

PRINT ONLY: MERCURY AND VENUS

Barata M. T. Alves E. I. Vaz D.

[*Automatic Extraction of Wrinkle Ridges in Venus Magellan Imagery*](#) [#1025]

The parameters of wrinkle ridges (length, size, orientation) are determinate in a simple way if the wrinkle ridges are easily detected. This work presents the preliminary results of automatic detection of wrinkle ridges from SAR imagery at different scales.

Holin I. V.

[*Mercury's Core from Radar to Orbiter*](#) [#1016]

Messenger and BepiColombo will determine the state and size of Mercury's core to high precision. Earth-based radar can improve the final accuracies. In an intermediate state of the core additional information is desirable.

Kozlova E. A.

[*The Thermal Regime of "Low-Latitudinal" Cold Traps on Mercury*](#) [#1956]

Using the two-layer model we calculate the diurnal variance of subsurface temperatures on the depth at the different thickness of regolith layer. The calculations demonstrate that the water ice deposits can exist in such conditions during geological time.

Wieczorek M. A. * Le Feuvre M. Rambaux N. Laskar J. Correia A. C. M.

[*Evidence for a Pre-Caloris Synchronous Rotation of Mercury*](#) [#1276]

The distribution of ancient impact basins on Mercury is decidedly non-uniform. Both the magnitude and direction of this asymmetry are consistent with this planet having been in a state of synchronous rotation when the ancient basins formed.

PRINT ONLY: MOON

Abdrakhimov A. M.

[*Re-Examine Lunokhod Sites: Old and New Geochemical Data*](#) [#2547]

The geochemical comparing of soviet lunar rovers data and Clementine data were executed.

Evans R. Wöhler C. Lena R.

[*Analysis of Absorption Trough Features Using Clementine UVVIS+NIR Imagery*](#) [#1093]

This study explores the mapping of spectral parameters of lunar features, describing the absorption trough near 1000 nm, using the calibrated Clementine UVVIS+NIR data set covering the wavelength range between 415 and 2000 nm.

Peters S. Foing B. H. Koschny D. Grieger B. Lossett J.-L. Beauvivre S. Grande M. Huovelin J. Keller H. U. Mall U. Nathues A. Malkki A. Noci G. Sodnik Z. Kellett B. Pinet P. Chevrel S. Cerroni P. de Sanctis M. C. Barucci M. A. Erard S. Despan D. Muinonen K. Shevchenko V. Shkuratov Y. Ellouzi M. Peters S. Borst A. Bexkens F. Almeida M. Frew D. Volp J. Heather D. McMannamon P. Camino O. Racca G.

[*SMART-1: Review of Lunar Highlights*](#) [#2298]

The SMART-1 spacecraft operated from 400-3000 km for 1.5 year until impact. We shall report at LPSC2009 on SMART-1 lunar highlights relevant for science and exploration, in relation with subsequent missions Kaguya, Chang'E1 and Chandrayaan-1.

Ivatury V. McClanahan T. P.

[*Image Restoration of Lunar Neutron Albedo Maps for the Lunar Exploration Neutron Detector \(LEND\)*](#) [#1134]

Determine the optimal image restoration technique for restoring the hydrogen lunar albedo maps for the Lunar Exploration Neutron Detector (LEND) on the Lunar Reconnaissance Orbiter (LRO).

Khisina N. Nazarov M. Senin V. Mohov A.

[*Cr-Ca Symplectite Lamellae in an Olivine Grain from the Luna-24 Regolith*](#) [#1053]

Lamellae of Cr-Ca symplectites consisted of spinel + diopside + orthopyroxene + larnie in the olivine grain from Luna-24 regolith were investigated using of EMPA and ASEM. The origin of the Ca-Cr symplectite lamellae is discussed.

Lena R. Wöhler C.

[*Effusive Lunar Domes Near Kepler and Piccolomini: Morphometry and Mode of Emplacement*](#) [#1092]

In this study we provide a comparative morphometric and rheologic analysis of two lunar effusive domes, located in Oceanus Procellarum to the west of the crater Kepler, and inside Rupes Altai near the crater Piccolomini, respectively.

McCallum I. S. Mullen E. K.

