



天文学文献摘要简报

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星系与宇宙学

Big data for the universe

ABSTRACT: Astronomers at Lomonosov Moscow State University in cooperation with their French colleagues and with the help of citizen scientists have released 'The Reference Catalog of galaxy SEDs,' which contains value-added information about 800,000 galaxies. The catalog is accessible on the web and its description has been published in the Astrophysical Journal Supplement.

PUBLISHED: "RCSED—A Value-added Reference Catalog of Spectral Energy Distributions of 800,299 Galaxies in 11 Ultraviolet, Optical, and Near-infrared Bands: Morphologies, Colors, Ionized Gas, and Stellar Population Properties", The Astrophysical Journal Supplement Series, 228:14 (25pp), 2017 February

DOI:10.3847/1538-4365/228/2/14

PUBLIC RELEASE: 9-Feb-2017

New evidence in favor of dark matter: The bars in galaxies are spinning more slowly than we thought

ABSTRACT: An article recently published in the Astrophysical Journal by a team of IAC researchers show that bars in galaxies are rotating much more slowly than had been inferred by previous works.

PUBLISHED: "Kinematic clues to bar evolution for galaxies in the local universe: why the fastest rotating bars are rotating most slowly", by J.Font et al.The Astrophysical Journal, Volume 835:279 (21pp), Number 2. 2017 February 1

DOI:10.3847/1538-4357/835/2/279

PUBLIC RELEASE: 8-Feb-2017

A bridge of stars connects 2 dwarf galaxies

ABSTRACT: The Magellanic Clouds, the two largest satellite galaxies of the Milky Way, appear to be connected by a bridge stretching across 43,000 light years, according to an international team of astronomers led by researchers from the University of Cambridge. The discovery is reported in the journal Monthly Notices of the Royal Astronomical Society and is based on the galactic stellar census being conducted by the European



Space Observatory, Gaia.

PUBLISHED: "Clouds, Streams and Bridges: redrawing the blueprint of the Magellanic System with *Gaia* DR1", the Monthly Notices of the Royal Astronomical Society (2016) 466 (4): 4711-4730.

DOI: 10.1093/mnras/stw3357

PUBLIC RELEASE: 7-Feb-2017

Tail of stray black hole hiding in the Milky Way

ABSTRACT: By analyzing the gas motion of an extraordinarily fast-moving cosmic cloud in a corner of the Milky Way, Astronomers found hints of a wandering black hole hidden in the cloud. This result marks the beginning of the search for quiet black holes; millions of such objects are expected to be floating in the Milky Way although only dozens have been found to date.

FUNDER: Grant-in-Aid from the Japan Society for the Promotion of Science

PUBLISHED: "KINEMATICS OF ULTRA-HIGH-VELOCITY GAS IN THE EXPANDING MOLECULAR SHELL ADJACENT TO THE W44 SUPERNOVA REMNANT", The Astrophysical Journal Letters, 834:L3 (6pp), 2017 January

DOI: 10.3847/2041-8213/834/1/L3

PUBLIC RELEASE: 2-Feb-2017

Celestial cat meets cosmic lobster

ABSTRACT: Astronomers have for a long time studied the glowing, cosmic clouds of gas and dust catalogued as NGC 6334 and NGC 6357, this gigantic new image from ESO's Very Large Telescope Survey Telescope being only the most recent one. With around two billion pixels this is one of the largest images ever released by ESO. The evocative shapes of the clouds have led to their memorable names: the Cat's Paw Nebula and the Lobster Nebula, respectively.

PUBLISHED: eso1705

PUBLIC RELEASE: 1-Feb-2017



Tracing the cosmic web with star-forming galaxies in the distant universe

ABSTRACT: A research group led by Hiroshima University has revealed a picture of the increasing fraction of massive star-forming galaxies in the distant universe. Massive star-forming galaxies in the distant universe, about 5 billion years ago, trace large-scale structure in the universe. In the nearby universe, about 3 billion years ago, massive star-forming galaxies are not apparent. This change is consistent with the picture of galaxy evolution established by other independent studies.

FUNDER: JSPS Grant-in-Aid for Young Scientists (B), MEXT Grant-in-Aid for Scientific Research on Innovative Areas

PUBLISHED: "A WEAK LENSING VIEW OF THE DOWNSIZING OF STAR-FORMING GALAXIES*", The Astrophysical Journal, Volume 833, Number 2156 (14pp), 2016 December 20

DOI: 10.3847/1538-4357/833/2/156

PUBLIC RELEASE: 31-Jan-2017

Study reveals substantial evidence of holographic universe

ABSTRACT: A UK, Canadian and Italian study has provided what researchers believe is the first observational evidence that our universe could be a vast and complex hologram.

