGRAVITY CONDITIONS ALTER Na⁺, K⁺-ATPASE & Mg²⁺-ATPASE IN RAT HEART AND KIDNEY HOMOGENATES

Peana A. T., Bennardini F., Assaretti A. R., Tognacini C., Fumagalli S., Galleri G., Meloni M. A., Pippia P.

IN-VIVO EMBOLIC DETECTOR (IVED): PHASE I

Eleni P. Kalogianni, Christodoulos Altiparmakis, Sotiris Evgenidis, Theodoros Mesimeris, Georgios Sideridis & Thodoris D. Karapantsios

MAGNETIC LEVITATION: IMPACT ON BIOLOGICAL SYSTEMS

Paul Anthony, Camelia Dijkstra, Michael R. Davey, J. Brian Power, Aled Catherall, Richard Hill, Ruediger Hampp, Martina Martzivanou, Peter J. King, Laurence Eaves & Kenneth C. Lowe

NEURONAL EVENTS OF RAT HIPPOCAMPUS IN A 2g-CENTRIFUGE

Yasuhiro Kumei, Jorge Zeredo, Reiko Shimokawa, Mari Kimoto, Fajar Hamonangan Nasution, Hitoyata Shimokawa, Kei'ichi Ohya & Kazuo Toda

EXPRESSION OF SMALL HEAT SHOCK PROTEINS FROM PEA SEEDLINGS UNDER CLINOROTATION

Alexandr Talalaev

Facilities/ Instruments

PREPARATORY EXPERIMENT FOR DRAG-FREE CAPSULE PROGRAM WITH LARGE SCIENTIFIC BALLOON

Y. Inatomi, T. Ishikawa, S. Sakai, T. Yoshimitsu, Y. Saito, S. Sawai, H. Yamakawa, & T. Hashimoto

SCANNING PROBE MICROSCOPE (SPM) FOR THE INTERNATIONAL SPACE STATION ISS

P. Hix, M. Reiter, W.M. Heckl

Education

EDUCATIONAL EXPERIMENT 'SEEDS-IN-SPACE' DURING THE DUTCH SOYUZ MISSION, DELTA

Jack JWA van Loon, Jasper Wamsteker. Koen Weterings

Students' Presentations

ELECTRIC FIELD EFFECT ON A BUBBLE IN MICROGRAVITY: SIMULATION OF THE ELECTRIC FORCE

Talel Kamel, Estelle Iacona, Cila Herman

FLASH- MELTING OF DUST AGGREGATES & THE FORMATION OF CHONDRULES UNDER MICROGRAVITY CONDITIONS

Carsten Güttler

Hall A

17:20 - 19:00

Session: Physical Sciences (Critical Fluids)

Chairpersons: J. Straub & D. Beysens

17:20

EXPERIMENTAL & NUMERICAL PHYSICAL ASPECTS OF CYLINDRICAL CELLS FILLED WITH SUPERCRITICAL SF6 UNDER VIBRATION FORCES IN A MICROGRAVITY ENVIRONMENT

- Yves Garrabos, Carole Lecoutre, Jalil Ouazzani, Anne Dejoan, Daniel Beysens, Bernard Zappoli
- 17:40 PISTON DYNAMICS OF CO₂ FLUID NEAR CRITICAL POINT
M. Ishikawa, Y. Miura, M. Ohnishi, S. Yoshihara, M. Sakurai, H. Kobayashi, K. Honda, M. Matsumoto & J. Kawai
- 18:00 PARTICLE NUCLEATION FACILITY - AN EMERGING OPPORTUNITY
K. Kemmerle, P. Rank, R. Lindner, D. Beysens, Y. Garrabos, Ph. Lemaire
- 18:20 SUPERCRITICAL FLUIDS & CHEMISTRY: EXPERIMENTS IN MICROGRAVITY
Carole Lecoutre, Yves Garrabos & Daniel Beysens
- 18:40 CONVECTION ONSET & REVERSE TRANSITION TO STABILITY IN A SUPERCRITICAL FLUID/ 2D & 3D DIRECT NUMERICAL SIMULATIONS
Gilbert Accary, Isabelle Raspo, Patrick Bontoux, Bernard Zappoli