[*Mare Basalt Petrogenesis Revisited: Rb/Sr, Sm/Nd and Lu/Hf Fractionation Factors, Mantle Source Regions and Crustal Contamination*](#) [#2380]

Fractionation factors (Rb/Sr, Sm/Nd, Lu/Hf) of mare basalts at the time of formation constrain the mineralogy and melt fraction of mantle sources. For all but high-K basalts, mantle residues are harzburgitic. High-K basalts are KREEP contaminated.

Pugacheva S. G. Shevchenko V. V. Chikmachev V. I.

[*The Dependence of the Chemistry on the Depth for the South Pole-Aitken Lunar Basin*](#) [#1109]

The distribution of the major chemical elements (Fe and Th) depending upon the structure height levels of the South Pole-Aitken Lunar Basin, has been obtained.

Shevchenko V. El-Baz F. Gaddis L. Hiesinger H. Shkuratov Yu. Whitaker E. Wilson L. Blue J.
[*The IAU/WGPSN Lunar Task Group and the Status of Lunar Nomenclature*](#) [#2016]

This abstract summarizes the rules for naming features on planets as well as the status of nomenclature for the Moon.

Wöhler C. Lena R.

[*The Lunar Concentric Crater Archytas G Associated with an Intrusive Dome*](#) [#1091]

In this study we show that the lunar concentric crater Archytas G is associated with the intrusive dome Ar1. We estimate the morphometric parameters of Archytas G and Ar1 and discuss possible modes of formation for the concentric crater.

PRINT ONLY: MARS

Bibring J-P. Poulet F. Morbidelli A.

[*The Martian P/T Transition: Sounding Mars Early Evolution and Habitability*](#) [#2093]

Mars evolution can be traced by its surface mineralogy, as inferred from orbital (OMEGA/MEX and CRISM/MRO) data. The Noachian includes a diversity of eras with distinct environments, the Phyllosian/Theikian transition ending the habitability era.

Haltigin T. W. Pollard W. H. Osinski G. R. Dutilleul P.

[*Polygon Morphology Within Scalloped Depressions, Utopia Planitia, Mars*](#) [#2566]

This paper examines possible periglacial landforms in ice-rich sediments within Utopia Planitia, Mars, using an examination of HiRISE imagery to demonstrate that polygonal terrain morphology varies with the stage of scalloped depression development.

Heet T. Arvidson R. E. Mellon M. T. Phoenix Science Team

[*Regional Geology and Rock Distributions of the Mars Phoenix Landing Site*](#) [#1114]

A geologic map of the Phoenix Mars landing site is presented. Crater counts are used to date mapped units and rock distributions provide insight into the origin and alteration of surface materials.

Maxe L. P.

[*Martian Dust as an End-Member of Semi-Cosmic Weathering*](#) [#2020]

The martian dust is a compound close to terrestrial amorphous spinel's minerals such as Hercynite, spinel ferrites. The semi-cosmic weathering affects the mineral surface by both ways: reduction (in the top layer) and oxidation (in the deeper layer).

Molina A. de Pablo M. A. Ramos M.

[*Study of the Surface Temperature at Nili Fossae, Mars. Preliminary Results.*](#) [#1031]

Here we present our preliminary analysis of surface temperature from BTR THEMIS IR data focused on the study of a possible permafrost and active layer in Nili Fossae, Mars.

Nußbaumer J. W.

[*Liquid Water Formed Scroll Bars in River Meanders for Decades in Elysium Planitia, Mars*](#) [#1437]

HiRISE images show evidence for meandering channels with scroll bars in parts of southern Elysium, Mars. The river formed meanders during a wetter climate in the past and during long term wet conditions.

Petrowsky M. J. Jones R. Coleman N. M.

[*Structural Deformation and Surface Properties of a Martian Crater — Insights from THEMIS Infrared Images*](#) [#1213]

We use THEMIS infrared images to analyze the history and surface properties of a large crater on Mars. We take advantage of a special condition – that the crater floor was offset by faulting, revealing a cross-section of underlying strata.

Sprenke K. F.

[*Magnetic Anomalies Within the Elliptical Borealis Basin of Mars*](#) [#1140]

Significant magnetic anomalies exist within the proposed elliptical Borealis Basin of Mars. These anomalies raise questions about the actual shape of the mega-impact basin as well as timing of the core field relative to the purported single impact.

Thomas C. Picaud S. Mousis O. Ballenegger V.

