

2020年 1月 第2週 新着論文サーベイ

1月6日(月曜日)

[1] [arxiv:2001.00789](#)

Title: "Polarimetric properties of asteroid 3200 Phaethon"

Author: L. F. Golubeva, D. I. Shestopalov, O. I. Kvaratskhelia

Comments: 26 pages, 7 figures, 2 tables

Subjects: Earth and Planetary Astrophysics (astro-ph.EP)

[観測/Phaethon]

3200 Phaethon のこれまでの偏光観測では、十分な位相角の間隔を置かなかったために全ての偏光フェーズを推定できなかった。これまでの観測に基づいて、BVRI bandpasses から Phaethon の完全な偏光曲線を再現した。

[2] [arxiv:2001.00673](#)

Title: "There's No Place Like Home (in Our Own Solar System): Searching for ET Near White Dwarfs"

Author: John Gertz

Comments: 22 pages, 0 figures, accepted for publication in the Journal of the British Interplanetary Society (JBIS), comments welcome

Subjects: Popular Physics (physics.pop-ph); Earth and Planetary Astrophysics (astro-ph.EP)

[理論/SETI]

G型星周りの惑星に知的生命が存在すれば、いずれ中心星のWDへの進化により存続の危機に直面する。高度に発達した文明があれば、恒星進化に伴う居住環境の問題を解決している可能性があるため、赤色巨星や白色矮星などのpost-MSがSETI探査の有力な候補になる。

1月7日(火曜日)

[1] [arxiv:2001.01484](#)

Title: " $^{14}\text{N}/^{15}\text{N}$ isotopic ratio in CH_3CN of Titan's atmosphere measured with ALMA"

Author: Takahiro Iino, Hideo Sagawa, Takashi Tsukagoshi

Comments: To be published in ApJ

Subjects: Earth and Planetary Astrophysics (astro-ph.EP)

[理論/観測/実験 etc....]

Comment!!!!

[2] [arXiv:2001.01438](#)

Title: "Earth-Like: An education & outreach tool for exploring the diversity of planets like our own"

Author: Elizabeth J. Tasker, Kana Ishimaru, Nicholas Guttenberg, Julien Foriel

Comments: Accepted for publication in the International Journal of Astrobiology (IJA)

Subjects: Earth and Planetary Astrophysics (astro-ph.EP); Physics Education (physics.ed-ph)

[理論/観測/実験 etc....]

Comment!!!!

[3] [arXiv:2001.01390](#)

Title: "On the Secondary's Rotation in Synchronous Binary Asteroid"

Author: Haishuo Wang, Xiyun Hou

Comments: 19 figures. It has now been accepted for publication in Monthly Notices of the Royal Astronomical Society Main Journal but not been published

Subjects: Earth and Planetary Astrophysics (astro-ph.EP)

[理論/観測/実験 etc....]

Comment!!!!

[4] [arXiv:2001.01361](#)

Title: "Sensitive Probing of Exoplanetary Oxygen via Mid Infrared Collisional Absorption"

Author: Thomas J. Fauchez, Geronimo L. Villanueva, Edward W. Schwieterman, Martin Turbet, Giada Arney, Daria Pidhorodetska, Ravi K. Kopparapu, Avi Mandell, Shawn D. Domagal-Goldman

Comments: Published in Nature Astronomy

Subjects: Earth and Planetary Astrophysics (astro-ph.EP)

[理論/観測/実験 etc....]

Comment!!!!

[5] [arXiv:2001.01338](#)

Title: "Detectability of Molecular Signatures on TRAPPIST-1e through Transmission Spectroscopy Simulated for Future Space-Based Observatories"

Author: Daria Pidhorodetska, Thomas Fauchez, Geronimo Villanueva, Shawn Domagal-Goldman

Subjects: Earth and Planetary Astrophysics (astro-ph.EP)

[理論/観測/実験 etc....]

Comment!!!!

[6] [arxive:2001.01299](#)

Title: "The evolutionary track of H/He envelope in the observed population of sub-Neptunes and Super-Earths planets"

Author: Raissa Estrela, Mark Swain, Akash Gupta, Christophe Sotin, Adriana Valio

Comments: 8 pages, 8 figures; submitted to ApJ

Subjects: Earth and Planetary Astrophysics (astro-ph.EP)

[理論/観測/実験 etc....]

