



# XVIII Congresso Nazionale di Scienze Planetarie

6-10 febbraio 2023  
Sala dei Notari, Perugia

## PROGRAMMA

### 6 Febbraio, Lunedì

14:00 – 15:00	Iscrizioni, Interventi Istituzionali, Logistica ed Organizzazione	
15:00 – 15:30	Prospettive delle scienze planetarie in Italia	Barbara Negri ASI
15:30 – 15:55	Il Programma di Esplorazione dell'ESA	Raffaele Mugnuolo ASI
15:55 – 16:10	Paving the way for the Italian community towards Mars Sample Return (MSR), the next step in Martian exploration	Francesca Altieri

16:10 – 16:45 Coffee Break

### 16:45 – 18:30 Sessione 1: Astrochimica - Astrobiologia 1

Chair: TBD

16:45 – 17:15	<b>INVITED TALK: From Interstellar Clouds to Planetary Systems: the Astrochemical Thread</b>	Cecilia Ceccarelli IPAG
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# XVIII Congresso Nazionale di Scienze Planetarie

6-10 febbraio 2023  
Sala dei Notari, Perugia

17:15 – 17:30	Theoretical investigation of formation routes leading to S-bearing species in space via the reactions of electronically excited atoms	Andrea Giustini
17:30 – 17:45	Rotational spectroscopy of pyrrole: a model for astrophysical searches	Assimo Maris
17:45 – 18:00	A laboratory investigation of the reactions N(2D) + benzene and N(2D) + toluene and implications for the atmospheric chemistry of Titan	Gianmarco Vannuzzo
18:00 – 18:15	Detectability of aromatic organics in Sulfates by the Mars 2020 Perseverance rover	Teresa Fornaro
18:15 – 18:30	Survivability of Xhantoria Parietina in simulated Mars conditions for 30days	Christian Lorenz

## 7 Febbraio, Martedì

**9:00 – 10:30 Sessione 1: Astrochimica - Astrobiologia 2**

Chair: TBD

09:00 – 09:30	<b>INVITED TALK: Open questions about the origin of life: where to go in Solar System studies</b>	Giovanni Vladilo INAF - OaTs
09:30 – 09:45	Desert cyanobacteria: Lesson learned from astrobiology experiments in low Earth orbit and implications for future missions	Daniela Billi
09:45 – 10:00	Worldwide distribution of acidophilic extremophiles	Luca Tonietti



# XVIII Congresso Nazionale di Scienze Planetarie

6-10 febbraio 2023  
Sala dei Notari, Perugia

	provides insight into future space biology applications	
10:00 – 10:15	Eukaryotic organisms exposed to space environment: a focus on the physiological adaptations of the brine shrimps <i>A. Salina</i> to astrobiological studies	M. Teresa Muscari Tomajoli
10:15 – 10:30	Evolution of climate and observational properties of a habitable rocky planet: Earth.	Laura Silva

10:30 – 11:00 Coffee Break

## **11:00 – 12:00 Sessione 2: Pianeti e Satelliti: Analisi Dati e Modellistica**

*Chair: TBD*

11:00 – 11:15	Microwave thermal emission from Solar System Planets and CMB calibration	Michele Maris
11:15 – 11:30	Mineralogical mapping of Ceres as revealed by the 1 $\mu\text{m}$ absorption	Giacomo Carrozzo
11:30– 11:45	Volatile emission from a fracture on a planetary surface: a Smoothed-Particle-Hydrodynamics approach	Matteo Teodori
11:45– 12:00	Roughness of planetary surfaces: Hapke theory and statistical multi-facet algorithm. preliminary analysis	Andrea Raponi

12:00 – 14:00 Pausa Pranzo



**14:00 – 15:30 Sessione 3: Esopianeti**

*Chair: TBD*

14:00 – 14:15	Search for and occurrence rate of Jupiter analogues in planetary systems with short period sub-Neptunes	Aldo Bonomo
14:15 – 14:30	Cold Jupiter shaping the formation of Super-Earths around M dwarfs	Matteo Pinamonti
14:30 – 14:45	Responses of Eukaryotic photosynthetic organisms from different systematic groups to a simulated M dwarf starlight	Mariano Battistuzzi
14:45 – 15:00	The GAPS Program at TNG: That strange case of the young planetary system V1298 Tau	Riccardo Claudi
15:00 – 15:15	An Exoplanet Atmosphere as Never Seen Before.	Luigi Mancini
15:15 – 15:30	The HADES Program with HARPS-N@TNG. HADES: THE HARps-n red Dwarf Exoplanet Survey	Laura Affer