[*A Theoretical Investigation of the Influence of Clathrate Hydrates on the Atmosphere of Mars*](#) [#1264]

Traces of methane have recently been evidenced in the martian atmosphere. Clathrate hydrates may be at the origin of the detected CH₄, if a primitive methane-rich atmosphere has existed or if a subsurface source of CH₄ has been (or is still) present.

Tichý M.

[*A Creeping Soil Field on Mars*](#) [#1190]

A creeping soil field exists on Mars. A mass of martian soil moves along rock outcrops, which get abraded, and as a result, strands of abraded material can be observed. Previously the phenomenon was explained as the result of wind streaks.

Valenciano A. de Pablo M. A. Pacifici A.

[*The Role of Water on the Evolution of the Nepenthes Mensae Region of Mars*](#) [#1052]

Here we show the preliminary results of a detailed search of water- and ice-related landforms in the Nepenthes Mensae region of Mars, what will be used in the future for a wide study of the evolution of water in this martian region.

Welty C. B. Crown D. A. Balme M. R.

[*Morphologic Properties of Martian Gully Systems*](#) [#2339]

From high-resolution Mars imagery, analyses of gully morphometric parameters, locations, and settings suggest a source volume dependency over gully length and that gully formation mechanisms are likely consistent across the martian surface.

Xiao L. Smith M. Huang J. He Q. Petford N. Williams D. A. Liu J. G. Greeley R.

[*Volcanic Features on the Syria-Thaumasia Block, Mars: Implications for Ancient Martian Volcanology*](#) [#1026]

This study provides new observations of various volcanic features in the Syria-Thaumasia block. Four types of volcanic features are recognized in the area.

de Pablo M. A. Pacifici A.

[*Chain of Depressions and the Watersheet Evolution in Nepenthes Mensae, Mars*](#) [#1095]

Our analysis of the MOLA-derived topographic map of the Nepenthes Mensae area, Mars, revealed the existence of different depressions near the highlands-lowlands boundary. We interpret the depressions such as a possible chain of lakes.

PRINT ONLY: ASTROBIOLOGY

Horner J. Mousis O. Petit J.-M. Jones B. W.

[*Differences Between the Impact Regimes of the Terrestrial Planets*](#) [#1179]

We present detailed results on the similarities and differences between the impact regimes experienced by Venus, the Earth and Mars, taking into account populations of asteroidal and cometary impactors.

Ivarsson M. Lindgren P. Neubeck A. Broman C. Holm N. G. Henkel H.

[*Filamentous Structures in a Hydrothermal System of the Dellen Impact Structure, Sweden — Putative Microfossils?*](#) [#1260]

This is a report on the occurrence of putative microfossils in a hydrothermal system of the Dellen impact structure, Sweden.

Méndez A.

[*Standard Planetary Habitability \(SPH\) of Global Land Areas*](#) [#2333]

This work presents the Standard Planetary Habitability (SPH), a quantity that measures and compares the potential for life of global land areas for primary producers. The SPH provides a simpler and complimentary method to NDVI, faPAR, and NPP to assess the biosphere.

Thomas-Keprta K. L. Clemett S. J. McKay D. S. Gibson E. K. Wentworth S. J.

[*Thermal Decomposition of an Impure \(Roxbury\) Siderite: Relevance to the Presence of Chemically Pure Magnetite Crystals in ALH84001 Carbonate Disks*](#) [#2116]

Thermal decomposition of Roxbury siderite resulted in the formation of impure (Mg,Mn)-ferrites. These findings, which are supported by kinetic and thermodynamic equilibrium modeling studies, are in stark contrast to the chemically pure ALH 84001 magnetite.

PRINT ONLY: METEORITES

Alexandrov A. B. Bagulya A. V. Vladimirov M. S. Goncharova L. A. Ivliev A. I.
Kalinina G. V. Kashkarov L. L. Konovalova N. S. Okat'eva N. M. Polukhina N. G.
Roussetski A. S. Starkov N. I. Tsarev V. A.

[Super Heavy \(\$Z>50\$ \) Galactic Cosmic Ray Nuclei Abundance on the Base of the Track Parameters Measuring in the Pallasite Olivine Crystals](#) [#1407]

New results of the super-heavy cosmic ray nuclei abundance due to the track in the pallasite olivine in the frame of OLIMPIA project are presented. It was detected near 850 tracks with $Z>50$ and four corresponding Th-U group.

Alexeev V. A.