Hall B

- 17:20 - 19:10 **Session: Physical Sciences (Complex Matter/ Particles' Dynamics II)**
Chairpersons: H. Dittus & J. Blum
- 17:20 **Keynote Lecture:**
COMPLEX PLASMAS: A REVIEW
D. Samsonov, H. Thomas, A. Ivlev, G. Morfill, A.M. Lipaev, V.I. Molotkov, O.F. Petrov & V.E. Fortov
- 17:50 PARABOLIC FLIGHT EXPERIMENTS WITH PK-4
M.H. Thoma, H. Höfner, M. Kretschmer, R.A. Quinn, S. Ratynskaia, G.E. Morfill, A. Usachev, A. Zobnin, O. Petrov, V. Fortov
- 18:10 IMPULSIVE FORCES AND SEGREGATION IN VIRTUAL μ g ENVIRONMENTS
X. Ruiz, M. Ermakov
- 18:30 SELF ORGANISATION & NON-EQUILIBRIUM BEHAVIOUR IN MICROGRAVITY
V. Basios, G. Nicolis, P. Gaspard, C. Nicolis, C.

- Kirschhock, I. Zegers, S. Van Vaerenbergh
- 18:50 AIRBUS & MAXUS 5 EXPERIMENTS ON VIBRATED GRANULAR GAS
Pierre Evesque, Marc Leconte, Carole Lecoutre, Yves Garrabos, Fabien Palencia, Daniel Beysens

Hall C

- 17:20 - 19:30 **Session: Physical Sciences (Facilities/ Instruments)**
Chairpersons: O. Minster & K. Kemmerle
- 17:20 **Keynote Lecture:**
EXPERIMENTS WITH SLOSHSAT FLEVO
JPB Vreeburg
- 17:50 REDUCED GRAVITY TESTING & RESEARCH CAPABILITIES AT QUEENSLAND UNIVERSITY OF TECHNOLOGY
Ted Steinberg
- 18:10 THE SOLUTION CRYSTALLISATION DIAGNOSTICS FACILITY, A NEW INSTRUMENT FOR PHYSICAL SCIENCES RESEARCH ON BOARD THE ISS
Vladimir Pletser (Presented by O. Minster)
- 18:30 THE NEW CATAPULT SYSTEM AT THE ZARM DROP TOWER
Peter von Kampen, Hansjörg Dittus
- 18:50 VERSATILE LEVITATION FACILITY FOR STRUCTURAL INVESTIGATIONS OF LIQUID METALS
Gerhard Mathiak, Jürgen Brillo, Ivan Egry, Louis Hennet, Irina Pozdnyakova, Didier Zanghi, Aleksei Bytchkov, Dominique Thiaudiere, David Price
- 19:10 IDR / UPM FACILITIES FOR LIQUID BRIDGE EXPERIMENTATION ON EARTH LABORATORY UNDER SIMULATED LOW GRAVITY CONDITIONS
A. Sanz-Andrés, J. Meseguer & J.L. Espino
- 19:30 END OF DAY I

Thursday, September 22nd

- 08:45 - 09:45 **Plenary Lecture & Students' Presentations/**
Chairman: J. van Loon

- 08:45 - 09:15 **Plenary Lecture:**
HUMAN LYMPHOCYTES IN SPACE: 1975-2005,
THIRTY YEARS OF UPS AND DOWNS
Augusto Cogoli
- 09:15 - 09:45 **Students' Presentations**
- 9:15 GAS JET STUDY IN MICROGRAVITY ENVIRONMENT
Rui Rocha, Vítor Botelho (authors), José Pais (co-author)
- 9:30 VIBRATION TRAINING DOES NOT COUNTERACT
DECREASE IN PLASMA- & STROKE VOLUMES
AFTER 14 DAYS OF 6° HDT BED REST
Philipp Zervoulakos, Robin Otchwemah

Hall A

- 09:50 - 11:10 **Session: Physical Sciences (Thermophysical
Properties Of Materials I)**
Chairpersons: G. Müller- Vogt & M. R. Banish
- 09:50 SURFACE TENSION MEASUREMENTS OF
INDUSTRIAL IRON-BASED ALLOYS FROM GROUND-
BASED & PARABOLIC FLIGHT EXPERIMENTS:
RESULTS FROM THE THERMOLAB PROJECT
Frank Schmidt-Hohagen, Ivan Egry, Rainer Wunderlich,
Hans Fecht
- 10:10 MEASUREMENTS OF THERMOPHYSICAL
PROPERTIES OF Ni-AI BASED ALLOYS IN GROUND &
FROM PARABOLIC FLIGHT EXPERIMENTS: RESULTS
OF THE THERMOLAB PROJECT
R. Aune, L. Battezzati, I. Egry, J.Etay, H.J Fecht, R.
Novakovic, A.Passerone, E. Ricci, F.Schimdt-Hohagen,
S.Seetharaman, R.Wunderlich
- 10:30 VISCOSITIES OF MOLTEN SEMICONDUCTORS
INCLUDING SOME COMPOUND SEMICONDUCTORS
Yuzuru Sato & Tsutomu Yamamura
- 10:50 DIFFUSION MEASUREMENTS ON A LIQUID
MONOTECTIC ALLOY PbGa USING THE SHEAR CELL
TECHNIQUE (REFERENCE EXPERIMENTS FOR THE
FOTON- M2 MISSION)
Shinsuke Suzuki, Kurt-Helmut Kraatz, Günter Froberg

