

2020年 7月 第5週 新着論文サーベイ

7月27日(月曜日)

[1] [arxiv:2007.12657](#)

Title: "The Sublimative Evolution of (486958) Arrokoth"

Author: Jordan K. Steckloff, Carey M. Lisse, Taylor K. Safrit, Amanda S. Bosh, Wladimir Lyra, Gal Sarid

Comments: 19 pages, 2 figures, 1 table

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

[理論/観測/実験 etc....]

New Horizons のターゲット (486958) Arrokoth は、原始惑星系円盤の腫れ上がりの時に太陽からの輻射を受けて 10-100Myr にわたって昇華を経験したと考えられる。昇華による質量輸送で表面の 10-100m スケールの構造をかき消されるので、Arrokoth 表面のクレーターは始原的ではなく、昇華期のあとの静穏期に形成したはず。New Horizons による計測から、現在の Arrokoth 表面の揮発物質の生成率は上記の質量輸送には 13 桁足りないので、Arrokoth 表面の構造は静穏期に形成したものであることが確かめられた。

[2] [arxiv:2007.12624](#)

Title: "Convective turbulent viscosity acting on equilibrium tidal flows: new frequency scaling of the effective viscosity"

Author: Craig D. Duguid, Adrian J. Barker, Chris A. Jones

Comments: 20 pages, 10 figures, 3 tables, accepted for publication in MNRAS on 23rd July 2020

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

[理論/観測/実験 etc....]

乱流対流は恒星や巨大惑星内部の潮汐減衰で有効粘性として働くと考えられているが、潮汐周波数 ω が高い場合についてはよくわかっていない。今回行った流体シミュレーションの結果、1) $\omega/\omega_c \lesssim 1$ で有効粘性が $\omega^{-0.5}$ に比例すること、2) 低中周波数の潮汐では、有効粘性の周波数依存性がエネルギーの周波数スペクトルと一致すること、3) 高周波数 ($\omega/\omega_c \geq 1 - 5$) で $\nu_E \propto \omega^{-2}$ 、4) 有効粘性への寄与は常にエネルギー支配的な停留のモードが支配的であることがわかった。

[3] [arxiv:2007.12589](#)

Title: "Higher Martian atmospheric temperatures at all altitudes lead to enhanced D/H fractionation and water loss"

Author: Eryn M. Cangi, Michael S. Chaffin, Justin Deighan

Comments: 21 pages, 11 figures, submitted to Journal of Geophysical Research: Planets

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

[理論/観測/実験 etc....]

過去の火星に存在して宇宙空間に失われた水の量を、D/H 比とその変化率 f を用いて推定したい。火星大気の 1 次元光化学モデルから f の温度と水蒸気量への依存性を調べた結果、火星の水の損失量は少なくとも 66-123m GEL(?) であることがわかった。

[4] [arxiv:2007.12459](#)

Title: "Thermal and orbital evolution of low-mass exoplanets"

Author: Michaela Walterová, Marie Běhounková

Comments: 44 pages, 13 figures; to be published in ApJ

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

[理論/観測/実験 etc....]

Andrade 粘弾性 rheology で記述された岩石惑星の熱進化と軌道進化を 1 次元熱輸送と潮汐散逸の半解析的モデルを用いて調べた。低離心率の軌道で高い spin-orbit 共鳴に入り、それによって潮汐加熱が同期回転の場合よりも強くなった。

[5] [arxiv:2007.12193](#)

Title: "The impact of unresolved magnetic spots on high precision radial velocity measurements"

Author: Maksym Lisogorskyi, Sudeshna Boro Saikia, Sandra V. Jeffers, Hugh R. A. Jones, Julien Morin, Matthew Mengel, Ansgar Reiners, Aline A. Vidotto, Pascal Petit

Comments: Main text: 7 pages, 3 figures. Appendix: 6 pages, 6 figures. Author name typo corrected. 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....]

ドップラー法による系外惑星観測では恒星活動によるコンタミが入ってしまう。K2 の恒星 Epsilon Eridani と同じ磁場を持つ、自転している恒星による RV シグナルへの影響をモデル化した。磁場による RV シグナルは最大 10m/s で、これは太陽型性のハビタブルゾーンに位置する 20 地球質量未満の惑星を検出する際に障害となる。

[6] [arxiv:2007.12645](#)

Title: "Habitability of M dwarfs is a problem for the traditional SETI"

Author: Milan M. Ćirković, Branislav Vukotić

Comments: 15 pages, 1 figure; Journal of the British Interplanetary Society, accepted for publication

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

[理論/観測/実験 etc....]

