



SEPTEMBER 06th - 10th, 2022
Lisbon, Portugal

27th
ELGRA BIENNIAL SYMPOSIUM
& GENERAL ASSEMBLY



TUESDAY - September 06th

TIME	SESSION	ROOM
09.00 20.00	Registration	
09.00 13.00	ELGRA Management Committee	Graça (By invitation)
17.00 18.30	Opening	Oriente
18.30 19.30	Poster session	Maravilla+Lapa
19.30 20.30	WELCOME RECEPTION	Sky bar

WEDNESDAY - September 07th

TIME	SESSION	ABSTRACT	Physical Sciences 1 (Room Campolide + Olivais)		TIME	SESSION	ABSTRACT	Physical Sciences 2 (Room Castelo + Chiado)		TIME	SESSION	ABSTRACT	Life Sciences (Room Alfama + Alcantara)	
			TITLE					TITLE					TITLE	
08.30 08.45	Diffusion in non-metallic mixtures	21	Instability caused by interplay of Soret and cross-diffusion in ternary mixture	08.30 08.45	Multiphase flows	29	Pool boiling heat transfer in microgravity with microstructured surfaces and electric field: preliminary results of parabolic flight campaign	08.30 08.45	ISGP	4	Cardiovascular deconditioning and impact of artificial gravity during 60-day head-down bed rest - Insights from 4D flow cardiac MRI			
08.45 09.00		22	Nonlinearities in shadowgraphy experiments on non-equilibrium fluctuations - in preparation of the GIANT FLUCTUATIONS microgravity project	08.45 09.00		104	Boil-off management in microgravity	08.45 09.00		6	Effect of 3-day exposure to dry immersion on veno-arteriolar reflex			
09.00 09.15		46	Soret coefficients of a ternary C60-THN-Tol mixture: results from DCMIX4 experiments	09.00 09.15		102	Volume measurement of liquid propellants by means of acoustic fields	09.00 09.15		15	5 days of simulated microgravity induce skeletal muscle structural and microenvironment changes leading to global muscle deconditioning			
09.15 09.30		70	Automatic structure function analysis using artificial intelligence	09.15 09.30		110	An integrated acoustic technology for application in propellant tanks	09.15 09.30		39	Spaceflight Associated Neuro-ocular Syndrome During Long Duration Spaceflight			
09.30 09.45		91	Two-wavelength Shadowgraphy	09.30 09.45		109	Electronics cooling by means of acoustic waves in microgravity	09.30 09.45		52	Change in circulating collagen type II biomarkers (CTX-II, C1,2C, C2C) in response to 21-days of Head-Down-Tilt Bed Rest (HDT-BR) and countermeasures.			
09.45 10.00		98	Dynamics of Non-Equilibrium Fluctuations Close to the Onset of Rayleigh-Bénard Convection	09.45 10.00		28	Capillary rise in Divergent U-Tube during parabolic flight	09.45 10.00		61	Daily aerobic and resistance exercise on ISS does not correlate with measured change in peak VO2			
				10.00 10.15		99	Non-Isothermal sloshing for space applications: from a ground-based experimental characterisation to microgravity conditions							
				10.15 10.30		101	About water droplet populations in microgravity conditions							

