



University "G. d'Annunzio" of Chieti-Pescara
Department of Engineering and Geology
V.le Pindaro, 42 - 65127 Pescara (Italy)



XX CONGRESSO NAZIONALE DI SCIENZE PLANETARIE

3-7 Febbraio 2025
Complesso Aurum – Pescara



PROGRAMMA

Scientific Organising Committee

Giuseppe Mitri	Università D'Annunzio (Chair)
Elisa Maria Alessi	IMATI - CNR
Francesca Altieri	IAPS - INAF
Beatrice Baschetti	OaPd - INAF
Lorenzo Biasiotti	OaTs - INAF
Maria Teresa Brunetti	IRPI - CNR
Veronica Camplone	ASI
Fabrizio Capaccioni	IAPS - INAF
Agnese Caramanico	Università di Urbino
Alessia Cassaro	ASI
Nicole Costa	Università di Padova
Barbara De Toffoli	Università di Padova
Mario Di Martino	OaTo-INAf
Federica Duras	IAPS-INAf
Davide Grassi	IAPS-INAf
Mafalda Ianiri	Università D'Annunzio
Simone Ieva	OAR-INAf
Sebastian Lauro	Università Roma III
Andrea Longobardo	IAPS-INAf
Matteo Massironi	Università di Padova
Maria Teresa Muscari Tomajoli	Università Parthenope
Giovanni Poggiali	OAA - INAF
Giovanni Pratesi	Università di Firenze
Edoardo Mormile Santero	Università D'Annunzio
Gianni Strazzulla	OaCt - INAF
Federico Tosi	IAPS-INAf

Local Organising Committee

Camilla Cioria	Università D'Annunzio
Gianluca Chiarolanza	Università D'Annunzio
Mafalda Ianiri	Università D'Annunzio
Artem Lebedev	Università D'Annunzio
Edoardo Mormile Santero	Università D'Annunzio
Davide Sulcanese	Università D'Annunzio

Lunedì 3 Febbraio 2025

Aurum - Sala D'Annunzio

09:30	11:30	Mattinata dedicata alle Scuole	
12:00	14:00	Iscrizione e Accoglienza, affissione posters, Informazioni Logistiche, Apertura Congresso	
Sessione - Focus F8 A New Era of Venus Exploration: Unlocking the Secrets of Earth's Twin and Upcoming Missions			
	Chair	Davide Sulcanese	
14:00	14:12	Evidence of active volcanism on Venus derived from Magellan radar observations	Davide Sulcanese
14:12	14:24	Temporal variability of zonal winds in Venus mesosphere using VIRTIS/Vex temperature maps.	Arianna Piccialli
14:24	14:36	Inferring Venus Interior Structure based on Present and Expected Geophysical Constraints	Anna Maria Gargiulo
14:36	14:48	Mechanical and Rheological Subsurface Structure of Venusian Coronae	Barbara de Toffoli
14:48	15:00	Discussione	
Sessione - Experimental Planetology I			
	Chair	TBD	
15:00	15:12	New experimental measurements of the Collision Induced Absorptions of H ₂ -H ₂ and H ₂ -He in the 3600-5500 cm ⁻¹ spectral range from 120 to 500 K	Francesca Vitali
15:12	15:24	Spectral changes induced in complex organic matter by thermal annealing	Riccardo Giovanni Urso
15:24	15:36	IR Reflectance measurements and quantitative analysis of ammonium abundance in two-component mix	Eliana La Francesca
15:36	15:48	Experimental Microgravity Campaign for Investigating Contact Dynamics in Asteroid-related Scenarios	Alessia Cremasco
15:48	16:00	Discussione	
16:00	16:30	Coffee Break	
Sessione - Astrobiology and Astrochemistry I			
	Chair	TBD	
16:30	16:42	Hyperspectral VNIR imaging of microbialites from lake Bagno dell'acqua, Pantelleria, Italy	Enrico Bruschini
16:42	16:54	Geomicrobiology investigation of moonmilk speleothems at mt. Cucco (Perugia, Italy) cave	Alessia Cassaro
16:54	17:06	The reaction of atomic oxygen with thiophene and implication for the chemistry of Mars, asteroids and meteorites	Marco Parriani
17:06	17:18	Investigating Antarctic cryptoendolithic communities as putative "Martian analogue life-forms"	Carmen Del Franco
17:18	17:30	Discussione	
Sessione - Focus F16 Technologies for the search of life in the Universe: Innovations, Challenges and future opportunities			
	Chair	Luca Toniatti	
17:30	17:42	Micronaut: Sphingomonas desiccabilis for Space Mining and Sustainable Space Development	Luca Toniatti
17:42	17:54	Unveiling Photo-Oxidative Phenomena in PAHs under Mars-Like Conditions Using LC-LEI-HRMS	Tommaso Grazioso
17:54	18:06	Growth recovery of metabolically active cyanobacteria after long-term exposure to simulated lunar ionising radiation	Beatrice Boccia
18:06	18:18	Tests on the microfluidic network breadboard of the VENOM instrument	Giacomo Colombatti
18:18	18:30	Discussione	
	18:30	End of Day 1	