Hall B

- 09:50 - 11:00 **Session: Physical Sciences (Interfacial Phenomena,
Foams & Emulsions I)**
Chairpersons: M. Vignes- Adler & R. Miller
- 09:50 **Keynote Lecture:**
A SUCCINT DISCUSSION OF BASIC QUESTIONS ON
INTERFACIAL PHENOMENA OF RELEVANCE TO
EXPERIMENTS AND LIFE UNDER CONDITIONS OF
VARIABLE OR REDUCED EFFECTIVE-G
Manuel G. Velarde
- 10:20 DYNAMIC INTERFACIAL TENSIONS IN THE SHORT
TIME RANGE BY APPLYING A FAST CAPILLARY
PRESSURE TECHNIQUE
Alexander Makievski, Jürgen Krägel, Piero Pandolfini,
Giuseppe Loglio, Libero Liggieri, Francesca Ravera,
Eva Santini, Reinhard Miller
- 10:40 RESULTS OF MICROGRAVITY INVESTIGATION ON
ADSORPTION AND INTERFACIAL RHEOLOGY OF
SOLUBLE SURFACTANTS FROM THE EXPERIMENT
FAST
Libero Liggieri, Francesca Ravera, Michele Ferrari,
Alberto Passerone, Giuseppe Loglio, Reinhard Miller,
Alexander Makievski, Jürgen Krägel

Hall C

- 09:50 - 11:10 **Session: Life Sciences II**
Chairpersons: F. Strollo & M. Schuber
- 09:50 THE EFFECT OF IONISING RADIATION ON
PHOTOSYNTHETIC OXYGENIC MICROORGANISMS
FOR SURVIVAL IN SPACE FLIGHT REVEALED BY
AUTOMATIC PHOTOSYSTEM II-BASED BIOSENSORS
Dania Esposito, Cecilia Faraloni, Andrea Margonelli,
Emanuela Pace, Giuseppe Torzillo, Alba Zanini &
MariaTeresa Giardi
- 10:10 MAGNETIC LEVITATION & GRAVITY: INFLUENCES
ON BACTERIA AND PLANTS
Camelia Dijkstra, Paul Anthony, Michael R. Davey, J.
Brian Power, Simon Cox, Aled Catherall, Richard Hill,
Peter J. King, Laurence Eaves & Kenneth C. Lowe

- 10:30 DETECTION, MONITORING & CONTROL OF MICROBES IN ADVANCED LIFE SUPPORT SYSTEMS
Sandra P. van Tongeren, Janneke Krooneman, Erwin C. Raangs, Gjalb W. Welling, Hermie J. M. Harmsen
- 10:50 AQUAHAB - AN AQUATIC RESEARCH MODULE FOR APPLIED ECOLOGICAL LIFE SUPPORT SYSTEM STUDIES
Slenzka, K. & Dünne, M.
- 11:10 - 11:30 *Coffee Break*
- Hall A**
- 11:30 - 12:50 **Session: Physical Sciences (Thermophysical Properties of Materials II)**
Chairpersons: I. Zegers & A. Passerone
- 11:30 DIFFUSION MEASUREMENTS USING THE SHEAR CELL TECHNIQUE: INVESTIGATION OF THE ROLE OF MARANGONI CONVECTION BY PRE-FLIGHT EXPERIMENTS ON THE GROUND & DURING FOTON M2 MISSION
Raluca Rosu, Wolfgang Wendl, German Müller-Vogt, Shinsuke Suzuki, K.-H. Kraatz & G. Froberg
- 11:50 SELF-DIFFUSIVITY MEASUREMENT METHODOLOGY- DEVELOPMENT & VALIDATION
R. Michael Banish, Yu Yu Khine & J. Iwan D. Alexander
- 12:10 EFFECT OF VIBRATION ON TRANSPORT EXPERIMENTS – MODEL EXPERIMENTS DURING PARABOLIC FLIGHTS
Gerhard Mathiak, Wolfram Sies, Sebastian Weiss, Rainer Willnecker, Ziya Odabasi, Engelbert Plescher
- 12:30 MEASUREMENT OF DIFFUSION COEFFICIENT IN METALLIC MELT UNDER STATIC MAGNETIC FIELD
Fumitomo Onishi & Yuko Inatomi
- Hall B**
- 11:30 - 12:50 **Session: Physical Sciences (Interfacial Phenomena, Foams & Emulsions II)**
Chairpersons: M. G. Velarde & L. Liggieri
- 11:30 AQUEOUS FOAM EXPERIMENTS IN MICROGRAVITY:

- TOWARDS THE DEVELOPMENT OF THE ISS "FOAM" MODULE
A. Saint-Jalmes, S. Marze, D. Langevin
- 11:50 FOAMS UNDER MICROGRAVITY CONDITIONS
Olivier Pitois, Christelle Fritz & Michèle Vignes-Adler
- 12:10 THE PROJECT "STEFAN": A PROPOSAL FOR THE INVESTIGATION OF PARTICLE-STABILISED EMULSIONS & FOAMS BY MICROGRAVITY EXPERIMENTS
Reinhard Miller, Dmitri Grigoriev, Jürgen Krägel, Alexander Makievski, Libero Liggieri, Francesca Ravera, Michele Ferrari, Eva Santini, Giuseppe Loglio, Thodoris Karapantsios
- 12:30 FOAM IMBIBITION IN MICROGRAVITY: EXPERIMENT & THEORY
H. Caps, S. Cox, D. Weaire & N. Vandewalle
- Hall C**
- 11:30 - 13:10 **Session: Life Sciences III**
Chairpersons: H. Membre & D- P. Häder
- 11:30 REPEATED ACUTE EXPOSURES TO HYPERGRAVITY DURING DEVELOPMENT SELECTIVELY AFFECT Cd-1 MICE NEUROBEHAVIOURAL PROFILE
Nadia Francia, Michelle Simeoni, Daniela Santucci, Luigi Aloe & Enrico Alleva
- 11:50 LONG-TERM PHYSIOLOGICAL STUDIES WITH SCORPIONS IN SPACE: HARDWARE DEVELOPMENT & FIRST FLIGHT EXPERIENCES
Michael Schmäh, Alaa El-Din Sallam, Eberhard R. Horn
- 12:10 PRECOIAL MAMMALS AS NEW EXPERIMENTAL MODELS FOR STUDYING THE EFFECT OF ALTERED GRAVITATIONAL CONDITIONS ON FETAL DEVELOPMENT
Slobodan Sekulic, Aleksandar Bozic
- 12:30 INFLUENCE OF SIMULATED GRAVITY ON IDENTIFIED PEPTIDERGIC NEURONS IN DROSOPHILA
Uta Kirschnick, Eberhard Horn, Hans-Jürgen Agricola

- 12:50 SHORT TERM -12° HEAD DOWN TILT DOES NOT CAUSE OVERT GONADAL EFFECTS IN THE HUMAN
Felice Strollo, Lia Pecorelli, Giovanna Strollo, Maria Angela Masini, Massimo Morè, Giuseppe Riondino & Bianca Maria Uva
- 13:10 - 15:00 *Lunch*
- Hall A**
- 15:00 - 16:10 **Session: Physical Sciences (Convective Heat Transfer & Phase Change II)**
Chairpersons: D. Beysens & A. Onuki
- 15:00 **Keynote Lecture:**
ON THE EFFECT OF GRAVITY IN THE DISTORTION OF EVAPORATIVELY INDUCED CONVECTIVE PATTERNS IN SYSTEMS UNDERGOING PHASE CHANGE
K. Sefiane
- 15:30 ONSET OF THERMAL CONVECTION OF NON-BOUSSINESQ FLUID IN LOW GRAVITY CONDITIONS
D. V. Lyubimov, T. P. Lyubimova, N. I. Lobov
- 15:50 DYNAMICS OF AN EVAPORATING SESSILE DROPLET ON A HEATING SUBSTRATE
Fabien Girard, Mickaël Antoni, Sylvain Faure, Annie Steinchen
- Hall B**
- 15:00 - 16:20 **Session: Physical Sciences (Thermocapillary Phenomena I)**
Chairpersons: H. Kuhlmann & K. A. Pericleous
- 15:00 PARTICLE ACCUMULATION STRUCTURES IN TIME-DEPENDENT THERMOCAPILLARY FLOW IN A LIQUID BRIDGE UNDER MICROGRAVITY/ PART 1: REALIZATION OF PAS WITH $m = 3$
S. Tanaka, H. Kawamura, D. Schwabe & A. Mizyov
- 15:20 PARTICLE ACCUMULATION STRUCTURES IN TIME-DEPENDENT THERMOCAPILLARY FLOW IN A LIQUID BRIDGE UNDER MICROGRAVITY/ PART 2: ATTEMPTS TO FIND PAS WITH $m = 2$