15:30 – 16:00      Coffee Break

**16:00 – 17:30 Sessione 4: Mercurio**

*Chair: TBD*

16:00 – 16:30	<b>INVITED TALK: BepiColombo first results of the Cruise phase and Fly-Byes</b>	Anna Milillo INAF-IAPS
16:30 – 16:45	Ca and CaO Mercury exosphere as product of micro-	Martina Moroni



# XVIII Congresso Nazionale di Scienze Planetarie

6-10 febbraio 2023  
Sala dei Notari, Perugia

	meteoroids and comet stream particles impact	
16:45 – 17:00	Remote sensing of Mercury Sodium emission and relationship with magnetospheric activity	Stefano Orsini
17:00 – 17:15	Permanent Shadowed regions of Mercury: new hypothesis about water ice origin	Silvia Bertoli
17:15 – 17:30	Spectral detection of Water ice, S-bearing and organic species in Mercury's PSR by SIMBIO-SYS-VIHI on the BepiColombo Mission	Gianrico Filacchione

**17:45 – 18:45      Assemblea Generale della Società Italiana di Scienze Planetarie**

**19:30 Cena Sociale Ristorante del Sole – Via della Rupe 1**



# XVIII Congresso Nazionale di Scienze Planetarie

6-10 febbraio 2023  
Sala dei Notari, Perugia

**8 Febbraio, Mercoledì**

## **9:00 – 10:30 Sessione 5: Piccoli Corpi – Results of the DART/LICIACube Mission 1**

*Chair: TBD*

09:00 – 09:30	<b>INVITED TALK: The Light Italian Cubesat for Imaging of Asteroids in support to the NASA mission DART</b>	Elisabetta Dotto and the LICIACube Team
09:30 – 09:45	Modelling the ejecta plume after the DART impact	Alessandro Rossi
09:45 – 10:00	Color analysis of Dimorphos plume produced by DART impact using Liciacube-Luke data	Giovanni Poggiali
10:00 – 10:15	Towards reconstructing the Dimorphos ejecta plume by means of non-spherical dust simulations and DART-Liciacube data	Stavro Ivanovski
10:15 – 10:30	The shape of Dimorphos as seen by Liciacube-Luke images	Angelo Zinzi

10:30 – 11:00 Coffee Break

## **11:00 – 12:00 Sessione 5: Piccoli Corpi – Results of the DART/LICIACube Mission 2**

*Chair: TBD*

11:00 – 11:15	Bouncing Boulders: A "secondary plume" from Didymos surface observed by Liciacube-Luke camera	Elena Mazzotta Epifani
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# XVIII Congresso Nazionale di Scienze Planetarie

6-10 febbraio 2023  
Sala dei Notari, Perugia

	after DART impact on Dimorphos's surface	
11:15 – 11:30	After DART: The Didymos system in the aftermath of the DART event	Simone Ieva
11:30– 11:45	A first assessment on the origin of Didymos and Dimorphos, NASA's DART mission targets	Fabio Ferrari
11:45– 12:00	The boulder size-frequency distribution derived from DART/DRACO images of Dimorphos: Preliminary results	Maurizio Pajola

**12:00 – 14:00 Pausa Pranzo**

**14:00 – 15:30 Sessione 6: Piccoli Corpi – Artificiali e Naturali 1**

*Chair: TBD*

14:00 – 14:30	<b>INVITED TALK: On the synergy between Planetary Science and Space engineering in the study and exploitation of natural routes</b>	Elisa Maria Alessi CNR - IMATI
14:30 – 14:45	The LICIAcube extended mission as an imminent impactor sentinel	Ettore Perozzi
14:45 – 15:00	The NEOROCKS "Rapid-Response Experiment"	Davide Perna
15:00 – 15:15	NEOROCKS: Investigating the physical nature of the small asteroid population	Vasiliki Petropoulou
15:15 – 15:30	Analysis of spectral variability of asteroid 3200 Phaethon in preparation to DESTINY+ space mission.	Marianna Angrisani