Martedì 4 Febbraio 2025

Aurum - Sala D'Annunzio

Sessioni Mattutine

Sessione - Focus F1 The subsurface of planetary bodies: sounding radar investigations and supporting laboratory activities			
	Chair	TBD	
09:00	09:12	Use and misuse of dielectric properties in the interpretation of orbiting radar sounder data on Mars	Elena Pettinelli
09:12	09:24	Detection of Subsurface Layer Instances on Radargrams from Mars through Hyper-Spectral Image Construction	Ruth-Emily Pierau
09:24	09:36	First radar evidence of large-scale englacial folding in the south polar layered deposits (Ultimi Scopuli, Mars) unveiled by MARIS	Luca Guallini
09:36	09:48	Microwave tomography enhanced lunar penetrating radar	Ilaria Catapano
09:48	10:00	Discussione	
Sessione - Focus F4 Surface geomorphological processes: risks and resources for future missions to Mars			
	Chair	Andrea Ermini (TBC)	
10:00	10:12	Martian lava tubes: origin, significance and challenges towards future exploration	Riccardo Pozzobon
10:12	10:24	Mounds of the Hypanis fan system, Mars: sedimentary Vs. magmatic volcanism	Agnese Caramanico
10:24	10:36	Aeolian landforms in the ExoMars landing site	Simone Silvestro
10:36	10:48	Characterisation and probabilistic stability analysis of the West-facing landslide in Iani Chaos region (Mars)	Andrea Ermini
10:48	11:00	Discussione	
11:00	11:30	Coffee Break	
11:30	12:30	Saluti istituzionali, saranno presenti: Roberto Ragazzoni Presidente INAF, Isabella Pagano Direttore Scientifico INAF, Francesco Petracchini Dir DTA CNR, Carlo Masci Sindaco della città di Pescara, Direttore del Dipartimento INGEO	
12:30	13:45	Pranzo	