- D. Schwabe, A. Mizyov, S. Tanaka, H. Kawamura
- 15:40 INFLUENCE OF THERMOCAPILLARY CONVECTION ON SOLID-LIQUID INTERFACE
K. Matsunaga & H. Kawamura
- 16:00 STABILIZING OSCILLATORY THERMOCAPILLARY CONVECTION
Melnikov D. E., Shevtsova V. M. & Legros J.-C.
- Hall C**
- 15:00 - 16:20 **Session: Physical Sciences (Combustion/ Diffusion)**
Chairpersons: S. van Vaerenbergh & T. D. Karapantsios
- 15:00 TEMPERATURES & SOOT CHARACTERISTICS OF LAMINAR DIFFUSION FLAMES UNDER MICROGRAVITY
Jörg Reimann, Stefan Will
- 15:20 THE DSC PROGRAM: FROM SCCO TO GANIMEDe
S. Ivar Andersen, M. Azaiez, V. Basios, V. Shevtsova, JL. Daridon, H. Carier, F. Dubois, G. Galliero, Honggang Zhou, P. Gaspard, T. D. Karapantsios, M. Kostoglou, JC. Legros, F. Montel, G. Nicolis, B. Roux, Z. Saghir, S. Van Vaerenbergh
- 15:40 REMARKS ON GRAVITY-DRIVEN TRANSPORT PHENOMENA DURING COMBUSTION SYNTHESIS PROCESSES
Antonio M. Locci, Roberto Orrù, Alberto Cincotti, Roberta Licheri, Giacomo Cao
- 16:00 GIANT FLUCTUATIONS IN MICROGRAVITY: THE GRADFLEX EXPERIMENT
Roberto Cerbino, Stefano Mazzoni, Alberto Vailati & Marzio Giglio
- 16:20 - 16:40 *Coffee Break*
- Hall A**
- 16:40 - 18:00 **Session: Physical Sciences (Convective Heat Transfer & Phase Change III)**
Chairpersons: K. Sefiane & Y. Garrabos
- 16:40 SPHERICAL RAYLEIGH- BENARD CONVECTION

	UNDER INFLUENCE OF A CENTRAL FORCE FIELD (GEOFLOW) Marcus Gellert, Vadim Travnikov, Birgit Futterer, Philippe Beltrame & Christoph Egbers
17:00	FUNDAMENTAL & APPLIED ASPECTS OF CONVECTION & INTERFACIAL MASS EXCHANGE: THE CIMEX RESEARCH PROGRAM J. C. Legros, P. Colinet, P. Stephan, L. Tadrist, P.C. Dauby, M. Bestehorn, D. Poncelet
17:20	NEW TYPES OF COMPLEX DYNAMICS IN A SPHERICAL GAP UNDER A CENTRAL FIELD FORCE: THE GEOFLOW EXPERIMENT Philippe Beltrame, Marcus Gellert, Vadim Travnikov, Christoph Egbers
17:40	THE BOILING HEAT TRANSFER RESEARCH PROGRAM GRAVITY & ELECTROSTATIC FIELD INFLUENCE G.P. Celata, P. Colinet, P. Di Marco, W. Grassi, E. Iacona, D. Lakehal, O. Lebaigue, J.C. Legros, P. Stephan, <u>L. Tadrist</u>
Hall B	
16:40 - 18:00	Session: Physical Sciences (Thermocapillary Phenomena II) Chairpersons: H. Kawamura & D. Schwabe
16:40	EFFECT OF CENTRIFUGAL INSTABILITY ON THERMOCAPILLARY FLOW IN PARTIALLY CONFINED HALF-ZONE LIQUID BRIDGE Suguru Shiratori & Taketoshi Hibiya
17:00	DYNAMICS OF SUSPENDED PARTICLES IN THERMOCAPILLARY LIQUID BRIDGES Stefano Domesi, Hendrik Kuhlmann
17:20	FLOW FIELD IN FLOATING-ZONE CRYSTAL GROWTH IN MIRROR FURNACES WITH AXIAL MAGNETIC FIELDS Damián Rivas
17:40	TURBULENT FLUID DYNAMICS & HEAT TRANSFER IN ELECTROMAGNETICALLY-SUSPENDED LIQUID DROPLETS