10.30
11.00 COFFEE BREAK

11.00 11.15	Marangoni convection	7	Controlling the dynamics of a free surface via thermocapillary flows	11.00 11.15	Other fluids	33	Interaction of Faraday waves on alternating multi-layer fluid systems in microgravity	11.00 11.15	Cardio and vestibular systems	24	Ocular counter-roll is less affected in experienced compared to novice space crew after long-duration spaceflight
11.15 11.30		8	Thermocapillary flows and phase change in rectangular containers in microgravity	11.15 11.30		86	Anomalous Behaviour of Temperature Non-Equilibrium Fluctuations across pure CO2 Widom Line	11.15 11.30		36	Numerical Simulation and Analysis of Human Cardiovascular Behavior During Subjectation to Suborbital Spaceflight
11.30 11.45		10	Dependence oscillatory dynamics on gas flow temperature in liquid bridges	11.30 11.45		43	AlmoFlow - Investigating large scale convection in planetary atmospheres	11.30 11.45		63	The impact of long-duration spaceflight on the horizontal Vestibulo-Ocular Reflex (HVOR)
11.45 12.00		14	Three dimensional effects during the melting of phase change materials with thermocapillary flow in microgravity	11.45 12.00		73	Thermoelectric convection in rectangular cavities in microgravity conditions	11.45 12.00		69	Effects of Altered Gravity on Human Behaviour
12.00 12.15		23	Comparative experimental-numerical analysis of PCM: n-hexadecane, n-octadecane and n-eicosane	12.00 12.15		45	AID - Efficient Data Processing with Neuronal Networks for Microgravity	12.00 12.15		103	Expression of locomotor synergies under various gravitational constraints
12.15 12.30		32	The Effect of Marangoni Convection on Heat Transfer in Phase Change Materials Experiment	12.15 12.30		76	Heat transfer induced by thermoelectric convection in a cylindrical annulus in microgravity	12.15 12.30		48	The acute gravitational stress of parabolic flight affects red blood cell aggregation and functionality of circulating immune cells
12.30 12.45		57	Vapour cloud of an evaporating sessile droplet in microgravity	12.30 12.45		80	Film-wise condensation of pure vapour on CNT-coated curvilinear fin in microgravity	12.30 12.45		68	High Content microscopy and super-resolution microscopy profiling to unravel the role of the actin cytoskeleton in T cell activation in microgravity
			12.45 13.00		119	Evaporating sessile droplet on a sounding rocket: analysis by vapour interferometry and simulation					

13.00
14.15 LUNCH

14.15 14.30	Thermophysical properties	1	Dielectrophoretic induced convection in a sounding rocket flight	14.15 14.30	Emulsions	44	Preliminary Results on Emulsion Destabilisation from the ISS PASTA Experiment	14.15 14.30	Other Life Sciences topics	13	The effect of hypergravity on burn wounds in Hirudo
14.30 14.45		56	Thermal diffusion experiments in CO2-1-hexanol mixtures at different gravity levels - Design and data overview of a parabolic flight campaign	14.30 14.45		9	Osmosis in a bi-disperse compartmentalized granular material in low-gravity environment	14.30 14.45		95	A Glimpse into Spaceflight Induced Bone Loss Over 18-Months
14.45 15.00		82	Containerless measurements of thermophysical properties on board the ISS using the electromagnetic levitator ISS-EML	14.45 15.00		20	Particle dynamics at the onset of the granular gas-liquid transition	14.45 15.00		66	Astropharmacy - Healthcare for Earth, the Moon, Mars and beyond
15.00 15.15		83	Thermophysical properties of bulk metallic glasses measured on board the ISS using the electromagnetic levitator ISS-EML	15.00 15.15		41	Slow Impacts on Regolith Surfaces in Low Gravity - First Experiments on the new GTB-Pro Platform	15.00 15.15		67	Brain structural and functional responses to long-duration spaceflight
15.15 15.30		122	Thermophysical properties of liquid Ti-Al-Cr-Nb alloys: theory vs experiments	15.15 15.30		51	Granular gas mixtures: Experiments and machine learning-aided analysis				

16.00
20.15 SOCIAL ACTIVITY

THURSDAY - September 08th

TIME	SESSION	ABSTRACT	TITLE	ROOM
09.00 10.30	ELGRA Medal	PL1	Floris Wuyts: Brains in Space	Oriente
		PL2	Nicolas Vandewalle: Handling granular materials in space	
10.30 11.00	COFFEE BREAK			
11.00 12.45	ELGRA-ASGSR	124	Anna-Lisa Paul: Plants grow in lunar regolith collected in the Apollo 11, 12 and 17 missions	Oriente
		121	Steven Collicott: Flight Experiments on Propellant Control in Conformal Propellant Tanks	
12.45 14.00	LUNCH			
14.00 15.00	ISGP	PL3	Alexander Chouker: Stress, Hibernation and the Way to Mars	Oriente
15.00 16.00	SELGRA Assembly			
16.00 18.00	ELGRA General Assembly			
19.30 00.00	GALA DINNER			