Comment!!!!

[7] [arxive:2001.01205](#)

Title: "Migration of giant gaseous clumps and structure of the outer Solar system"

Author: V. V. Emel'yanenko

Subjects: Earth and Planetary Astrophysics (astro-ph.EP)

[理論/観測/実験 etc....]

Comment!!!!

[8] [arxive:2001.01106](#)

Title: "Long-term evolution of the Galilean satellites: the capture of Callisto into resonance"

Author: G. Lari, M. Saillenfest, M. Fenucci

Comments: 17 pages, 10 figures. Submitted to Astronomy & Astrophysics

Subjects: Earth and Planetary Astrophysics (astro-ph.EP)

[理論/観測/実験 etc....]

Comment!!!!

[9] [arxive:2001.00955](#)

Title: "The First Habitable Zone Earth-sized Planet from TESS. III: Climate States and Characterization Prospects for TOI-700 d"

Author: Gabrielle Suissa, Eric T. Wolf, Ravi kumar Kopparapu, Geronimo L. Villanueva, Thomas Fauchez, Avi M. Mandell, Giada Arney, Emily A. Gilbert, Joshua E. Schlieder, Thomas Barclay, Elisa V. Quintana, Eric Lopez, Joseph E. Rodriguez, Andrew Vanderburg

Comments: Submitted to AJ, 21 pages, 11 figures

Subjects: Earth and Planetary Astrophysics (astro-ph.EP)

[理論/観測/実験 etc....]

Comment!!!!

[10] [arXiv:2001.00954](#)

Title: "The First Habitable Zone Earth-Sized Planet From TESS II: *Spitzer* Confirms TOI-700 d"

Author: Joseph E. Rodriguez, Andrew Vanderburg, Sebastian Zieba, Laura Kreidberg, Caroline V. Morley, Stephen R. Kane, Alton Spencer, Samuel N. Quinn, Jason D. Eastman, Ryan Cloutier, Chelsea X. Huang, Karen A. Collins, Andrew W. Mann, Emily Gilbert, Joshua E. Schlieder, Elisa V. Quintana, Thomas Barclay, Gabrielle Suissa, Ravi kumar Kopparapu, Courtney D. Dressing, George R. Ricker, Roland K. Vanderspek, David W. Latham, Sara Seager, Joshua N. Winn, Jon M. Jenkins, Zachory Berta-Thompson, Patricia T. Boyd, David Charbonneau, Douglas A. Caldwell, Eugene Chiang, Jessie L. Christiansen, David R. Ciardi, Knicole D. Colón, John Doty, Tianjun Gan, Natalia Guerrero, Maximilian N. Günther, Eve J. Lee, Alan M. Levine, Eric Lopez, Philip S. Muirhead, Elisabeth Newton, Mark E. Rose, Joseph D. Twicken

Comments: 13 Pages, 3 Figures, 2 Tables, Submitted to the AAS Journals (12/22/2019), Some revisions from minor referee report

Subjects: Earth and Planetary Astrophysics (astro-ph.EP); Instrumentation and Methods for Astrophysics (astro-ph.IM); Solar and Stellar Astrophysics (astro-ph.SR)

[理論/観測/実験 etc....]

Comment!!!!

[11] [arXiv:2001.00952](#)

Title: "The First Habitable Zone Earth-sized Planet from TESS. I: Validation of the TOI-700 System"

Author: Emily A. Gilbert, Thomas Barclay, Joshua E. Schlieder, Elisa V. Quintana, Benjamin J. Hord, Veselin B. Kostov, Eric D. Lopez, Jason F. Rowe, Kelsey Hoffman, Lucianne M. Walkowicz, Michele L. Silverstein, Joseph E. Rodriguez, Andrew Vanderburg, Gabrielle Suissa, Vladimir S. Airapetian, Matthew S. Clement, Sean N. Raymond, Andrew W. Mann, Ethan Kruse, Jack J. Lissauer, Knicole D. Colón, Ravi kumar Kopparapu, Laura Kreidberg, Sebastian Zieba, Karen A. Collins, Samuel N. Quinn, Steve B. Howell, Carl Ziegler, Eliot Halley Vrijmoet, Fred C. Adams, Giada N. Arney, Patricia T. Boyd, Jonathan Brande, Christopher J. Burke, Luca Cacciapuoti, Quadry Chance, Jessie L. Christiansen, Giovanni Covone, Tansu Daylan, Danielle Dineen, Courtney D. Dressing, Zahra Essack,

Thomas J. Fauchez, Brianna Galgano

Comments: 29 pages, 15 figures, 4 tables, submitted to AAS Journals

Subjects: Earth and Planetary Astrophysics (astro-ph.EP); Solar and Stellar Astrophysics (astro-ph.SR)

[理論/観測/実験 etc....]