[Ordovician Fossil Meteorites in Sweden: Numerous Meteorite Falls or Single Meteorite Shower?](#) [#1003]

There is no necessity to set up a hypothesis of intensive flux of meteorites to Earth during ~1–2 Ma about 480 Ma ago.

Caporali S. Pratesi G. Moggi-Cecchi V. Franchi I. A. Greenwood R. C.

[NWA 4419: A New R Chondrite from Northwest Africa](#) [#2488]

NWA 4419 is an R chondrite recently found in Northwest Africa. Textural, compositional and isotopic data are presented, supporting the classification as R4 chondrite.

Dredge I. Parnell J. Lindgren P. Taylor C. Bowden S.

[Elevated Flux of Mid-Ordovician Micrometeorites](#) [#1273]

An elevated flux of micrometeorites is recorded from a mid-Ordovician limestone section in NW Scotland. This coincides with an elevated flux of meteorites detected previously in Sweden.

Golubeva L. F. McFadden L. A. Shestopalov D. I. Hasanova L. O.

[Comparative Analysis of the Color Characteristics of Vesta's Areas and HED Meteorites](#) [#1064]

From comparing the colors of the units in the northern hemisphere of Vesta and HED meteorites we inferred that Vesta units differ from HEDs in sizes of grains scattering light and in mineral compositions.

Korochantsev A. V. Lorenz C. A. Ivanova M. A. Zaytsev A. V. Kononkova N. N. Roshina I. A.

Korochantseva E. V. Sadilenko D. A.

[Sediment-Dispersed Extraterrestrial Chromite in Ordovician Limestone from Russia](#) [#1101]

The high content of extraterrestrial chromite grains was discovered in Russian Ordovician sediments, those are coeval to Swedish limestones, bearing the fossil meteorites and extraterrestrial chromites.

Kurat G. Zinner E. Varela M. E. Ntaflos T.

[SiGrMet05: A Silicate-Graphite-Metal Inclusion from the Campo del Cielo \(IAB\) Iron](#) [#1536]

Lithologies either rich in silicates, or chromite, or graphite, form sub-units of the inclusion, which is cut by metal-graphite veins. Complex break-down reactions of exotic precursors are indicated.

Lavrentjeva Z. A.

[The Formation of Pallasites](#) [#1042]

Pallasites may have been formed not from core-mantle boundaries as widely inferred, but from impact-generated mixtures of core and mantle materials.

Lorenz C. A. Teplyakova S. N. Korochantsev A. V. Kononkova N. N. Roshina I. A. Sadilenko D. A.

[The Structure and Composition of Large Metal Nodule from the Ghubara L5 Chondrite](#) [#1103]

The large metal nodule was found in the Ghubara L5 chondrite. The metal demonstrates widmannstätten texture that is unique in chondritic metal. The nodule could be formed by the partial or complete impact melting of chondritic precursor.

Lyul A. Yu. Kolesov G. M.

[*Distribution of Some Elements Among Chondrules of Unequilibrated Chondrites: 1. Fe, Cr, Na, and Sc*](#) [#1552]

The histograms of the distribution of Fe, Cr, Na and Sc contents among chondrules of unequilibrated chondrites are presented. Effect of metamorphic processes on chemical composition of chondrules is discussed.

Marakushev A. A. Zinovieva N. G.

[*Liquid Immiscibility in the Parent Bodies of Ordinary Chondrites and Genetic Types of Iron Meteorites*](#) [#1057]

Our data on ordinary chondrites prove their genetic relations with some iron meteorites, which led us to suggest that iron and pallasite cores may occur even in planets of the most primitive (chondritic) evolutionary level.

Miyamoto M. Koizumi E. Mikouchi T.

[*Cooling Rates of Y 980459 and DaG 476 Shergottites on the Basis of Fe-Mg Zoning of Olivine*](#) [#1143]

We have developed a model to calculate the cooling rate by using the Fe-Mg zoning of olivine and applied it to martian meteorites. The results are 0.20°C/h and 0.089°C/h for Y 980459 and DaG 476 shergottites, respectively.

Moggi-Cecchi V. Pratesi G. Franchi I. A. Greenwood R. C.

[*Textural and Compositional Features of NWA 4222, a New Martian Meteorite*](#) [#2387]

Textural and compositional features of the recently discovered martian meteorite NWA 4222 are presented, focusing on differences and affinities with other desert martian meteorites.