Comment!!!!

[7] [arxiv:2007.12482](#)

Title: "Detection of polarization neutral points in observations of the combined corona and sky during the 21 August 2017 total solar eclipse"

Author:Frans Snik, Steven P. Bos, Stefanie A. Brackenhoff, David S. Doelman,
Emiel H. Por, Felix Bettonvil, Michiel Rodenhuis, Dmitry Vorobiev, Laura
M. Eshelman, Joseph A. Shaw

Comments:Part of the Applied Optics special feature issue on Light and Color in Nature

Subjects: Solar and Stellar Astrophysics (astro-ph.SR); Earth and Planetary Astrophysics (astro-ph.EP); Atmospheric and Oceanic Physics (physics.ao-ph)

[理論/観測/実験 etc....]

2017年8月にアメリカで見られた皆既日食の偏光観測について。

[8] [arXiv:2007.12480](#)

Title: "Exobodies in Our Back Yard: Science from Missions to Nearby Interstellar Objects"

Author:T. Marshall Eubanks, Jean Schneider, Andreas M. Hein, Adam Hibberd,
Robert Kennedy

Comments:Science White Paper submitted to the 2023-2032 Planetary Science and Astrobiology Decadal Survey

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

[理論/観測/実験 etc....]

双曲線軌道で太陽系を通過する Interstellar objects(ISOs) が発見されたことを受けて、探査機による太陽系外天体(exobodies) のその場観測の可能性と、期待されるサイエンスについて議論した白書。

[9] [arXiv:2007.12352](#)

Title: "Analysis of solar wind energy and the Akasofu parameter for energy dynamics assessment during Supersubstorm"

Author:Shailaja Wasti

Comments: 58 pages, 28 figures

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

[理論/観測/実験 etc....]

太陽風による地球の磁気嵐の際の、地球磁場と惑星間空間磁場との関係についての D 論。

[10] [arXiv:2007.12183](#)

Title: "Characterising Young Visual M-dwarf Binaries with Near-Infrared Integral Field Spectra"

Author:Per Calissendorff, Markus Janson, Mickaël Bonnefoy

Comments: 12 pages, 5 figures, 8 tables, preprint, accepted for publication 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....]

M-dwarf のアストロメトリモニター計画 AstraLux のターゲットになっている 7 個の若い M-dwarf 近接連星系を分光観測した。これらの連星系を J, H, K バンドでスペクトル型による分類ができた。

[11] [arxiv:2007.12180](#)

Title: "Formation and evolution of the local interstellar environment: combined constraints from nucleosynthetic and X-ray data"

Author: Yusuke Fujimoto, Mark R. Krumholz, Shu-ichiro Inutsuka, Alan P. Boss, Larry R. Nittler

Comments: 7 pages, 5 figures. Submitted to MNRAS. Comments welcome

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

[理論/観測/実験 etc....]

南極の氷や深海の ^{60}Fe などから、太陽系は少なくとも数 Myr の間、大質量星からのフィードバックを受けていたと考えられている。天の川銀河について、N 体計算と流体計算を行って、現在観測されている証拠を再現する太陽軌道上の恒星の特定を試みた。結果、このような恒星は極めてレアで、スパイラルアームのエッジ近傍の kpc スケールのバブルに 20-90Myr ほど滞在していたらしい。

7 月 28 日 (火曜日)

[1] [arxiv:2007.13731](#)

Title: "EUV irradiation of exoplanet atmospheres occurs on Gyr timescales"

Author: George W. King, Peter J. Wheatley

Comments: 5 pages, 2 figures, 1 table; submitted to MNRAS letters

Subjects: Earth and Planetary Astrophysics (astro-ph.EP); High Energy Astrophysical Phenomena (astro-ph.HE); Solar and Stellar Astrophysics (astro-ph.SR)

[理論/恒星の EUV 放射]