	<u>K. A. Pericleous</u> , V. Bojarevics
18:00	NUMERICAL AND EXPERIMENTAL STUDIES OF MARANGONI CONVECTION IN CONJUNCTION WITH HEAT LOSS IN A HALF-ZONE LIQUID BRIDGE Y. Kousaka & H. Kawamura
Hall C	
16:40 - 18:00	Session: Life Sciences IV Chairpersons: A. Cogoli & C. Dournon
16:40	GENE EXPRESSION VARIATIONS DURING DROSOPHILA METAMORPHOSIS IN SPACE. THE GENE EXPERIMENT IN THE SPANISH CERVANTES MISSION TO THE ISS Raúl Herranz, Alberto Benguria, Javier Medina, Gilbert Gasset, Jack van Loon, Ángel Zaballos & <u>Roberto Marco</u>
17:00	SPACEFLIGHT-INDUCED CHANGES OF LYMPHOCYTES & ANTIBODY PRODUCTION IN PLEURODELES WALTL (URODELE AMPHIBIAN) Jean-Pol Fripiat, Bérénice Schaerlinger, Christian Dournon
17:20	ROLE & THERAPEUTIC INTEREST OF TAURINE IN SKELETAL MUSCLE DISUSE ASSOCIATED TO SIMULATED MICROGRAVITY Sabata Pierno, <u>Jean-François Desaphy</u> , M. Paola Didonna, Antonella Liantonio, Annamaria De Luca, Diana Conte Camerino
17:40	ARTIFICIAL GRAVITY LOADING OF ANIMALS AS MODEL SYSTEM TO STUDY THE REGULATION MECHANISMS OF NEUROTRANSMISSION <u>Tatiana Borisova</u> , Natalia Krisanova, Nina Himmelreich
18:00	AMPHIBIAN OTOCONIA ON EARTH & IN MICROGRAVITY <u>Hervé Membre</u> , Christian Dournon
18:20	End Of Day II
18:30 - 20:00	ELGRA General Assembly
21:00 -	Banquet ELGRA Student Awards

ELGRA Medal Awards (A. Cogoli & J. Straub)

Friday, September 23rd

- 08:40 - 09:10 **Plenary Lecture/** Chairman H. Kuhlmann:
PERSONAL MEMORY: 25 YEARS FLUID RESEARCH
IN MICROGRAVITY
Johannes Straub
- Hall A**
- 09:10 - 10:40 **Session: Physical Sciences (Crystallisation/
Solidification I)**
Chairpersons: T. Hibiya & K- W. Benz
- 09:10 **Keynote Lecture:**
UNDERCOOLED MELTS: SCIENCE & TECHNOLOGY
Dieter M. Herlach
- 09:40 INVESTIGATIONS ON TRANSIENT DIRECTIONAL
SOLIDIFICATION ON GROUND & UNDER
MICROGRAVITY ON SOUNDING ROCKET MISSIONS
Laszlo Sturz, Annette Weiß, Gerhard Zimmermann
- 10:00 PROTEIN CRYSTALLIZATION IN MICROGRAVITY
GENERATED BY A SUPERCONDUCTING MAGNET
N. I. Wakayama, D. C. Yin, K. Harata, T. Kiyoshi, M.
Fujiwara, Y. Tanimoto
- 10:20 ATOMIC RESOLUTION CRYSTALS OBTAINED IN
VISCOUS CRYSTALLIZING CONDITION IN SPACE
Hiroaki Tanaka, Koji Inaka, Masaru Sato, Sachiko
Takahashi, Shigeru Sugiyama, Mari Yamanaka, Satoshi
Sano, Moritoshi Motohara, Tomoyuki Kobayashi &
Susumu Yoshitomi
- Hall B**
- 09:10 - 10:40 **Session: Life Sciences V**
Chairpersons: J. van Loon & A. Sundaresan
- 09:10 **Keynote Lecture:**
MECHANICAL SIGNALING & MICROGRAVITY
B. V. Nussgens, G. Chometon, A. Guignandon, G. Ho, Ch.
Lambert, P. Mineur, S. Servotte, Z. Zhang, C. Deroanne,
B. Eckes, L. Vico, Th. Krieg, M. Aumailley, Ch.M. Lapière