Journal Physical Review Letters

PUBLISHED: "From Planck data to Planck era: Observational tests of Holographic Cosmology", Phys. Rev. Lett. 118, 041301 (2017)

DOI: 10.1103/PhysRevLett.118.041301

PUBLIC RELEASE: 30-Jan-2017

Can the donut-shaped magnet 'CAPPuccino submarine' hunt for dark matter?

ABSTRACT: IBS scientists clarify that toroidal magnets can also look for axions, one of the particle candidates for the mysterious dark matter.

FUNDER: Institute for Basic Science (IBS)



PUBLISHED: "Electric and magnetic energy at axionhaloscopes" = Physical Review D Vol. 94, Iss. 11 — 1
December 2016

DOI: 10.1103/PhysRevD.94.111702

PUBLIC RELEASE: 23-Jan-2017

Discovered one of the brightest distant galaxies so far known

ABSTRACT: researchers from the Instituto de Astrofísica de Canarias (IAC) and the University of La Laguna (ULL) has discovered one of the brightest 'non-active' galaxies in the early universe.

PUBLISHED: 'Discovery of a Very Bright and Intrinsically Very Luminous, Strongly Lensed Ly α Emitting Galaxy at $z = 2.82$ in the BOSS Emission-Line Lens Survey*', The Astrophysical Journal Letters, Volume 834, Number 2 L18

DOI: 10.3847/2041-8213/834/2/L18

PUBLIC RELEASE: 20-Jan-2017

Galaxy murder mystery

ABSTRACT: Across the universe, galaxies are being killed and the question scientists want answered is, what's killing them? New research published today by a global team of researchers, based at the International Centre for Radio Astronomy Research, seeks to answer that question. The study reveals that a phenomenon called ram-pressure stripping is more prevalent than previously thought, driving gas from galaxies and sending them to an early death by depriving them of the material to make new stars.

PUBLISHED: "Cold gas stripping in satellite galaxies: from pairs to clusters", the Monthly Notices of the Royal Astronomical Society, January 17th, 2017.

DOI: 10.1093/mnras/stw2991

FUNDER: International Centre for Radio Astronomy Research

PUBLIC RELEASE: 16-Jan-2017



Researchers get first look at new, extremely rare galaxy

ABSTRACT: Approximately 359 million light-years from Earth, there is a galaxy with an innocuous name (PGC 1000714) that doesn't look quite like anything astronomers have observed before. New research provides a first description of a well-defined elliptical-like core surrounded by two circular rings -- a galaxy that appears to belong to a class of rarely observed, Hoag-type galaxies. This work was done by scientists at the University of Minnesota Duluth and the NC Museum of Natural Sciences.

PUBLISHED: "A photometric study of the peculiar and potentially double ringed, non-barred galaxy: PGC 1000714", Monthly Notices of the Royal Astronomical Society,(2016) 466 (1): 355-368.

DOI: 10.1093/mnras/stw3107

FUNDER:University of Minnesota Duluth, Theodore Dunham Jr Fund for Astrophysical Research

PUBLIC RELEASE: 4-Jan-2017

Hidden secrets of Orion's clouds

ABSTRACT:This spectacular new image is one of the largest near-infrared high-resolution mosaics of the Orion A molecular cloud, the nearest known massive star factory, lying about 1350 light-years from Earth. It was taken using the VISTA infrared survey telescope at ESO's Paranal Observatory in northern Chile and reveals many young stars and other objects normally buried deep inside the dusty clouds.

PUBLISHED:" VISION – Vienna survey in Orion",Astronomy&Astrophysics 587, 31 ,A153 (2016)

DOI: 10.1051/0004-6361/201527160

PUBLIC RELEASE:4-Jan-2017

Struggle to escape distant galaxies creates giant halos of scattered photons

ABSTRACT: Astronomers led by David Sobral and Jorryt Matthee, of the Universities of Lancaster in the UK and Leiden in the Netherlands have discovered giant halos around early Milky Way type galaxies, made of photons (elementary particles of light) that have struggled to escape them. The team reports its findings in the journal Monthly Notices of the Royal Astronomical Society.