Martedì 4 Febbraio 2025

Aurum - Sala D'Annunzio

Sessioni Pomeridiane

Sessione - Focus F7 Mars Sample Return (MSR)			
	Chair	TBD	
13:45	13:57	Overview of the astrobiological potential of the rocks collected by the NASA Mars2020 Perseverance rover on Mars	Teresa Fornaro
13:57	14:09	Mars Sample Return (MSR) Sample Receiving Project (SRP) Measurement Definition Team (MDT-1): overview and status	Marco Ferrari
14:09	14:15	Discussione	
Sessione - Experimental Planetology II (Mars)			
	Chair	TBD	
14:15	14:27	Are sulfates a safe harbor for organics on Mars? investigating the photoprotective role of hydrated magnesium sulfate under martian-like uv irradiation.	Andrew Alberini
14:27	14:39	VIS-NIR spectroscopy study of acid-weathered volcanic rocks in the laboratory with relevance for Mars	Simone De Angelis
14:39	14:51	InfraRed spectroscopy of Phobos and Deimos analogs in support of JAXA MMX mission and MIRS observations: influence of grain size and composition.	Giovanni Poggiali
14:51	15:03	VNIR Spectroscopy of lab-made Martian Analogues: dependance on composition, glass/crystal ratio, acquisition geometry.	Alessandro Pisello
15:03	15:15	Spectroscopic characterization of Exomars Mission Reference Samples: Advancing mineralogical and biosignature detection	Sole Biancalani
15:15	15:30	Discussione	
15:30	16:00	Coffee Break	
Sessione - Planets and Satellites I (Mars)			
	Chair	TBD	
16:00	16:12	Martian dust characterization: reanalysis of TGO/NOMAD UVIS and LNO channels' nadir data.	Fabrizio Oliva
16:12	16:24	Towards the application of s-FORUM radiative transfer code to the Martian atmosphere	Lorenzo Buriola
16:24	16:30	Discussione	
Sessione - Astrobiology and Astrochemistry II			
	Chair	TBD	
16:30	16:42	Alternative Life in Planetary conditions: The Prebiotic Chemistry point of view	Raffaele Saladino
17:12	16:54	Abiotic phosphorylation of Guanosine: an important step towards the origin of terrestrial and extraterrestrial life	Giovanna Costanzo
17:24	17:06	Theoretical modelling of the adsorption of sulphur-bearing species onto olivine nanoclusters	Jessica Perrero
17:36	17:18	Synthesis of RNA peptide chimeras: synergic role of meteorites and gamma-ray in three component prebiotic chemistry.	Bruno Mattia Bizzarri
17:48	17:30	Enabling future astrobiology experiments using desert cyanobacteria as a model system	Daniela Billi
18:00	17:42	The diversity of cyanobacterial light acclimations: a key to understanding the possibility of oxygenic photosynthesis on M-dwarf exoplanets	Mariano Battistuzzi
17:42	18:00	Discussione	
Sessione - ASI Prospettive			
18:00	18:15	Attività in corso e prospettive a breve termine	Raffaele Mugnuolo
18:15	18:30	Discussione	
	20:00	Cena Sociale Ristorante Marechiaro - Lungomare Giacomo Matteotti 70	

Mercoledì 5 Febbraio 2025

Aurum - Sala D'Annunzio

Sessioni Mattutine

Sessione - Small Bodies I			
	Chair	TBD	
09:00	09:12	Statistical Analysis of Cometary Ices: Inheritance or Chemical Reset?	Manuela Lippi
09:12	09:24	A Decade of Cometary Spectroscopy from the Asiago 1.22m Galileo Telescope	Alessandra Mura
09:24	09:36	High Resolution Spectroscopy of Comet C/2023 A3 (Tsuchinshan-ATLAS): insight into Sodium, Potassium and Lithium abundances	Giovanni Munaretto
09:36	09:45	Discussione	
Sessione - Focus F13 Dynamics of meteor showers			
	Chair	Elisa Maria Alessi	
09:45	09:57	Planetary encounters and meteoroid stream lifetimes	Giovanni Valsecchi
09:57	10:09	<i>Ab initio</i> strewn field for small asteroids impacts	Albino Carbognani
10:09	10:21	Density Variation in Meteor Streams: Insights from Perseid, Alpha Capricornid, and Orionid Observations	Maximilian Vovk
10:21	10:30	Discussione	
10:30	11:00	Coffee Break	
Sessione - Meteors, Meteorites and Interplanetary Dust			
	Chair	TBD	
11:00	11:12	Micro FT-IR characterization of Cavezzo and Matera meteorite	Cristian Carli
11:12	11:24	Coesite in Australasian Microtektites	Luigi Folco
11:24	11:36	Glass of possible impact origin from Pica (Chile)	Gabriele Giuli
11:36	11:45	Discussione	
Sessione - Focus F14 From labs to planets: the synergy between laboratory and remote sensing to explore the Solar System			
	Chair	Giovanni Poggiali	
11:45	11:57	Investigation of achondrite meteorites, analogs of stony asteroids, in support to the ESA/HERA mission	Alessandra Migliorini
11:57	12:09	Petrographic and mineralogical characterization of asteroid (162173) Ryugu: the possible new reference material for the solar system element abundance.	Roberto Borriello
12:09	12:21	Raman analysis of cometary and TNOs refractory organic material analogues affected by energetic processing	Massimo Germanà
12:21	12:30	Discussione	
12:30	14:00	Pranzo	