Comment!!!!

[12] [arXiv:2001.00951](#)

Title: "Realistic On-the-fly Outcomes of Planetary Collisions II: Bringing Machine Learning to N-body Simulations"

Author: Alexandre Emsenhuber, Saverio Cambioni, Erik Asphaug, Travis S. J. Gabriel, Stephen R. Schwartz, Roberto Furfaro

Comments: 20 pages, 10 figures, 3 tables; accepted for publication in ApJ; Table 1 is available in full in an ancillary file; the code developed in this work is available at this [https URL](#)

Subjects: Earth and Planetary Astrophysics (astro-ph.EP); Instrumentation and Methods for Astrophysics (astro-ph.IM)

[理論/観測/実験 etc....]

Comment!!!!

[13] [arXiv:2001.00949](#)

Title: "Post-main-sequence debris from rotation-induced YORP break-up of small bodies II: multiple fissions, internal strengths and binary production"

Author: Dimitri Veras, Daniel J. Scheeres

Comments: Accepted for publication in MNRAS

Subjects: Earth and Planetary Astrophysics (astro-ph.EP); Solar and Stellar Astrophysics (astro-ph.SR)

[理論/観測/実験 etc....]

Comment!!!!

[14] [arXiv:2001.01632](#)

Title: "Chemistry under EUV Irradiation of H₂-CO-N₂ Gas Mixtures: Implications for Photochemistry in the Outer CSE of Evolved Stars"

Author: Jérémy Bourgalais, David V. Bekaert, Aurore Bacmann, Bernard Marty, Nathalie Carrasco

Subjects: Solar and Stellar Astrophysics (astro-ph.SR); Earth and Planetary Astrophysics (astro-ph.EP); Astrophysics of Galaxies (astro-ph.GA)

[理論/観測/実験 etc....]

Comment!!!!

[15] [arXiv:2001.01590](#)

Title: "On The Photodesorption of CO₂ Ice Analogues: The Formation of Atomic C in The Ice and the Effect of The VUV Emission Spectrume"

Author: N.-E. Sie, G.M. Muñoz Caro, Z.-H. Huang, R. Martín-Doménech, A. Fuente, Y.-J. Chen

Comments: 11 pages, 11 figures

Subjects: Astrophysics of Galaxies (astro-ph.GA); Earth and Planetary Astrophysics (astro-ph.EP)

[理論/観測/実験 etc....]

Comment!!!!

[16] [arXiv:2001.01221](#)

Title: "Global time-regularization of the gravitational N -body problem"

Author: M. Antoja, P. Chartier, J. Makazaga, A. Murua

Subjects: Dynamical Systems (math.DS); Earth and Planetary Astrophysics (astro-ph.EP)

[理論/観測/実験 etc....]

Comment!!!!

[17] [arXiv:2001.01093](#)

Title: "Testing the solar activity paradigm in the context of exoplanet transits"

Author: Carolus J. Schrijver

Comments: Accepted for publication in the Astrophysical Journal

Subjects: Solar and Stellar Astrophysics (astro-ph.SR); Earth and Planetary Astrophysics (astro-ph.EP)

[理論/観測/実験 etc....]

Comment!!!!

[18] [arXiv:2001.00963](#)

Title: "Non-singular recursion formulas for third-body perturbations in mean vectorial elements"

Author: M. Lara, A. J. Rosengren, E. Fantino

Subjects: Instrumentation and Methods for Astrophysics (astro-ph.IM); Earth and Planetary Astrophysics (astro-ph.EP)

[理論/観測/実験 etc....]

Comment!!!!