15:30 – 16:00 Coffee Break

**16:00 – 16:45 Sessione 6: Piccoli Corpi – Artificiali e Naturali 2**

*Chair: TBD*

16:00 – 16:15	Water reactivity on Schreibersite: from Phosphites to Posphates	Stefano Pantaleone
16:15 – 16:30	Spectroscopic and nanoscale mineralogical investigation of Ryugu returned samples	Marco Ferrari
16:30 – 16:45	ProDisCo: A Systematic Comparison Between Measured Molecular Abundances in Comets and Protoplanetary Disks	Manuela Lippi

**16:45 – 18:00 Sessione 7: Meteore e Meteoriti 1**

*Chair: TBD*

16:45 – 17:00	Atmospheric entry of white soft mineral micrometeoroids into Mars' atmosphere	Savino Longo
17:00 – 17:15	VIS-IR imaging spectroscopy of Martian Meteorites	Simone De Angelis
17:15 – 17:30	Multi-collector $^{40}\text{Ar}$ - $^{39}\text{Ar}$ dating in planetary geosciences: dating terrestrial impact structures	Gianfranco Di Vincenzo
17:30 – 17:45	Early differentiation of planetesimals: insights from melting experiments of an L6 ordinary chondrite	Matteo Masotta
17:45 – 18:00	Glass of possible impact origin from Pica (Chile)	Gabriele Giuli



# XVIII Congresso Nazionale di Scienze Planetarie

6-10 febbraio 2023  
Sala dei Notari, Perugia



# XVIII Congresso Nazionale di Scienze Planetarie

6-10 febbraio 2023  
Sala dei Notari, Perugia

**9 Febbraio, Giovedì**

## **9:00 – 9:45 Sessione 7: Meteore e meteoriti 2**

Chair: TBD

09:00 – 09:15	Cavezzo: fall, recovery and analysis of the first Italian meteorite found by PRISMA	Daniele Gardiol
09:15 – 09:30	Carbon phases in Ureilites with increasing the degree of shock: the example of five frontier mountain Ureilites.	Anna Barbaro
09:30 – 09:45	The chondritic impactor origin of the Ni-rich component in australasian tektites/microtektites	Luigi Folco
9:45 – 10:00	The Brachinites and Brachinite-like ungrouped achondrites connection: insights from Spinels mineral-chemistry	Tiberio Cuppone

## **10:00 – 10:30 Sessione 8: Dischi Protoplanetari e fasi primordiali**

Chair: TBD

10:00 – 10:15	Protoplanetary disks around solar-analogues: factories of pre-biotic molecules?	Claudio Codella
10:15 – 10:30	Kinematics perturbation in the protoplanetary disk of AS 209:signature of a giant protoplanets at 100 au	Davide Fedele

10:30 – 11:00      Coffee Break



**11:00 – 12:00 Sessione 9: Marte 1**

*Chair: TBD*

11:00 – 11:15	Buried faults, Sedimentary sequences and Playa environments	Gene Walter Schmidt
11:15 – 11:30	Methane on Mars: possible geomorphic indicators of Methane emission in three impact craters	Elettra Mariani
11:30– 11:45	Application of the Minimum Noise Fraction technique to Exomars/TGO-NOMAD LNO channel nadir data: SNR enhancement evaluation	Fabrizio Oliva
11:45– 12:00	Water cycle and aerosols at Mars with the NOMAD spectrometer onboard ExoMars TGO	Giuliano Liuzzi

**12:00 – 14:00 Pausa Pranzo**

**14:00 – 15:15 Sessione 9: Marte 2**

*Chair: TBD*

14:00 – 14:15	Structural mapping and stress analysis to unravel the polyphasic tectonic history of the Claritas Fossae, Mars	Evandro Balbi
14:15 – 14:30	Did MARSIS find liquid water beneath the Martian south polar layered deposits?	Roberto Orosei
14:30 – 14:45	High-resolution compositional map and subsurface	Nicole Costa