PUBLISHED:



- 1、 "The CALYMHA survey: Ly α escape fraction and its dependence on galaxy properties at $z = 2.23$ ", Monthly Notices of the Royal Astronomical Society, 458 (1): 449-467, 2016.
- 2、 " The CALYMHA survey: Ly α luminosity function and global escape fraction of Ly α photons at $z = 2.23$ ", Monthly Notices of the Royal Astronomical Society, 466 (1): 1242-1258.

DOI:

- 1、 10.1093/mnras/stw322
- 2、 10.1093/mnras/stw3090

PUBLIC RELEASE: 11-Jan-2017

Our galaxy's black hole is spewing out planet-size 'spitballs'

ABSTRACT: Every few thousand years, an unlucky star wanders too close to the black hole at the center of the Milky Way. The black hole's powerful gravity rips the star apart, sending a long streamer of gas whipping outward. That would seem to be the end of the story, but it's not. New research shows that not only can the gas gather itself into planet-size objects, but those objects then are flung throughout the galaxy in a game of cosmic 'spitball.'

MEETING: 229th Meeting of the American Astronomical Society

PUBLIC RELEASE: 11-Jan-2017

Deepest X-ray image ever reveals black hole treasure trove'

ABSTRACT: An unparalleled image from NASA's Chandra X-ray Observatory is giving an international team of astronomers the best look yet at the growth of black holes over billions of years beginning soon after the Big Bang. This is the deepest X-ray image ever obtained, collected with about 7 million seconds, or 11 and a half weeks, of Chandra observing time.

MEETING: 229th Meeting of the American Astronomical Society

FUNDER : Smithsonian Astrophysical Observatory, NASA

PUBLIC RELEASE: 5-Jan-2017



恒星与银河系

Rapid gas flares discovered in white dwarf star for the first time

ABSTRACT:Incredibly rapid gas flares from a white dwarf binary star system have been detected for the first time by Oxford University scientists. The first sighting of such activity, it suggests that our current understanding of star habits and their capabilities is incomplete.

PUBLISHED:"Rapid Radio Flaring during an Anomalous Outburst of SS Cyg", Monthly Notices of the Royal Astronomical Society: Letters, vol. 467, issue 1, pp. L31-L35

DOI: 10.1093/mnrasl/slw243

PUBLIC RELEASE:26-Jan-2017

How fast is the universe expanding? Quasars provide an answer

ABSTRACT:The H0LiCOW collaboration, a cosmology project led by EPFL and Max Planck Institute and regrouping several research organizations in the world has made a new measurement of the Hubble constant, which indicates how fast the universe is expanding. The new measurement challenges some of the most recent ones, potentially pointing towards new physics beyond the standard cosmological model.

FUNDER:ESA,NASA

PUBLISHED:

1. "H0LiCOW I. H0 Lenses in COSMOGRAIL's Wellspring: Program Overview", by Suyu et al. eprint arXiv:1607.00017
2. "H0LiCOW II. Spectroscopic survey and galaxy-group identification of the strong gravitational lens system HE 0435?1223", by Sluse et al. arXiv:1607.00382
3. "H0LiCOW III. Quantifying the effect of mass along the line of sight to the gravitational lens HE 0435?1223 through weighted galaxy counts", by Rusu et al. arXiv:1607.01047
4. "H0LiCOW IV. Lens mass model of HE 0435?1223 and blind measurement of its time-delay distance for cosmology", by Wong et al. Monthly Notices of the Royal Astronomical Society, Volume 465, Issue 4, p.4895-4913 arXiv:1607.01403
5. "H0LiCOW V. New COSMOGRAIL time delays of HE 0435-1223: H0 to 3.8% precision from strong lensing in a flat Λ CDM model", by Bonvin et al. Monthly Notices of the Royal Astronomical Society, Volume 465, Issue 4, p.4914-4930 arXiv:1607.01790



DOI:4:10.1093/mnras/stw3077; 5: 10.1093/mnras/stw3006

PUBLIC RELEASE:26-Jan-2017

Presumed young star turns out to be a galactic senior citizen

ABSTRACT:49 Lib, a relatively bright star in the southern sky, is twelve billion years old rather than just 2.3 billion. For many decades, researchers were stumped by conflicting data pertaining to this celestial body, because they had estimated it as much younger than it really is. Determining its age anew, astronomers at Ruhr-Universität Bochum have now successfully resolved all inconsistencies. Dr. Klaus Fuhrmann and Professor Dr. Rolf Chini published their results in the *Astrophysical Journal*.