惑星の大気散逸などに強く影響する恒星の X 線放射と EUV 放射の時間変化について、経験式などを使って解析的に調べた。従来は両者が同じタイムスケールで減衰するとされてきたが、今回、X 線放射の減衰よりも EUV の減衰の方がより長い時間を要することを指摘した。惑星の大気散逸を考える上では、Gyr のタイムスケールで EUV の放射の影響を考える必要がある。

[2] [arxiv:2007.13717](#)

Title: "Unified simulations of planetary formation and atmospheric evolution II: Rapid disk clearing by photoevaporation yields low-mass super-Earth atmospheres"

Author: Masahiro Ogiwara, Masanobu Kunitomo, Yasunori Hori

Comments: 17 pages, 11 figures, accepted for publication in ApJ

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

[理論/スーパーアースの大気]

スーパーアースの大気が、質量比で 10% 程度と少ない原因はよくわかっていない。これを調べるために、円盤の光蒸発などを考慮した N 体シミュレーションを行った。その結果、光蒸発で円盤が散逸することで惑星へのガス降着が起き

る期間が短縮されることや、惑星に成り損なった embryo の衝突で大気が剥ぎ取られることなどが原因と分かった。

[3] [arXiv:2007.13613](#)

Title: "Orbital Dynamics with the Gravitational Perturbation due to a Disk"

Author: Tao Liu, Xue-Qing Xu, Xin-Hao Liao

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

[理論/観測/実験 etc....]

Comment!!!!

[4] [arXiv:2007.13577](#)

Title: "Giant planet formation models with a self-consistent treatment of the heavy elements"

Author: Claudio Valletta, Ravit Helled

Comments: 30 pages, 16 figures

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

[理論/観測/実験 etc....]

Comment!!!!

[5] [arXiv:2007.13510](#)

Title: "Ground-Based Transmission Spectroscopy with FORS2: A featureless optical transmission spectrum and detection of H₂O for the ultra-hot Jupiter WASP-103b"

Author: J. Wilson, N. P. Gibson, N. Nikolov, S. Constantinou, N. Madhusudhan, J. Goyal, J. K. Barstow, A. L. Carter, E. J. W. de Mooij, B. Drummond, T. Mikal-Evans, C. Helling, N. J. Mayne, D. K. Sing

Comments: 17 pages, 8 Figures, Accepted for publication in MNRAS

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

[観測/透過分光]

超短周期の hot Jupiter である WASP-103b について、VLT の分光器 FORS2 で透過分光観測を行った。得られたスペクトルはほとんど featureless だったが、Bayesian を使って統計的に処理することで H₂O の吸収線を 4.0 σ で検出した。また、Na の吸収線は 2.0 σ で検出された。Na の吸収が弱い理由は、非一様に分布する雲やヘイズの影響と考えられる。

[6] [arXiv:2007.13458](#)

Title: "Ares: A Mars model retrieval framework for ExoMars Trace Gas Orbiter NOMAD solar occultation measurements"

Author: George Cann, Ahmed Al-Refaie, Ingo Waldmann, Dave Walton, Jan-Peter

Muller

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

[理論/観測/実験 etc....]

Comment!!!!

[7] [arXiv:2007.13429](#)

Title: "Detection of Na in WASP-21b's lower and upper atmosphere"

Author: G. Chen, N. Casasayas-Barris, E. Pallé, L. Welbanks, N. Madhusudhan, R. Luque, F. Murgas

Comments: 16 pages, 14 figures, accepted for publication in A&A on July 27, 2020

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

[理論/観測/実験 etc....]

Comment!!!!

[8] [arXiv:2007.13381](#)

Title: "Observing transiting exoplanets with the MicroObservatory: 43 new transit light curves of the hot Jupiter HAT-P-32b"

Author: Martin J F Fowler, Frank F. Sienkiewicz, Robert T. Zellem, Mary E. Dussault

Comments: 12 pages, 8 figures, 4 tables. Accepted for publication in the Journal of the British Astronomical Association

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

[理論/観測/実験 etc....]

Comment!!!!

[9] [arXiv:2007.13227](#)

Title: "Accretion of Ornamental Equatorial Ridges on Pan, Atlas and Daphnis"

Author: Alice C. Quillen, Fatima Zaidouni, Miki Nakajima, Esteban Wright

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

[理論/観測/実験 etc....]

Comment!!!!