# XVIII Congresso Nazionale di Scienze Planetarie

6-10 febbraio 2023  
Sala dei Notari, Perugia

	investigation of a martian valley close to Olympia Planum	
14:45 – 15:00	debate of the large martian ripples	Hezy Yizhaq
15:00 – 15:15	Study of the dust lifting and electrification physics by means of martian analogues	Gabriele Franzese

15:15 – 15:45 Coffee Break

**15:45 – 17:00 Sessione 10: Il Sistema Giovinio**

*Chair: TBD*

15:45 – 16:00	A preliminary study of Ganymede's energetic ion environment to be investigated with JUICE	Christina Plainaki
16:00 – 16:15	Observability of Callisto's exosphere with MAJIS/JUICE	Emiliano D'Aversa
16:15 – 16:30	Combining remote sensing and laboratory analysis to search for organics on the surface of Europa	Silvia Pagnoscin
16:30 – 16:45	The Jupiter's hot spots as observed by Juno-JIRAM: limb-darkening in thermal infrared	Davide Grassi

**16:45 – 17:45 Sessione Europlanet a cura di Stavro Ivanovski e Federica Duras**

**18:00 – 20:30 Sessione Poster – Apericena e Premiazione Poster**



# XVIII Congresso Nazionale di Scienze Planetarie

6-10 febbraio 2023  
Sala dei Notari, Perugia



**10 Febbraio, Venerdì**

**9:00 – 10:30 Sessione 11: Planetologia Sperimentale 1**

*Chair: TBD*

09:00 – 09:15	Water desorption from lunar sample analogues to support the ESA PROSPECT instrument development	John Brucato
09:15 – 09:30	Dielectric spectroscopy analyses of lunar regolith simulants for the radar detection of water ice on the Moon	Chloe Helena Martella
09:30 – 09:45	Alteration of organic matter on Ceres: results from laboratory studies on the complex geo-chemical history of the innermost dwarf planet	Maria Cristina De Sanctis
09:45 – 10:00	Preliminary results on the infrared H <sub>2</sub> -H <sub>2</sub> and H <sub>2</sub> -He experimental collision induced absorption coefficients	Stefania Stefani
10:00 – 10:15	Hypervelocity impacts on Comet Interceptor dust impact sensor and counter for dust shield and detection system assessment	Stefano Ferretti
10:15 _ 10:30	The spectral and chemical changes of atmosphere-less surfaces induced by ion bombardment	Riccardo Urso

10:30 – 11:00      Coffee Break

**11:00 – 11:45 Sessione 11: Planetologia Sperimentale 2**



# XVIII Congresso Nazionale di Scienze Planetarie

6-10 febbraio 2023  
Sala dei Notari, Perugia

*Chair: TBD*

11:00 – 11:15	Low temperature reflectance spectra of NH <sub>4</sub> <sup>+</sup> minerals in the VNIR: effect of phase transitions for planetary investigation	Maximiliano Fastelli
11:15 – 11:30	UV irradiation experiments of organo-sulfate martian analog samples to support detection of organics on Mars by the NASA MARS2020 and ESA ExoMars rovers	Andrew Alberini
11:30– 11:45	Simulating icy-world surfaces in the laboratory: NIR spectra of natron, mirabilite and epsomite dissolved in water	Daniele Fulvio

**11:45 – 12:00 Risultati Elezioni Consiglio Direttivo SISP; Scelta Sede Prossima Edizione; Premiazione della migliore presentazione**