FUNDER:The German Research Foundation financed the study under the umbrella of the FU 198/11-1 grant.

PUBLISHED:" Bright times for an ancient star", *Astrophysical Journal*, 2017, Volume 834, Number 2

DOI:10.3847/1538-4357/834/2/114

PUBLIC RELEASE:16-Jan-2017

Precise location, distance provide breakthrough in study of fast radio bursts

ABSTRACT: Lone repeater among the mysterious Fast Radio Bursts is precisely located, enabling a world-wide team to find its host galaxy and determine its distance, marking a major advance in understanding these objects.

PUBLISHED: Nature

MEETING: 229th Meeting of the American Astronomical Society

FUNDER: National Science Foundation

PUBLIC RELEASE:11-Jan-2017



Research supports role of supernovas in measuring pace at which the universe expands

ABSTRACT: A team of research scientists led by David Cinabro, professor of physics and astronomy in the College of Liberal Arts and Sciences at Wayne State University, recently published a paper marking the importance of Type Ia supernovas in measuring the pace at which the universe expands. Type Ia supernovas are among the very brightest cosmic explosions visible, signaling the death of stars, and their importance to cosmology cannot be understated.

PUBLISHED: "Search for Type Ia supernova NUV–optical subclasses", Monthly Notices of the Royal Astronomical Society, November(2017) 466 (1): 884-891.

DOI: 10.1093/mnras/stw3109

FUNDER: Kavli Institute for Cosmological Physics at the University of Chicago, Kavli Foundation, Fred Kavli, Space Telescope Science Institute, NASA

PUBLIC RELEASE: 8-Jan-2017

Hubble detects 'exocomets' taking the plunge into a young star

ABSTRACT: Interstellar forecast for a nearby star: Raining comets! NASA's Hubble Space Telescope has discovered comets plunging onto the star HD 172555, which is a youthful 23 million years old and resides 95 light-years from Earth.

MEETING: 229th Meeting of the American Astronomical Society

FUNDER: NASA, European Space Agency, Space Telescope Science Institute

PUBLIC RELEASE: 6-Jan-2017

Farthest stars in Milky Way might be ripped from another galaxy

ABSTRACT: The 11 farthest known stars in our galaxy are located about 300,000 light-years from Earth, well outside the Milky Way's spiral disk. New research by Harvard astronomers shows that half of those stars might have been ripped from another galaxy: the Sagittarius dwarf. Moreover, they are members of a lengthy stream of stars extending one million light-years across space, or 10 times the width of our galaxy.

PUBLISHED: Astrophysical Journal



PUBLIC RELEASE:11-Jan-2017

Research reinforces role of supernovae in clocking the universe

ABSTRACT:New research by cosmologists at the University of Chicago and Wayne State University confirms the accuracy of Type Ia supernovae in measuring the pace at which the universe expands. The findings support a widely held theory that the expansion of the universe is accelerating and such acceleration is attributable to dark energy. The findings counter recent headlines that Type Ia supernova cannot be relied upon to measure the expansion of the universe.

PUBLISHED:" Search for Type Ia supernova NUV–optical subclasses", Monthly Notices of the Royal Astronomical Society, November 466 (1): 884-891.

DOI: 10.1093/mnras/stw3109

FUNDER:Kavli Institute for Cosmological Physics at the University of Chicago, Kavli Foundation, Fred Kavli, Space Telescope Science Institute, NASA

PUBLIC RELEASE:4-Jan-2017

太阳物理

ALMA starts observing the sun

ABSTRACT: New images taken with the Atacama Large Millimeter/submillimeter Array (ALMA) in Chile have revealed otherwise invisible details of our sun, including a new view of the dark, contorted center of a sunspot that is nearly twice the diameter of the Earth. The images are the first ever made of the sun with a facility where ESO is a partner. The results are an important expansion of the range of observations that can be used to probe the physics of our nearest star.

PUBLISHED:ESO1703

PUBLIC RELEASE:17-Jan-2017



Next-generation optics offer the widest real-time views of vast regions of the sun

ABSTRACT:A groundbreaking new optical device, developed at NJIT's Big Bear Solar Observatory (BBSO) to correct images of the Sun distorted by multiple layers of atmospheric turbulence, is providing scientists with the most precisely detailed, real-time pictures to date of solar activity occurring across vast stretches of the star's surface.