- 09:40 APOPTOTIC & ANTI-APOPTOTIC SIGNALS OF RAT
OSTEOBLASTS DURING SPACEFLIGHT
Yasuhiro Kumei, Hitoyata Shimokawa, Sadao Morita,
Kei'ichi Ohya, Hisako Katano, Hideo Akiyama, Masahiko
Hirano, Chiaki Mukai, Shunji Nagaoka, Clarence F. Sams
& Peggy A. Whitson
- 10:00 HYPERGRAVITY AFFECTS MORPHOLOGY &
FUNCTION IN MICROVASCULAR ENDOTHELIAL
CELLS
Monica Monici, Nicola Marziliano, Venere Basile, Antonio
Conti, Silvia Pezzatini & Lucia Morbidelli
- 10:20 IONS & WATER TRANSMEMBRANE TRANSPORT IN
NERVOUS AND TESTICULAR CULTURED CELLS IN
LOW GRAVITY CONDITIONS
Bianca Maria Uva, Felice Strollo, Franco Ricci, Martina
Pastorino, Grazia Tagliaferro, Maria Rita Mariani, Maria
Angela Masini
- Hall C**
- 09:10 - 10:30 **Session: Physical Sciences (Fluid Dynamics/
Multiphase Flows I)**
Chairpersons: C. Misbah & V. Nikolayev
- 09:10 SOUNDING ROCKET EXPERIMENT ON CAPILLARY
CHANNEL FLOW
Uwe Rosendahl, Michael Dreyer, Antje Ohlhoff
- 09:30 OSCILLATIONS OF VAPOUR BUBBLE UNDER
VIBRATIONS
D.V. Lyubimov, T.P. Lyubimova, A. A. Tcherepanov, B.
Roux
- 09:50 BUBBLE DYNAMICS IN A CYLINDRICAL LAMINAR
COUETTE FLOW
Yann Juaneda, Catherine Colin
- 10:10 TWO-PHASE FLOW CHARACTERISATION IN
CAPILLARY DOMINATED CROSSFLOW
CONFIGURATIONS
J. Carrera, X. Ruiz, L. Ramirez-Piscina, J. Casademunt,
M. Dreyer
- 10:40 - 11:00 *Coffee Break*

Hall A

- 11:00 - 13:00 **Session: Physical Sciences (Crystallisation/
Solidification II)**
Chairpersons: D. M. Herlach & J. M. Garcia- Ruiz
- 11:00 COUNTERDIFFUSION EXPERIMENTS IN NON-
CONVECTIVE ENVIRONMENTS: STUDIES OF
THREE- MODEL PROTEINS
Ingrid Zegers, Celine Vanhee, Mike Sleutel, Cecile
VandeWeerd, Cristine Evrard, Frank Dubois, JuanMa
Garcia- Ruiz
- 11:20 EFFECT OF MICROGRAVITY & MAGNETIC FIELD ON
METALLURGICAL AND CRYSTALLINE STRUCTURE
OF MAGNETSTICTIVE SmFe₂ SYNTHESIZED BY
UNIDIRECTIONAL SOLIDIFICATION
Takeshi Okutani, Hideaki Nagai & Mikito Mamiya
- 11:40 PHASE SELECTION IN UNDERCOOLED Nd-Fe-B
ALLOY MELTS INVESTIGATED BY
ELECTROMAGNETIC LEVITATION EXPERIMENTS
Thomas Volkmann, Sven Reutzel, Jianrong Gao, Dirk
Holland-Moritz, Matthias Kolbe, Dieter M. Herlach
- 12:00 DEWETTED BRIDGMAN GROWTH OF (Cd,Zn)Te
CRYSTALS
M. Fiederle, K.W. Benz, T. Duffar, L. Sylla, E. Dieguez, L.
Zanotti, A. Zappettini, G. Roosen, J.C. Launay
- 12:20 EXPERIMENTAL INVESTIGATION OF THE
INTERACTION OF A DENDRITIC SOLIDIFICATION
FRONT WITH FOREIGN PARTICLES
M. Kolbe, T. Lierfeld, G. Eggeler, D. M. Herlach