**12:00 Fine Congresso**



# XVIII Congresso Nazionale di Scienze Planetarie

6-10 febbraio 2023  
Sala dei Notari, Perugia

**Poster Session**  
**Giovedì 9 Febbraio ore 18:30 – 20:30**

1	The key role of silicon in astrochemistry	Matteo Michielan
2	Photo-processing and thermal desorption of acetaldehyde, acetonitrile, and water ice mixtures on olivine grains: TPD and mass spectra analyses	Maria Angela Corazzi
3	Thermal desorption of PA(N)Hs-water ice mixtures from dust grains	Valeria Lino
4	The use of the correlation matrix for Martian life detection	Andrea Meneghin
5	Combined crossed-beams and theoretical investigation of the O(3p,1d) + acrylonitrile reactions and implications for Extraterrestrial environments	Giacomo Pannacci
6	Computed binding energies distribution of relevant S-bearing species at interstellar icy grains	Vittorio Bariosco
7	Testing alternative theories of gravity with the Bepicolombo mission: the case of Brans-Dicke theory	Miriam Falletta
8	Discovery of the TOI-411 system: a super-Earth and two sub-Neptunes orbiting a bright, nearby, sun-like star	Laura Inno
9	SETI within 30 parsecs from Earth	Graziano Chiaro
10	Dart-vetter: a deep learning tool for automatic vetting of TESS candidates.	Stefano Fiscale
11	Petro-mineralogical and geochemical study of lunar meteorite NWA 13859	Riccardo Avanzinelli



# XVIII Congresso Nazionale di Scienze Planetarie

6-10 febbraio 2023  
Sala dei Notari, Perugia

12	Early differentiation of planetesimals: insights from melting experiments of an L6 ordinary chondrite	Matteo Masotta
13	The NWA12800: an extremely interesting CV3 carbonaceous chondrite	Andrea Vitrano
14	The LUMIO cubesat: detecting meteoroid impacts on the lunar farside	Fabio Ferrari
15	Meteorite-dropping bolides observation with the PRISMA fireball network	Dario Barghini
16	MIDIR spectral characterization of OI-bearing ungrouped achondrites	Cristian Carli
17	Microscopic impactor debris at Kamil crater, Egypt: the origin of the Fe-Ni oxide spherules	Luigi Folco
18	Mineralogical characterization of the fusion crust of the Cavezzo L5 chondrite	Marianglona Rondinelli
19	Mineralogical characterization and microchemical analysis of the Alfianello, Monte Milone, and Siena ordinary chondrites.	Valeria De Santis
20	First find of ringwoodite in the Alfianello L6 ordinary chondrite	Laura Carone
21	Preliminary characterization of two Rantila fall fragments.	Anna-Irene Landi
22	Alteration fronts in reckling peak 17085 CM carbonaceous chondrite: an investigation of the aqueous alteration process in the CMs parent asteroid.	Anna Musolino
23	Geochemical characterisation and Cr isotope composition of libyan desert glasses and ordinary chondrites: preliminary data	Martina Casalini
24	New impact crater catalogue of the moon based on the deep learning approach	Riccardo La Grassa
25	Martian surface photometry with TGO/Cassis: current results and future perspectives	Giovanni Munaretto
26	Dielectric properties of sodium chloride doped ice for the characterization of Europa's ice shell	Alessandro Brin



# XVIII Congresso Nazionale di Scienze Planetarie

6-10 febbraio 2023  
Sala dei Notari, Perugia

27	Unveiling the chemistry of nitriles in titan's atmosphere: the reaction of excited atomic nitrogen, N(2d), with cyanoacetylene (HC3N), acrylonitrile (C2H3CN) and acetonitrile (CH3CN)	Luca Mancini
28	Aeolian landforms in the exomars landing site, a regional perspective	Simone Silvestro
29	Ubiquity of landslides in the solar system	Maria Teresa Brunetti
30	Geological mapping and preliminary spectral analysis of mare Ingenii basin.	Gloria Tognon
31	Possible volcanic origin for "mounds" of the Hypanis fan system, Mars: magmatic vs sedimentary.	Agnese Caramanico
32	On the nature of the dark resistant unit (DRU) in the oxia planum area, Mars	Michelangelo Formisano
33	Terrestrial and martian paleo-hydrologic environments: systematic comparison by means of prisma and crism hyperspectral data	Angelo Zinzi
34	A grid of climate models for the Noachian Mars using EOS-ESTM	Paolo Simonetti
35	MESSENGER grand finale at Mercury: surface age and property characterization	Elena Martellato
36	Geological and structural mapping of the Michelangelo (H-12) quadrangle of Mercury: preliminary results	Salvatore Buoninfante
37	Geological studies with MATISSE: a Mercury surface study case	Veronica Camplone
38	Landing site characterization of Marius Hills pit (Moon): a feasibility evaluation for the ESA lunar caves CDF study.	Riccardo Pozzobon
39	The planetary mapping and GIS laboratory at INAF-IAPS.	Alessandro Frigeri
40	Geological mapping of sedimentary sequences of impact craters in Arabia Terra: a test site for standardized planetary maps.	Lucia Marinangeli