Nazarov M. A. Ntaflos Th. Brandstaetter F. Kurat G.

[*FeO/MnO Ratios of Lunar Meteorite Minerals*](#) [#1059]

FeO/MnO ratios of lunar meteorite minerals were determined based on numerous EMP analyses. The ratio of Ca-rich pyroxene was found to be dependent on Ca content and MG#. FeO/MnO ratio of olivines and orthopyroxenes is least variable.

Papike J. J. Karner J. M. Shearer C. K. Burger P. V.

[*Pyroxene Mineralogy of Martian Meteorites: Major and Minor Element Systematics*](#) [#1180]

Chemistry of pyroxene from 19 martian meteorites.

Pizzarello S. Williams L. B.

[*Soluble Organic Species Released from the Insoluble Carbonaceous Material of a Pristine CR2 Meteorite*](#) [#1369]

The hydrothermolytic treatment of a CR2 macromolecular carbonaceous material released several aliphatic and aromatic hydrocarbons.

Pratesi G. Moggi-Cecchi V. Franchi I. A. Greenwood R. C.

[*NWA 4418: A New Mesosiderite from Northwest Africa*](#) [#2430]

NWA 4418 is a new mesosiderite recently found in Northwest Africa. Textural, compositional and isotopic data are presented, and a subclassification as 3B is proposed.

Slyuta E. N. Nikitin S. M. Korochantsev A. V. Lorents C. A. Skripnik A. Ya.

[*Strong Physical and Mechanical Anisotropy of Ordinary Chondrites*](#) [#1051]

The revealed three-dimensional distribution of compressive strength in ordinary chondrites can be approximated by prolate ellipsoid.

Wasson J. T. Choe W.-H.

[*The IIG Iron Meteorites: Probable Formation in the IIAB Core*](#) [#2271]

Because, on most element-Au diagrams, the IIG irons plot along approximate extensions of IIAB trends, we argue that these P-rich irons formed in the evolved IIAB core. Offsets on some element-Au diagrams suggest formation in pockets of P-rich magma.

PRINT ONLY: IMPACTS

Ivliev A. I. Lukanin O. A. Kuyunko N. S.

[*The Impact Glasses Characteristics Studying by the Thermoluminescence Method*](#) [#1058]

In the given work new results of TL measurements in impact origins glasses are presented: in tektites from various strewn fields, in Libyan Desert glasses, and also impact glasses genetically connected with impact craters Zhamanshine and Elgygytgyn.

Lindgren P. Broman C. Holm N. G. Parnell J. Bowden S. A. Osinski G. R. Lee P.

[*The Raman Signature of Shocked Carbonates from the Haughton Impact Structure, Devon Island, Canada*](#) [#1258]

This is a study of the Raman signature of calcite and dolomite in shocked carbonate clasts within the Haughton impact melt rocks. The impact shock effects are observed with Raman analyses in dolomite, while the calcite structure remains intact.

Llorca J. Trigo-Rodriguez J. M. Docobo J. A. Neira H.

[*Evidence for an Atmospheric Airburst of a Huge Bolide over Spain in 939AD as Recorded in Medieval Chronicles*](#) [#1359]

Medieval chronicles of Spain describe the impact of a huge bolide on June 1, 939 AD. The resulting airburst may be correlated with temperature variations preserved in ice cores and tree rings present in the period 930–940 AD.

Misra S. Newsom H. Panda D. Sisodia M. S. Dube A.

[*Additional Studies of Materials from the Ramgarh Structure, India*](#) [#1693]

Continuing work on materials from the Ramgarh structure, India, include analysis of magnetic particles found near the structure.

Parnell J. Taylor C. W. Thackrey S. Osinski G. R. Lee P.

[*Permeability Data for Impact Breccias*](#) [#1157]

Permeability data is reported for impact breccias from the Haughton and other craters. Values are consistently low.

Povenmire H.

[*The First Tektites Found in Wilcox and Turner Counties, Georgia*](#) [#1208]

Field research describing the expansion of the Georgia tektite strewn field.

Svetsov V. V.

[*Impact Erosion of Water Ocean on the Early Earth with a Thin Atmosphere*](#) [#1147]

The work purpose was to calculate the masses of lost and retained water after the impacts of comets and asteroids on oceans of various depths. The bombardment of an atmosphereless planet by fast asteroids can wipe out the most part of an ocean.