1月8日(水曜日)

[1] [arxive:2001.02228](#)

Title: "Habitability and Water Loss Limits on Eccentric Planets Orbiting Main Sequence Stars"

Author: Igor Palubski, Aomawa Shields, Russell Deitrick

Comments: 22 pages, 9 figures, 2 tables, accepted for publication in the Astrophysical Journal

Subjects: Earth and Planetary Astrophysics (astro-ph.EP); Solar and Stellar Astrophysics (astro-ph.SR)

[理論/観測/実験 etc....]

Comment!!!!

[2] [arxive:2001.02217](#)

Title: "An ultra-short period rocky super-Earth orbiting the G2-star HD 80653"

Author: G. Frustagli, E. Poretti, T. Milbourne, L. Malavolta, A. Mortier, Vikash Singh, A. S. Bonomo, L. A. Buchhave, L. Zeng, A. Vanderburg, S. Udry, G. Andreuzzi, A. Collier-Cameron, R. Cosentino, M. Damasso, A. Ghedina, A. Harutyunyan, R. D. Haywood, D. W. Latham, M. López-Morales, V. Lorenzi, A.F. Martinez Fiorenzano, M. Mayor, G. Micela, E. Molinari, F. Pepe, D. Phillips, K. Rice, A. Sozzetti

Comments: 15 pages, 12 figures; accepted by A&A

Subjects: Earth and Planetary Astrophysics (astro-ph.EP); Solar and Stellar Astrophysics (astro-ph.SR)

[理論/観測/実験 etc....]

Comment!!!!

[3] [arxive:2001.01931](#)

Title: "Low Pressure EUV Photochemical Experiments: Insight on the Ion-Chemistry Occurring in Titan's Atmosphere"

Author: Jérémy Bourgalais, Nathalie Carraso, Ludovic Vettier, Pascal Pernot

Subjects: Earth and Planetary Astrophysics (astro-ph.EP)

[理論/観測/実験 etc....]

Comment!!!!

[4] [arxive:2001.01857](#)

Title: "A novel experimental setup for an oblique impact onto an inclined granular layer"

Author: Shinta Takizawa, Ryusei Yamaguchi, Hiroaki Katsuragi

Comments: 9 pages, 8 figures

Subjects: Earth and Planetary Astrophysics (astro-ph.EP); Soft Condensed Matter (cond-mat.soft); Instrumentation and Detectors (physics.ins-det)

[理論/観測/実験 etc....]

Comment!!!!

[5] [arXiv:2001.01759](#)

Title: "A Rotation Rate for the Planetary-Mass Companion DH Tau b"

Author: Jerry W. Xuan, Marta L. Bryan, Heather A. Knutson, Brendan P. Bowler,
Caroline V. Morley, Björn Benneke

Comments: Accepted to AJ

Subjects: Earth and Planetary Astrophysics (astro-ph.EP); Solar and Stellar Astrophysics (astro-ph.SR)

[理論/観測/実験 etc....]

Comment!!!!

[6] [arXiv:2001.02174](#)

Title: "MMS Observations of Whistler and Lower Hybrid Drift Waves Associated
with Magnetic Reconnection in the Turbulent Magnetosheath"

Author: Vörös Zoltán, Emiliya Yordanova, Daniel B. Graham, Yuri V. Khotyaintsev,
Yasuhito Narita

Subjects: Space Physics (physics.space-ph); Earth and Planetary Astrophysics (astro-ph.EP); Solar and Stellar
Astrophysics (astro-ph.SR)

[理論/観測/実験 etc....]

Comment!!!!

[7] [arXiv:2001.02081](#)

Title: "Beyond Boltzmann: The Potential Energy Distribution of Objects in the
Atmosphere"

Author: Henry Hess

Comments: 2 pages, 1 figure

Subjects: Popular Physics (physics.pop-ph); Earth and Planetary Astrophysics (astro-ph.EP); Statistical Mechan-
ics (cond-mat.stat-mech)

[理論/観測/実験 etc....]

Comment!!!!

[8] [arXiv:2001.01934](#)

Title: "Effect of metallicity on the detectability of rotational periods in solar-like
stars"

Author: V. Witzke, T. Reinhold, A. I. Shapiro, N. A. Krivova, S. K. Solanki

Comments: 9 pages, 7 figures, accepted in A&A

Subjects: Solar and Stellar Astrophysics (astro-ph.SR); Earth and Planetary Astrophysics (astro-ph.EP)

[理論/観測/実験 etc....]