Mercoledì 5 Febbraio 2025

Aurum - Sala D'Annunzio

Sessioni Pomeridiane

Sessione - Small Bodies II			
	Chair	TBD	
14:00	14:12	Unexpected abundance of potentially differentiated asteroids from Gaia	Marco Delbo
14:12	14:24	Spectral and Photometric characterization of (98943) Torifune and 1998 KY26, targets of Hayabusa2#	Jules Bourdelle de Micas
14:24	14:36	Ryugi visible and near infrared photometry	Andrea Longobardo
14:36	14:48	NEOVST: A mini 4-SDSS-colors Survey of newly-discovered Near-Earth Objects through the VLT Survey Telescope	Pedro Hasselmann
14:48	15:00	Discussione	
Sessione - Small Bodies III + Focus F12 Past, Present and Future of Planetary Defense			
	Chair	Simone Ieva	
15:00	15:12	Lithologies of Dimorphos and Potential Implication for its Parent Body	Filippo Tusberty
15:12	15:24	Lessons learned from the dust dynamics simulations using LICACUBE observations in preparation for the HERA mission science	Stavro Ivanoski
15:24	15:36	Effects of sesquinary low-velocity impacts on the Dydimos-Dimorphos binary asteroids	Krzysztof Langner
15:36	15:48	The ESA RAMSES mission concept: A rendezvous with the asteroid Apophis during its close encounter with Earth in 2029	Monica Lazzarin
15:48	16:00	Discussione	
16:00	16:30	Coffee Break	
16:30	19:00	Poster Session	
18:00	19:30	AperiPoster	

Giovedì 6 Febbraio 2025

Aurum - Sala D'Annunzio

Sessioni Mattutine

Sessione - Focus F9 Luna e Terra viste da JUICE: Risultati preliminari del flyby			
Chair	Federico Tosi		
09:00	09:12	MAJIS observations during the Lunar-Earth gravity assist flyby of JUICE	Giuseppe Piccioni
09:12	09:24	Observations of Earth-Moon system by JANUS, the VIS-NIR multispectral camera onboard the ESA-JUICE mission.	Pasquale Palumbo
09:24	09:36	Preliminary analysis of 3GM High Accuracy Accelerometer data from JUICE LEGA operations	Umberto De Filippis
09:36	09:45	Discussione	
Sessione - Focus F11 Waiting for BepiColombo: New perspective of the surface, interior and geochemical environment of Mercury			
Chair	Camilla Cioria		
09:45	09:57	Mineralogy of the mantle in reduced exoplanets: implications for Mercury	Camilla Cioria
09:57	10:09	Recent activity on Mercury's surface spectrally detected with MDIS data	Anna Galiano
10:09	10:21	Geological evolution of the Praxiteles basin on Mercury	Valentina Galluzzi
10:21	10:30	Discussione	
10:30	11:00	Coffee Break	
Sessione - New instruments and Technologies			
Chair	TBD		
11:00	11:12	Hydrogen clathrate hydrates as energy storage media for planetary installations: a preliminary investigation	Pietro di Profio
11:12	11:24	MIST-A: the MWIR Imaging Spectrometer for Target-Asteroids onboard the Emirates Mission to the Asteroid belt	Mauro Ciarniello
11:24	11:36	EMM Project: Development of the "LD GRIDS" detection system for measuring the charge and velocity of levitating Lunar dust.	Carmen Porto
11:36	11:48	The status of the ESA's ARIEL space mission	Emanuele Pace
11:48	12:00	Discussione	
Sessione - Focus F10 Planetary Space Weather			
Chair	TBD		
12:00	12:12	The environments within the jovian magnetosphere: current knowledge and challenges from a planetary space weather perspective	Christina Plainaki
12:12	12:24	The impact of extreme space weather events on Earth's atmosphere and climate	Lorenzo Biasiotti
12:24	12:30	Discussione	
12:30	14:00	Pranzo	