[10] [arXiv:2007.13096](#)

Title: "Bayesian Dynamic Mapping of an Exo-Earth from Photometric Variability"

Author: Hajime Kawahara, Kento Masuda

Comments: 23 pages, 13 figures, accepted for publication in ApJ. The code is available online at this [https URL](#) .

The retrieved dynamic map of a real light curve of the Earth (movie) can be viewed at this [https URL](https://www.aanda.org/abstract?id/article/51761/abstract)
Subjects: Earth and Planetary Astrophysics (astro-ph.EP); Instrumentation and Methods for Astrophysics (astro-ph.IM); Methodology (stat.ME)

[理論/観測/spin-orbit tomography]

直接撮像された地球型惑星のライトカーブから、表面の模様を復元する手法について。従来の方法よりも計算量を減らすことに成功し、ノートパソコンでも 0.3 秒で高解像度の計算ができるようになった。地球を観測したデータに適用したところ、晴れている領域と曇っている領域とを大まかに区別することができた。

[11] [arxiv:2007.13020](https://arxiv.org/abs/2007.13020)

Title: "ExoMol line lists – XL. Ro-vibrational molecular line list for the hydronium ion (H_3O^+)"

Author: S. N. Yurchenko, Jonathan Tennyson, Steve Miller, V.V. Melnikov, J. O'Donoghue, L. Moore

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

[理論/観測/実験 etc....]

Comment!!!!

[12] [arxiv:2007.13009](https://arxiv.org/abs/2007.13009)

Title: "Dynamical evolution of two-planet systems and its connection with white dwarf atmospheric pollution"

Author: R. F. Maldonado, E. Villaver, A. J. Mustill, M. Chávez, E. Bertone

Comments: 18 pages, 14 figures

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

[理論/観測/実験 etc....]

Comment!!!!

[13] [arxiv:2007.12968](https://arxiv.org/abs/2007.12968)

Title: "Non-detection of Helium in the Upper Atmospheres of Three Sub-Neptune Exoplanets"

Author: David Kasper, Jacob L. Bean, Antonija Oklopčić, Isaac Malsky, Eliza M.-R. Kempton, Jean-Michel Désert, Leslie A. Rogers, Megan Mansfield

Comments: submitted to AJ

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

[理論/観測/実験 etc....]

Comment!!!!

[14] [arXiv:2007.12897](#)

Title: "High-Fidelity Semianalytical Theory for a Low Lunar Orbit"

Author: Juan Félix San-Juan, Rosario López, Iván Pérez

Comments: 8 pages, 5 figures

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

[理論/観測/実験 etc....]

Comment!!!!

[15] [arXiv:2007.12766](#)

Title: "The Habitable-zone Planet Finder Reveals A High Mass and a Low Obliquity for the Young Neptune K2-25b"

Author: Gudmundur Stefansson, Suvrath Mahadevan, Marissa Maney, Joe P. Ninan, Paul Robertson, Jayadev Rajagopal, Flynn Haase, Lori Allen, Eric B. Ford, Joshua Winn, Angie Wolfgang, Rebekah I. Dawson, John Wisniewski, Chad F. Bender, Caleb Cañas, William Cochran, Scott A. Diddams, Connor Fredrick, Samuel Halverson, Fred Hearty, Leslie Hebb, Shubham Kanodia, Eric Levi, Andrew J. Metcalf, Andrew Monson, Lawrence Ramsey, Arpita Roy, Christian Schwab, Ryan Terrien, Jason T. Wright

Comments: Accepted for publication in AJ, 31 pages, 14 figures

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

[理論/観測/実験 etc....]

Comment!!!!

[16] [arXiv:2007.12744](#)

Title: "Planetary candidates transiting cool dwarf stars from Campaigns 12 to 15 of K2"

Author: A. Castro González, E. Díez Alonso, J. Menéndez Blanco, John H. Livingston, Jerome P. de Leon, S. L. Suárez Gómez, C. González Gutiérrez, F. García Riesgo, L. Bonavera, F.J. Iglesias Rodríguez, R. Muñiz, Mark E. Everett, N. J. Scott, Steve B. Howell, David R. Ciardi, Erica J. Gonzales, Joshua E. Schlieder, F. J. de Cos Juez

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!!!!

[17] [arXiv:2007.12703](#)

Title: "Saturn's rings as a seismograph to probe Saturn's internal structure"

Author: Christopher R. Mankovich

Comments: Invited commentary for AGU Advances. Journal version is open access at this [https URL](#)

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

[理論/観測/実験 etc....]