Comment!!!!

[9] [arxiv:2001.01760](#)

Title: "The Artscience of Planet Formation: import ArtScience.PlanetFormation as AATS"

Author: Sebastián Pérez

Comments: Published in Poiésis journal

Subjects: Popular Physics (physics.pop-ph); Earth and Planetary Astrophysics (astro-ph.EP)

[理論/観測/実験 etc....]

Comment!!!!

[10] [arxiv:2001.01754](#)

Title: "Dead Zones of Classical Habitability in Stellar Binary Systems"

Author: Sarah Moorman, Zhaopeng Wang, Manfred Cuntz

Comments: Accepted by Astrophysics and Space Science; 17 pages, including 9 figures and 5 tables

Subjects: Solar and Stellar Astrophysics (astro-ph.SR); Earth and Planetary Astrophysics (astro-ph.EP)

[理論/観測/実験 etc....]

Comment!!!!

1月9日(木曜日)

[1] [arxiv:2001.02666](#)

Title: "The evolution of dust-disk sizes from a homogeneous analysis of 1-10 Myr-old stars"

Author: Nathaniel Hendler, Ilaria Pascucci, Paola Pinilla, Marco Tazzari, John Carpenter, Renu Malhotra, Leonardo Testi

Comments: ApJ accepted, 38 pages, 16 figures, 68k compatible

Subjects: Earth and Planetary Astrophysics (astro-ph.EP); Astrophysics of Galaxies (astro-ph.GA); Solar and Stellar Astrophysics (astro-ph.SR)

[理論/観測/実験 etc....]

Comment!!!!

[2] [arxiv:2001.02577](#)

Title: "Search for Nearby Earth Analogs. II. detection of five new planets, eight planet candidates, and confirmation of three planets around nine nearby M dwarfs"

Author:

Fabo Feng, R. Paul Butler, Stephen A. Shectman, Jeffrey D. Crane, Steve Vogt, John Chambers, Hugh R. A. Jones, Sharon Xuesong Wang, Johanna K. Teske, Jenn Burt, Matias R. Diaz, Ian B. Thompson

Comments: 38 pages, 31 figures, 4 tables

Subjects: Earth and Planetary Astrophysics (astro-ph.EP)

[理論/観測/実験 etc....]

Comment!!!!

[3] [arxiv:2001.02473](#)

Title: "Global climate modeling of Saturn's atmosphere. Part III: Global statistical picture of zonostrophic turbulence in high-resolution 3D-turbulent simulations"

Author: Simon, Cabanes, Aymeric, Spiga, Roland, M. B. Young

Subjects: Earth and Planetary Astrophysics (astro-ph.EP); Fluid Dynamics (physics.flu-dyn)

[理論/観測/実験 etc....]

Comment!!!!

[4] [arxiv:2001.02235](#)

Title: "Transfer of Life by Earth-Grazing Objects to Exoplanetary Systems"

Author: Amir Siraj, Abraham Loeb

Comments: 4 pages, 2 figures; submitted for publication

Subjects: Earth and Planetary Astrophysics (astro-ph.EP); Astrophysics of Galaxies (astro-ph.GA)

[理論/観測/実験 etc....]

Comment!!!!

1月10日(金曜日)

[1] [arxiv:2001.03126](#)

Title: "Near-ultraviolet Transmission Spectroscopy of HD 209458b: Evidence of Ionized Iron Beyond the Planetary Roche Lobe"

Author: Patricio E. Cubillos, Luca Fossati, Tommi Koskinen, Mitchell E. Young, Michael Salz, Kevin France, A. G. Sreejith, Carole A. Haswell

Comments: Accepted for publication at AAS Journals

Subjects: Earth and Planetary Astrophysics (astro-ph.EP); Solar and Stellar Astrophysics (astro-ph.SR)

[理論/観測/実験 etc....]