FUNDER:National Science Foundation

PUBLISHED:" Clear widens the field for observations of the Sun with multi-conjugate adaptive optics

★",Astronomy and Astrophysics, Volume 597, January 2017

DOI: 10.1051/0004-6361/201629970

PUBLIC RELEASE: 10-Jan-2017

太阳系和系外行星系统

Bursts of methane may have warmed early Mars

ABSTRACT:The presence of water on ancient Mars is a paradox. There's plenty of geographical evidence that rivers periodically flowed across the planet's surface yet Mars should have been too cold to support liquid water at that time. Now, Harvard researchers suggest that early Mars may have been warmed intermittently by a powerful greenhouse effect. Researchers found interactions between methane, CO₂ and hydrogen in the early Martian atmosphere may have created warm periods when the planet could support liquid water on the surface.

PUBLISHED:"Transient reducing greenhouse warming on early Mars" , Geophysical Research Letters, 2017

DOI:10.1002/2016GL071766

PUBLIC RELEASE:24-Jan-2017



Micro spacecraft investigates cometary water mystery

ABSTRACT:In September 2015, a team of astronomers successfully observed the entire hydrogen coma of the comet 67P/Churyumov-Gerasimenko, using the LAICA telescope onboard the PROCYON spacecraft. They also succeeded in obtaining the absolute rate of water discharge from the comet. Through our observations, we were able to test the coma models for the comet for the first time. This result is the first scientific achievement by a micro spacecraft for deep space exploration.

FUNDER:NASA, Japan Society for the Promotion of Science

PUBLISHED:"Imaging Observations of the Hydrogen Coma of Comet 67P/Churyumov--Gerasimenko in 2015 September by the PROCYON/LAICA" *The Astronomical Journal*, Volume 153, Issue 2, Article number 76 (6pp), 2017 Jan. 24

DOI:10.3847/1538-3881/153/2/76

PUBLIC RELEASE:24-Jan-2017

SF State astronomer searches for signs of life on Wolf 1061 exoplanet

ABSTRACT:San Francisco State astronomer Stephen Kane and a team of researchers locate the habitable zone, the region where water could exist on the surface of a planet, on the Wolf 1061, a planetary system that's 14 light years away.

Journal Astrophysical Journal.

MEETING:American Astronomical Society

PUBLISHED:"Characterization of the Wolf 1061 Planetary System." *Astrophysical Journal*, 2017, Volume 835, Number 2

DOI:10.3847/1538-4357/835/2/200 ,

PUBLIC RELEASE:19-Jan-2017

How a moon slows the decay of Pluto's atmosphere

ABSTRACT: A new study from the Georgia Institute of Technology provides additional insight into relationship between Pluto and its moon, Charon, and how it affects the continuous stripping of Pluto's



atmosphere by solar wind. When Charon is positioned between the sun and Pluto, the research indicates that the moon can significantly reduce atmospheric loss.

PUBLISHED: Icarus

FUNDER:NASA

PUBLIC RELEASE:9-Jan-2017

天文技术方法和仪器

Magnetic mirror could shed new light on gravitational waves and the early universe

ABSTRACT: Researchers have created a new magnetic mirror-based device that could one day help cosmologists discover new details about ripples in space-time known as gravitational waves, particularly those emitted when the universe was extremely young. Paper: G. Pisano, B. Maffei, P.A.R. Ade, P. de Bernardis, P. de Maagt, B. Ellison, M. Henry, M.W. Ng, B. Schott, C. Tucker, "Multi-Octave Metamaterial Reflective Half-Wave Plate for Millimetre and Sub-Millimetre wave Applications,"

PUBLISHED:Applied Optics, 55, 10255-10262 (2016).

DOI: 10.1364/AO.55.010255

FUNDER:European Space Agency

PUBLIC RELEASE:13-Dec-2016

Optical clock technology tested in space for first time

ABSTRACT:In The Optical Society's journal for high impact research, Optica, researchers report on a new compact, robust and automated frequency comb laser system that was key to the operation of the space-borne optical clock. Frequency combs are the 'gears' necessary to run clocks ticking at optical frequencies.

PUBLISHED:Optica, 3, 12, 1380 (2016).

DOI: 10.1364/optica.3.001380.

PUBLIC RELEASE:17-Nov-2016



文章推荐

Nature

UNH researcher discovers a black hole feeding frenzy that breaks records

ABSTRACT: A giant black hole ripped apart a nearby star and then continued to feed off its remains for close to a decade, according to research led by the University of New Hampshire. This black hole meal is more than 10 times longer than any other previous episode of a star's death.