Hall B

- 11:00 - 13:00 **Session: Life Sciences VI**
Chairpersons: B. V. Nussgens & V. Legué
- 11:00 GENE EXPRESSION IN ACTIVATED HUMAN T-CELLS
INDUCED BY MODELLED MICROGRAVITY (MMG)
Diana Risin, Nancy E. Ward, Semyon A. Risin, & Neal R.
Pellis
- 11:20 THE ROLE OF NUCLEOTIDES IN AUGMENTATION OF
LYMPHOCYTE LOCOMOTION: ADAPTATIONAL

- COUNTERMEASURE DEVELOPMENT IN
MICROGRAVITY ANALOGUE ENVIRONMENTS
Alamelu Sundaresan (Lalita), Anil D. Kulkarni, Keiko
Yamauchi & Neal R. Pellis
- 11:40 FROM HYPERGRAVITY TO MICROGRAVITY:
CHOOSING THE SUITABLE SIMULATOR
Silvia Bradamante, Livia Barengi, Silvia Versari,
Alessandro Villa
- 12:00 CYTOSKELETON & ULTRASTRUCTURE IN ROOT
GRAVIPERCEIVING AND GRAVIRESPONDING CELLS
IN ALTERED GRAVITY
Elizabeth Kordyum, Gennady Martyn, Galina
Shevchenko, Lyudmyla Kozeko, Olga Artemenko,
Margarita Sobol
- 12:20 THE STRESS PROTEINS' LEVEL UNDER
CLINOROTATION IN CONTEXT OF THE SEEDLING
DEVELOPMENTAL PROGRAM & THE STRESS
RESPONSE
Lyudmyla Kozeko, Elizabeth Kordyum
- 12:40 THE TROPIC EXPERIMENT ON EMCS- INVESTIGATING
THE INTERACTIONS BETWEEN GRAVITY AND LIGHT
IN PLANTS
John Z. Kiss, Prem Kumar, Melanie J. Correll, Richard E.
Edelmann

Hall C

- 11:00 - 12:40 **Session: Physical Sciences (Fluid Dynamics/
Multiphase Flows II)**
Chairpersons: L. Tadrist & T. D. Karapantsios
- 11:00 STUDY OF THE TRANSVERSAL MIGRATION OF MICRON
SIZE PARTICLES IN A MINI-SPLITT CHANNEL IN
MICROGRAVITY
Natacha Callens, Mauricio Hoyos, Frank Dubois, Pascal
Kurowski, Catherine Yourassowsky
- 11:20 STABILITY OF ACOUSTIC STREAMING FLOWS IN A
HEATED LIQUID LAYER
BenHadid Hamda, Henry Daniel, Botton Valéry &
Kaddeche Slim
- 11:40 LIQUID VOLUME MEASUREMENT FOR CRYOGEN

- UNDER MICRO-GRAVITY CONDITION
Takahisa Nishizu, Yasuo Torikata, Tomoki Yamashita,
Tadaaki Sakamoto, Yuka Futaya, Akiko Tateno, Akihiro
Nakano
- 12:00 STUDY OF FLUID BEHAVIOUR UNDER GRAVITY
COMPENSATED BY A MAGNETIC FIELD
D. Chatain, D. Beysens, K. Madet, V. Nikolayev, A.
Mailfert
- 12:20 MODELLING BIOMIMETIC ENTITIES UNDER FLOW
Chaouqi Misbah
- 12:40 IN-VIVO EMBOLIC DETECTOR (IVED): PHASE I
Eleni P. Kalogianni, Christodoulos Altiparmakis, Sotiris
Evgenidis, Theodoros Mesimeris, Georgios Sideridis &
Thodoris D. Karapantsios
- 13:00 - 13:15 *"Family" photo*
- 13:15 - 15:00 *Lunch*
- 15:00 - 15:30 **Plenary Lecture/** Chairman: M. Cogoli- Greuter
ASTROBIOLOGY- AN INTRODUCTION INTO AN
EMERGING FIELD OF RESEARCH
Petra Rettberg
- 15:30 - 16:20 **Round Table:**
Human Space Exploration: why, how?
Moderator: D. Beysens
Contributors: T. Hibiya, O. Minster, JPB Vreeburg,
N. R. Pellis, F. Stollo, E. Brinckmann
- 16:20 - 16:30 **Closure of ELGRA '05 Biennial Meeting**
- 16:30 - *Sunset Cruise*