FRIDAY - September 09th

TIME	SESSION	ABSTRACT	Physical Sciences (Room Campolide + Olivais)		TIME	SESSION	ABSTRACT	Life Sciences (Room Castelo + Chiado)		TIME	SESSION	ABSTRACT	Technology/Platforms/Education (Room Alfama + Alcantara)	
			TITLE					TITLE					TITLE	
09.00 09.15	Materials Science and Processing	58	Thin Liquid Film Coating and Drying under Microgravity Conditions: How parabolic flights showed the necessity of sounding rocket experiments	09.15 09.30	Personalized medicine	37	Human Reproduction in Space. Late Results		Platforms and Education					
09.15 09.30		50	PEDOT:PSS electrodes in view of low-cost biocompatible cellulose-assisted biosensors	09.30 09.45		53	Hair follicles for non-invasive health monitoring on-site on the ISS Space Station and hair follicles derived retinal organoids for off-site biomedical research	09.15 09.30		65	The GraviTower Bremen Prototype-disruptive technology for a new age of earth based microgravity and more			
09.45 10.00		40	Microstructural transitions during solidification of transparent alloy NPG-DC investigated onboard the ISS using the TRANSPARENT facility	09.45 10.00		5	Analyzing Calcium Signaling by CaMPARI2 during Parabolic Flights	09.45 10.00		81	Shared payload platform for small-sized microgravity experiments			
10.00 10.15		117	Gold nanoparticles synthesized by laser ablation using a random positioning machine	10.00 10.15		19	Multianalyte profiling of Scaffold driven Human Mesenchymal Stem Cell Constructs in Microgravity	10.00 10.15		89	The upcoming SubOrbital Express 3 and 4 Missions for Microgravity Research			
10.15 10.30		123	Manufacturing "in situ" of regolith simulants: Design of composites by liquid assisted processes	10.15 10.30		34	Hypergravity Attenuates Reactivity in Primary Murine Astrocytes	10.15 10.30		113	From on-site to online ESA/ELGRA Gravity-Related Research Summer School			
10.30 11.00	COFFEE BREAK													
11.00 11.15	Biophysics	3	Echographic surveillance of 14 volunteer after 40 days in confinement in a Deep cavern (Deep time experiment 2021)	11.00 11.15	Space Omics	16	Next steps for Space Omics research development in Europe: recommendations from an ESA Topical Team	11.00 11.15	Technology developments	30	Yuri enables and develops novel biomedical applications using microgravity on the ISS and beyond			
11.15 11.30		38	Simulating the spaceflight environment: Combined effect of simulated microgravity, ionizing radiation, and psychological stress on in vitro wound healing	11.15 11.30		18	Muscle atrophy phenotype gene expression during spaceflight is linked to metabolic stress crosstalk between the liver and the muscle	11.15 11.30		74	Efficient and Stable Hydrogen and Oxygen Production in Microgravity			
11.30 11.45		54	Microgravity experiments on Red Blood Cell aggregation dynamics in flow	11.30 11.45		59	Proteomic and Functional Analysis of Acute Galactic Cosmic Radiation Exposure in the Kidney	11.30 11.45		92	A new experimental set-up for aerosol stability investigations in microgravity conditions			
11.45 12.00		88	Different Spaceflight-Associated Changes in the Perivascular Spaces of Astronauts and Cosmonauts	11.45 12.00		60	The impact of microgravity on kidney function during spaceflight	11.45 12.00		94	A Novel Attitude Control System Combining Reaction Wheels and Transformable Spacecraft Capabilities: Design, Prototyping and Testing at the 77th ESA Parabolic Flight Campaign			
12.00 12.15		115	Study of the influence of microgravity on brain derived spheroids in acoustic levitation					12.00 12.15		90	Reduced Gravity Missions from zero to hyper g for Life Science and Process Evaluation			
12.45 14.00	FAREWELL LUNCH													