PUBLISHED: "A likely decade-long sustained tidal disruption event", Nature Astronomy 1, Article number: 0033 (2017)

DOI:10.1038/s41550-016-0033

PUBLIC RELEASE: 6-Feb-2017

Both push and pull drive our galaxy's race through space

ABSTRACT: What is propelling the Milky Way's race through space? By 3-D mapping the flow of galaxies through space, researchers found that the Milky Way galaxy is speeding away from a large, previously unidentified region of low density. The study will appear in the forthcoming issue of Nature Astronomy.

FUNDER: Israel Science Foundation, InstitutUniversitaire de France, National Science Foundation

PUBLISHED: "The dipole repeller", Nature Astronomy 1, Article number: 0036 (2017)

DOI:10.1038/s41550-016-0036

PUBLIC RELEASE:30-Jan-2017



Cosmic source found for mysterious 'fast radio burst'

ABSTRACT: Cornell University researchers and a global team of astronomers have uncovered the cosmological source of a sporadically repeating milliseconds-long 'fast radio burst.' Once thinking these bursts had emanated from within the Milky Way galaxy, or from cosmic neighbors, the astronomers now confirm that they are long-distance flashes from across the universe -- more than 3 billion light-years away, according to a new report published Jan. 4 in the journal Nature.

PUBLISHED: "A direct localization of a fast radio burst and its host", Nature 541, 58–61 (05 January 2017)

DOI: 10.1038/nature20797

PUBLIC RELEASE: 4-Jan-2017

Mysterious white dwarf pulsar discovered

ABSTRACT: An exotic binary star system 380 light-years away has been identified as an elusive white dwarf pulsar -- the first of its kind ever to be discovered in the universe -- thanks to research by the University of Warwick.

FUNDER: National Research Foundation of South Africa, Science and Technology Facilities Council, European Research Council

PUBLISHED: "Polarimetric evidence of a white dwarf pulsar in the binary system AR Scorpii". Nature Astronomy 1, Article number: 0029 (2017)

DOI: 10.1038/s41550-016-0029

PUBLIC RELEASE: 7-Feb-2017

Cosmic dust that formed our planets traced to giant stars

ABSTRACT: Scientists have identified the origin of key stardust grains present in the dust cloud from which the planets in our solar system formed, a study suggests.

PUBLISHED: "Origin of meteoritic stardust unveiled by a revised proton-capture rate of 170", Nature Astronomy 1, Article number: 0027 (2017)

DOI: 10.1038/s41550-016-0027

PUBLIC RELEASE: 30-Jan-2017



Rare meteorites challenge our understanding of the solar system

ABSTRACT: Researchers have discovered minerals from 43 meteorites that landed on Earth 470 million years ago. More than half of the mineral grains are from meteorites completely unknown or very rare in today's meteorite flow. These findings mean that we will probably need to revise our current understanding of the history and development of the solar system.

PUBLISHED: "Rare meteorites common in the Ordovician period", Nature Astronomy 1, Article number: 0035 (2017)

DOI: 10.1038/s41550-016-0035

PUBLIC RELEASE: 23-Jan-2017

York U research identifies icy ridges on Pluto

ABSTRACT: Using a model similar to what meteorologists use to forecast weather on Earth and a computer simulation of the physics of evaporating ices, a new study by York University's Professor John Moores, Department of Earth and Space Science and Engineering at York's Lassonde School of Engineering, has found evidence that snow and ice features previously only seen on Earth, have been spotted on Pluto.

PUBLISHED: "Penitentes as the origin of the bladed terrain of Tartarus Dorsa on Pluto", Nature, 541, 188-190 (12 January 2017)

DOI: 10.1038/nature20779

PUBLIC RELEASE: 4-Jan-2017

说明

根据天文学十三五规划，天文领域分类如下：

- ✚ 1. 恒星与银河系：包含星系介质与恒星形成、恒星结构与演化、致密天体、银河系
- ✚ 2. 星系宇宙学；暗物质、暗能量、黑洞



- ✦ 3.天文技术方法和仪器：包含光学红外天文技术、射电天文技术、空间天文技术
- ✦ 4.太阳系和系外行星系统；
- ✦ 5.太阳物理；
- ✦ 6.基本天文：包含天体测量、天体力学、时间频率、相对论基本天文学、基本天文学应用（深空探测与导航、天文地球动力学）

天文学文献摘要简报