Vishnevsky S. A. Gibsher N. A. Palchik N. A.

[*H₂O + Melt Jets in the Popigai Lechatelierites: Products of Shock-induced Fluid + Melt Selective Separation Derived from the Target Gneiss*](#) [#1108]

Lechatelierites from the Popigai suevite were intruded by jets of hot and mobile material from outside. The material was a result of early impact anatexis of target gneiss. Selective separation of Si, Na, K and H₂O vs. low mobile Al took place at this.

PRINT ONLY: OUTER SOLAR SYSTEM

Mousis O. Lunine J. I. Pasek M. Cordier D. Waite J. H. Jr. Mandt K. E. Lewis W. S. Nguyen M.-J.
[*Is Serpentinization the Source of Titan's Atmospheric Methane?*](#) [#1182]

We calculate the initial D/H ratio that must be acquired by Titan's H₂O ice to be consistent with hydrothermal reactions that may produce CH₄ in the satellite's interior. If methane derives from such reactions, then the initial D/H ratio in H₂O is lower than the SMOW value.

Starodubtseva O. M. Akimov L. A.

[*Semiannual Variations in the North-South Asymmetry of Polarized Light of Jupiter*](#) [#1018]

Results of long-term polarimetric observations of Jupiter made in Kharkiv Astronomical Observatory over a 25-year period are presented. They reveal the semiannual variations in the north-south asymmetry of polarized light of Jupiter.

Ward Wm. R.

[*Particle Filtering by a Planetary Gap*](#) [#1477]

The ability of density gradients at the walls of a planetary gap to exclude particles via drag induced migration is examined. We suggest that particle diffusion and build-up at the gap edge could eventually defeat the drag barrier, enabling grain accretion by the planet.

PRINT ONLY: ASTEROIDS AND COMETS

Hasegawa S. Miyasaka S. Tokimasa N. Sogame A. Ibrahimov M. A. Yoshida F. Abe M. Kuroda D.
[*BRz' Phase Function of Asteroid 4 Vesta During the 2006 Opposition*](#) [#1503]

We show BRz' phase function of asteroid 4 Vesta during the 2006 opposition. The phase function of 4 Vesta with parameters with HB = 3.93 mag and GB = 0.24, HR = 2.77 and GR = 0.21, and Hz' = 2.95 and Gz' = 0.20 were obtained.

Marboeuf U. Petit J.-M. Mousis O.

[*Thermodynamic Evolution of Planetesimals in the Primordial Edgeworth-Kuiper Belt Induced by Collisions*](#) [#1568]

We examine the implications of collisional effects on the physical and chemical differentiation of the planetesimals located in the primitive Edgeworth-Kuiper Belt. Results show changes in the initial composition only in the subsurface layers.

Rietmeijer F. J. M.

[*Corrected Chemical Signatures in Stardust Glass Reveal Wild 2 Particles that Resemble Matrix Grains of Aggregate IDPs*](#) [#1189]

Corrected for an elemental background and aerogel silica, Wild 2 chemical signatures preserved in Si-rich glass show the original petrologic grain properties.

Shevchenko V. G. Krugly Yu. N. Belskaya I. N. Chiorny V. G. Gaftonyuk N. M. Slyusarev I. G. Tereschenko I. A. Donchev Z. Ivanova V. Borisov G. Ibrahimov M. A. Marshalkina A. L. Molotov I. E.
[*Do Trojan Asteroids Have the Brightness Opposition Effect?*](#) [#1391]

Photometric observations of the Trojan asteroids 588 Achilles are presented. The rotation period and the detailed magnitude phase dependence were obtained. We have not revealed any noticeable opposition brightening down to 0.1° of phase angle.

Slyuta E. N.

[*Gravitational Deformation of Small Solar System Bodies*](#) [#1050]

Strength properties of small solar system bodies dependent on their composition vary within an extremely broad range – from 0.002 up to 350 MPa. There are five basic groups of objects dependent on their rheologic properties.

Tikhomirova E. N.

[*To the Problem of Meteor Streams and Comets Relationship*](#) [#1087]

The meteor streams and parent comets are suggested to identify by using the integrals of motion in frame of the averaged perturbed two-body problem. The parent comets of beta-Cancrids and lambda-Cygnids are 3D and 73P correspondingly.