Hot Jupiter HD 209458b について近紫外線の透過スペクトルを再解析した所、2370Å 辺りの 100Å 範囲でイオン化された鉄 (Fe⁺) の吸収線が見えた。これは、惑星のロッシュローブ以遠にあると考えられる。しかし、そこから期待される 2600Å 辺りの Fe⁺ の吸収線が見えず、さらに、Mg、Mg⁺、Fe の吸収線も見えなかった。この結果は、この惑星に

対する先行論文の理論モデルと矛盾した結果。この惑星では、鉄のような重い原子をロッシュローブ以遠に運ぶくらい hydrodynamic escape が激しい系である事を示唆している。

[2] [arxiv:2001.03066](#)

Title: "Efficient Dust Ring Formation in Misaligned Circumbinary Discs"

Author: Hossam Aly, Giuseppe Lodato

Comments: Accepted for publication in MNRAS, 11 pages, 9 figures

Subjects: Earth and Planetary Astrophysics (astro-ph.EP); Solar and Stellar Astrophysics (astro-ph.SR)

[理論/観測/実験 etc....]

SPH シミュレーションで中心星 binary に misalign した円盤のガスとダストの進化についてそれぞれの違いを調べた。

[3] [arxiv:2001.02990](#)

Title: "Analysing the Main Belt asteroid distributions by wavelets"

Author: R.V. Baluev, E.I. Rodionov

Comments: 27 pages, 16 figures, 3 tables; submitted to Celestial Mechanics & Dynamical Astronomy

Subjects: Earth and Planetary Astrophysics (astro-ph.EP)

[理論/観測/実験 etc....]

メインベルト小惑星の wavelet(直訳だとさざ波、おそらく力学的情報のこと)を統計的に解析して小惑星分類を行った。

[4] [arxiv:2001.02692](#)

Title: "Channels for streaming instability in dusty discs"

Author: Etienne Jaupart, Guillaume Laibe

Comments: Accepted for publication in MNRAS. 8 pages, 4 figures

Subjects: Earth and Planetary Astrophysics (astro-ph.EP)

[理論/観測/実験 etc....]

ストリーミング不安定性は、ダスト衝突成長や原始惑星の形成の間で生まれる円盤内の Gap を埋める機構として考えられている。これについて解析的に調べた。(結果はよくわかりませんでした。)

[5] [arxiv:2001.02681](#)

Title: "Detecting Interstellar Objects Through Stellar Occultations"

Author: Amir Siraj, Abraham Loeb

Comments: 5 pages, 4 figures, 1 table; submitted to ApJL

Subjects: Earth and Planetary Astrophysics (astro-ph.EP); Instrumentation and Methods for Astrophysics (astro-ph.IM)

[理論/観測/実験 etc....]

黄道面に対して角度を持った恒星を高精度モニター観測して、星間空間にある天体の occultation(~ 0.1sec) を捉えようという観測提案。

[6] [arxiv:2001.02840](https://arxiv.org/abs/2001.02840)

Title: "Kepler-1661 b: A Neptune-sized Kepler Transiting Circumbinary Planet around a Grazing Eclipsing Binary"

Author: Quentin J Socia, William F Welsh, Jerome A Orosz, William D Cochran, Michael Endl, Billy Quarles, Donald R Short, Guillermo Torres, Gur Windmiller, Mitchell Yenawine

Comments: 37 pages, 15 figures

Subjects: Solar and Stellar Astrophysics (astro-ph.SR); Earth and Planetary Astrophysics (astro-ph.EP)

[理論/観測/実験 etc....]

Kepler の測光データを解析して、circumbinary 周りのトランジット惑星 Kepler-1661 b の発見した ($R_p = 3.87 \pm 0.06 R_{\oplus}$)。公転周期は $P \sim 175$ 日で 35 年周期の歳差運動をしている。この歳差運動で軌道面の配列が変わり、また、この惑星は他の Kepler circumbinary planet 同様に安定半径近くを周回しており、ハビタブルゾーンの Hot な方の edge に存在している。この系の食の深さは binary inclination に sensitive なので重要だが中心星は 1 ~ 3Gyr と若く、有意な Starspot の変動も見られる。この Starspot modulation は測光の変動を引き起こすが、この影響は通常の解析では排除できる。むしろ、光度曲線を規格化する際に作用して食の深さに影響を与えるので、最終的には連星系の歳差運動の解析に影響を与えてしまう。

Nature

ない

Science

ない