Giovedì 6 Febbraio 2025

Aurum - Sala D'Annunzio

Sessioni Pomeridiane

Sessione - Outreach, Teaching and Communication			
	Chair	TBD	
14:00	14:12	Exploration of the Moon between communication and science	Biagio Ambrosio
14:12	14:24	The Imaging and Cartographic Archive at IAPS/INAF, a Treasure of Media and Maps from the First Steps of Planetary Exploration	Alessandro Frigeri
14:24	14:30	Discussione	
Sessione - Focus F5 Planetary Cryospheres: Ice in the Solar System			
	Chair	Silvia Bertoli	
14:30	14:42	Multispectral analysis of water-ice in a fresh crater ejecta on Mars using HIRISE data	Andrea Apuzzo
14:42	14:54	Revealing Mars' climate history and interior viscosity through polar cap investigations	Antonio Genova
14:54	15:06	Water-ice interaction generated by ocean convection in the icy moons of Jupiter.	Silvia Pagnoscin
15:06	15:18	International Mars Cce Mapper Mission: search for ices to pave the road for future human Mars exploration.	Marilena Amoroso
15:18	15:30	Discussione	
15:30	16:00	Coffee Break	
Sessione Planets and Satellites II			
	Chair	TBD	
16:00	16:12	Dynamical recrystallization within Europa's ice shell: Implications for solid-state convection	Giuseppe Mitri
16:12	16:24	Modeling volatiles emission through smoothed particle hydrodynamics: Enceladus' plumes	Matteo Teodori
16:24	16:36	Observations of Loki Patera by Juno during close flybys.	Alessandro Mura
16:36	16:48	Magnetic anomalies likely produced by hydrothermal or magmatic processes post Borealis basin formation	Claudio Orlanducci
16:48	17:00	Towards the retrieval of CH ₄ at Jupiter's mid- and equatorial latitudes with Juno/JIRAM spectra	Chiara Castagnoli
17:00	17:15	Discussione	
17:30	19:00	Assemblea Plenaria SISP-AC	

Venerdì 7 Febbraio 2025

Aurum - Sala D'Annunzio

Sessione - Focus F2 Advancing Spectral and Hyperspectral Data Analysis for Planetary Exploration			
	Chair	Anna Galiano	
09:00	09:12	Hyperspectral data to understand our planet and the others: the case of solfatara crater (southern Italy)	Maria Pedone
09:12	09:24	Low-temperature hyperspectral imaging acquisition of icy slabs with martian simulants.	Nicole Costa
09:24	09:36	Surface composition of Ganymede in the Antum crater region: spectral unmixing tests in preparation of the JUICE mission	Federico Colaiuta
09:36	09:48	Project PANCO: updates on the open-source suite for alignment and pansharping of multi and hyperspectral images.	Adriano Tullo
09:48	10:00	Discussione	
Sessione - F3 Gravity and rotational dynamics: an integral approach for planetary interior characterisation			
	Chair	Edoardo Santero Mormile	
10:00	10:12	Signal Processing of Spherical Data. Application to the Study of Gravimetric Data	Antonio Cicone
10:12	10:24	Constraining Europa's interior structure by using gravity measurements in a Bayesian framework	Martina Ciambellini
10:24	10:30	Discussione	
10:30	11:00	Coffee Break	
Sessione - Focus F6 Advancements in Cartography and the Importance of Standard establishment in data management			
	Chair	Gianluca Chiarolanza	
11:00	11:12	Explorative maps generation through unsupervised learning	Natalia Amanda Vergara
11:12	11:24	The current status of three-dimensional reconstruction of TGO-CASSIS stereo products using the inaf 3dpd pipeline	Cristina Re
11:24	11:36	An Integrated and Multidisciplinary Approach to Landing Site Selection Using MATISSE	Giacomo Nodjoumi
11:36	11:45	Discussione	
Sessione Planets and Satellites III			
	Chair	TBD	
11:45	11:57	Machine learning clustering techniques applied to Juno/Jiram data	Francesco Biagiotti
11:57	12:09	The thermal impact of the self-heating effect on airless bodies: the case of Mercury's north polar craters.	Pamela Cambianica
12:09	12:21	Automatic CRISM mapping and spectral parameter generation using undercomplete autoencoders	Marco Baroni
12:21	12:30	Discussione	
12:30	13:00	Premiazioni (Migliori Poster e Migliore Presentazione)	
	13:00	Chiusura Congresso	