Trigo-Rodríguez J. M. Madiedo J. M. Williams I. P. Castro-Tirado A. J. Llorca J. Vitek S. Jelínek M.
[*A Meteorite Dropping Superbolide from the Catastrophically Disrupted Comet C1919Q2 Metcalf: A Pathway for Meteorites from Jupiter Family Comets*](#) [#1286]

A meter-sized meteoroid probably produced during the disintegration of comet C1919Q2 Metcalf was observed producing a -18 magn. bolide (*MNRAS*, in press). The progenitor meteoroid was sufficiently large and of high enough tensile strength to produce meteorites.

PRINT ONLY: PRESOLAR GRAINS AND EARLY SOLAR NEBULA

Makalkin A. B. Dorofeeva V. A.

[Formation of Satellites in the Accretion Disks of Jupiter and Saturn: Comparative Modeling](#) [#2309]

We present the results of comparative modeling of formation of regular satellites of Jupiter and Saturn in the accretion circumplanetary disks.

Pravdivtseva O. Meshik A. Hohenberg C. M. Kurat G.

[I-Xe System in Campo del Cielo Silicates](#) [#1578]

High precision I-Xe ages were determined for two distinct silicates separated from a polished section of Campo del Cielo.

Shiryaev A. A. Fisenko A. V. Krivobok V. S. Vlasov I. I. Semjonova L. F.

[Nitrogen in Meteoritic Nanodiamonds: Lattice Impurity in Diamond Core or a Constituent of an Associated Carbonaceous Phases?](#) [#1317]

Results of investigation of structure and of spectroscopically-active defects in nanodiamonds from Efremovka CV3 chondrite are presented. The data are discussed in comparison with known models of synthetic nanodiamonds.

Simon J. I. Young E. D.

[Resetting, Errorchrons and the Meaning of Canonical CAI Initial \$^{26}\text{Al}/^{27}\text{Al}\$ Values](#) [#1945]

Here we use simple mass balance calculations to quantify the importance of open system isotopic exchange during CAI evolution and show that *in situ* supra-canonical and canonical and bulk canonical measurements can all exist for an individual CAI.

Throop H. Bally J.

[UV Photolysis and Creation of Complex Organic Molecules in the Solar Nebula](#) [#2139]

Nearby O/B stars in the Sun's birth environment can irradiate ices in the solar nebula and synthesize complex organic molecules. This process may explain the early solar system's complex organics, such as those found in chondritic meteorites.

Ustinova G. K.

[On Origin of Xe-HL in Meteoritic Nanodiamonds](#) [#1007]

The Xe-HL component is shown to be formed and captured simultaneously with the nanodiamond synthesis in the conditions of shock wave propagation from supernova explosions, and its isotopic composition is an effect of acceleration in the shock waves.

PRINT ONLY: MISSIONS AND INSTRUMENTS

Anderson J. A. Robinson M. S.

[Challenges Utilizing Pushframe Camera Images](#) [#1905]

Processing and analyzing images from pushframe cameras poses a difficult challenge when compared to typical frame or pushbroom instruments.

Edgett K. S. Ravine M. A. Caplinger M. A. Ghaemi F. T. Schaffner J. A. Malin M. C.
Baker J. M. DiBiase D. R. Laramée J. Maki J. N. Willson R. G. Bell J. F. III Cameron J. F.
Dietrich W. E. Edwards L. J. Hallet B. Herkenhoff K. E. Heydari E. Kah L. C. Lemmon M. T.
Minitti M. E. Olson T. S. Parker T. J. Rowland S. K. Schieber J. Sullivan R. J. Sumner D. Y.
Thomas P. C. Yingst R. A.

[The Mars Science Laboratory \(MSL\) Mars Hand Lens Imager \(MAHLI\) Flight Instrument](#) [#1197]

The MSL Mars Hand Lens Imager (MAHLI) flight instrument has been completed and delivered to JPL for installation on the rover. MAHLI is a focusable color camera that can image geologic materials at resolutions as high as 14 microns per pixel.

Malin M. C. Caplinger M. A. Edgett K. S. Ghaemi F. T. Ravine M. A. Schaffner J. A. Maki J. N.
Willson R. G. Bell J. F. III Cameron J. F. Dietrich W. E. Edwards L. J. Hallet B. Herkenhoff K. E.
Heydari E. Kah L. C. Lemmon M. T. Minitti M. E. Olson T. S. Parker T. J. Rowland S. K. Schieber J.
Sullivan R. J. Sumner D. Y. Thomas P. C. Yingst R. A.