# XVIII Congresso Nazionale di Scienze Planetarie

6-10 febbraio 2023  
Sala dei Notari, Perugia

41	Clay-rich deposits in Oxia Planum and north Xanthe terra: an updated overview of the infrared data in context with ExoMars rover mission	Jeremy Brossier
42	Improvement of the MARSIS on-board SW, on the Mars Express mission. Preliminary scientific results on Phobos and Mars.	Andrea Cicchetti
43	Eolo megariipple archive: mapping the recent aeolian deposits to support the luminescence investigation on Mars	Lucia Marinangeli
44	The surface of mercury investigated by means of principal component analysis on MASCS/MESSENGER data.	Anna Galiano
45	Structural analysis of the Discovery quadrangle (H-11), Mercury.	Antonio Sepe
46	Segmentation analysis of selected lobate scarps on Mercury	Luigi Ferranti
47	LICIACube activities at ASI-SSDC: processing, calibration, archiving and analysis of images	Angelo Zinzi
48	Visible spectroscopic survey of near earth objects from the Asiago observatory in the framework of the NEOROCKS project	Monica Lazzarin
49	A database for the thermal analysis of the comet 67p	Edoardo Rognini
50	NEOROCKS: the EU H2020 programme for NEO rapid observation, characterization, and key simulations.	Elisabetta Dotto
51	Future perspectives of the NEO physical properties database by the NEOROCKS EU project	Ilaria Di Pietro
52	Search and study for meteorites analogues to Didymos in preparation to the Milani/HERA investigation.	Giuseppe Massa
53	Laboratory investigation of icy surface analogs of some solar system objects	Alessandra Migliorini
54	Visible and near-infrared spectroscopy of Mars analogues in support of the ESA's ExoMars rover mission.	Simone Filomeno



# XVIII Congresso Nazionale di Scienze Planetarie

6-10 febbraio 2023  
Sala dei Notari, Perugia

55	Reflectance spectra of mascagnite and salammoniac minerals by varying viewing geometry.	Maximiliano Fastelli
56	Using the DAVIS laboratory setup to simulate and test MA_MISS surveys on rock samples.	Lorenzo Rossi
57	Stereo validation activities for the new stereo hyperspectral pushbroom camera: HYPPOS	Cristina Re
58	Dust detector on-board Milani cubesat: VISTA FM calibration and instrument main goals in the framework of HERA mission.	Chiara Gisellu
59	The PVRG spectral database of lab-made volcanic products on the SSDC infrastucure: a new catalog of reference spectra to characterize volcanic terrains on planetary bodies.	Alessandro Pisello
60	DAEDALUS Cam: an immersive stereoscopic camera to explore lunar caves	Claudio Pernechele
61	Astroinformatic and digital planetology laboratory in INAF	Romolo Politi
62	Making Janus ready to launch: on ground calibration campaign	Livio Agostini
63	TRIS: transmission and illumination system.	Eliana La Francesca
64	Ma_Miss and scientific activities in support of the exploration of the martian surface and subsurface in the next decade	Cristina De Sanctis
65	SHRK the high-contrast imager and spectrograph for LBT	Dino Mesa
66	Contamination-free manipulation of extraterrestrial dust particles using acoustic tweezers	Stefano Ferretti
67	Comparison of infrared spectral features from planetary surfaces and laboratory rock samples	Matteo Bisolfati
68	Finding long-period solar system or interstellar objects with machine learning in LSST.	Antonio Vanzanella



# XVIII Congresso Nazionale di Scienze Planetarie

6-10 febbraio 2023  
Sala dei Notari, Perugia

69

The age of Saturn's Rings: Clues from Ring-Moon composition

Mauro Ciarniello