[The Mars Science Laboratory \(MSL\) Mars Descent Imager \(MARDI\) Flight Instrument](#) [#1199]

The MSL Mars Descent Imager (MARDI) flight instrument has been completed and installed on the rover. MARDI will provide hundreds of color images during the descent of MSL to the martian surface in 2012.

Mitrofanov I. G. Litvak M. L. Kozyrev A. S. Sanin A. B. Tretyakov V. I.

[Nuclear Instruments and Methods for Space Planetology: Recent Results and New Developments](#) [#1207]

New developments are presented of methods of nuclear physics for studies of celestial bodies. Using the heritage of instruments HEND for Mars Odyssey, LEND for LRO and DAN for MSL, the concepts of new instruments are discussed for future missions.

Zabalueva E. V. Shingareva T. V. Basilevsky A. T. Fedotov V. P. Ruzskiy E. G.

[Russian "FOBOS-GRUNT" Mission. Examples of Surface Roughness Models for Phobos](#) [#1243]

To support Russian Fobos-Grunt mission the digital model of Phobos surface was synthesized by combining the global model (P. Thomas) of the body with the geometry/abundances of typical landforms of Phobos and the Moon.

PRINT ONLY: EDUCATION AND PUBLIC OUTREACH AND DATA VISUALIZATION

Bérczi Sz. Boldoghy B. Cech V. Fabriczy A. Hargitai H. Hegyi S. Horváth A. Hudoba Gy. Kummert J. Nehéz I. Schiller I. Takács B. Varga T. Weidinger T.
[*Systems Woven by Two Flux-Subsystems: One of Them is Planetary. Concise Atlas of the Solar System \(12\): Space Science and Technology*](#) [#1256]

Overview from terrestrial environmental fluxes to confined fluxes in technologies at the space station help studying interrelations of various complex systems by a matrix: woven from environmental fluxes and production technologies.

Horvai F. Kereszturi A.
[*Geology of Mars: New University Course in Hungary*](#) [#1673]

The structure and characteristics of a new university course in Hungary on the geology of Mars is summarized.

Huffman J. N. Forsberg A. S. Head J. W. Dickson J. L. Fassett C. I.
[*Testing Geoscience Data Visualization Systems for Geological Mapping and Training*](#) [#2086]

We compare and describe our use of display technologies for use with planetary datasets, including a fully immersive virtual reality system, a large tiled-wall display, a stereo-capable "Practical Powerwall", and the standard computer desktop.

Lang A. Szalay K. Erdélyi S. Nickl I. Panyi T. Kiss D. Bérczi Sz.
[*Chemistry Experiment Measuring \(pH\) of the "Planetary" Soil by the Husar-5 NTX-based Rover Model of the Széchenyi István High School, Sopron, Hungary*](#) [#1325]

We report by a detailed description of the experiment built by students on Husar-5 rover model: how the chemical characteristics of the "planetary" soil can be measured by the indicator ribbon method, if we artificially made wet the soil.

Magyar I. Badics A. Bakonyi I. Csiszár Á. Franko M. Gyürki Á. Héricsz M. Marschall B. Nagyházi Á. Varga T. N. Végh Gy. Varga T. P. Bérczi Sz.
[*Identification of Rocks on Planetary Surface Using Husar-9 Rover Camera: Field Work Simulations with Hunveyor-9 Space Probe Model System at Eötvös High School, Tata, Hungary*](#) [#1120]

We studied the rock types along the Husar-9 rover's path and identified them on the basis of their shape, color and surface textures: komatiite, basalt, granite, conglomerate, schist rock, porphyritic granite, suevite breccia, and vesicular basalt.

Simon T. Kereszturi A.
[*Online Astrobiology Course in Hungary*](#) [#1048]

We present the basic characteristics of the first online astrobiology course, specialized in planetary science in Hungary.

Sipos A. Vizi P. G.
[*Simulated Mars Rover Model Competition*](#) [#2519]

This is a competition of applied engineering sciences. The actual goal of the competition can be achieved by building a device, a rover. The track is an 8 × 8 square meter sized field of sand or special material. Competitors have to build a rover model.