Comment!!!!

[18] [arXiv:2007.12701](#)

Title: "Zodiacal Exoplanets in Time. XI. The Orbit and Radiation Environment of the Young M Dwarf-Hosted Planet K2-25b"

Author: E. Gaidos, T. Hirano, D. J. Wilson, K. France, K. Rockcliffe, E. Newton, G. Feiden, V. Krishnamurthy, H. HaraKawa, K. W. Hodapp, M. Ishizuka, S. Jacobson, M. Konishi, T. Kotani, T. Kudo, T. Kurokawa, M. Kuzuhara, J. Nishikawa, M. Omiya, T. Serizawa, M. Tamura, A. Ueda, S. Vievard

Comments: to appear in MNRAS Letters

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

[理論/観測/実験 etc....]

Comment!!!!

[19] [arXiv:2007.13557](#)

Title: "Infrared Spectra of Pyroxenes (Crystalline Chain Silicates) at Room Temperature"

Author: J. E. Bowey, A. M. Hofmeister, E. Keppel

Comments: 16 pages, 10 figures. accepted in MNRAS

Subjects: Astrophysics of Galaxies (astro-ph.GA); Earth and Planetary Astrophysics (astro-ph.EP); Materials Science (cond-mat.mtrl-sci)

[理論/観測/実験 etc....]

Comment!!!!

[20] [arXiv:2007.13430](#)

Title: "A protostellar system fed by a streamer of 10,500 au length"

Author: Jaime E. Pineda, Dominique Segura-Cox, Paola Caselli, Nichol Cunningham, Bo Zhao, Anika Schmiedeke, Maria José Maureira, Roberto Neri

Comments: Published in Nature Astronomy on July 27th 2020. This is the authors' version before final edits, including methods section. Link to the NatAstro publication: [this https URL](#)

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

[理論/観測/実験 etc....]

Comment!!!!

[21] [arXiv:2007.13392](#)

Title: "Efficiency of tidal dissipation in slowly rotating fully convective stars or planets"

Author: Jérémie Vidal, Adrian J. Barker

Comments: 14 pages, 17 figures, 1 table, accepted for publication in MNRAS on 23rd July 2020

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

[理論/観測/実験 etc....]

Comment!!!!

[22] [arXiv:2007.13022](#)

Title: "The 2020 release of the ExoMol database: molecular line lists for exoplanet and other hot atmospheres"

Author: Jonathan Tennyson, Sergei N. Yurchenko, Ahmed F. Al-Refaie, Victoria H. J. Clark, Katy L. Chubb, Eamon K. Conway, Akhil Dewan, Maire N. Gorman, Christian Hill, A. E. Lynas-Gray, Thomas Mellor, Laura K. McKemmish, Alec Owens, Oleg L. Polyansky, Mikhail Semenov, Wilfrid Somogyi, Giovanna Tinetti, Apoorva Upadhyay, Ingo Waldmann, Yixin Wang, Samuel Wright, Olga P. Yurchenko

Subjects: Solar and Stellar Astrophysics (astro-ph.SR); Earth and Planetary Astrophysics (astro-ph.EP); Atmospheric and Oceanic Physics (physics.ao-ph); Chemical Physics (physics.chem-ph)

[理論/観測/実験 etc....]

Comment!!!!

[23] [arXiv:2007.12707](#)

Title: "Aluminum-26 Enrichment in the Surface of Protostellar Disks Due to Protostellar Cosmic Rays"

Author: Brandt A. L. Gaches, Stefanie Walch, Stella S. R. Walch, Carsten Münker

Comments: Accepted to ApJ, in press

Subjects: Solar and Stellar Astrophysics (astro-ph.SR); Earth and Planetary Astrophysics (astro-ph.EP); High Energy Astrophysical Phenomena (astro-ph.HE)

[理論/観測/実験 etc....]

Comment!!!!

7月29日(水曜日)

[1] [arxiv:2007.14039](#)

Title: "Ejection of close-in super-Earths around low-mass stars in the giant impact stage"

Author: Yuji Matsumoto, Pin-Gao Gu, Eiichiro Kokubo, Shoichi Oshino, Masashi Omiya

Comments: accepted for publication in 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!!!!

[2] [arxiv:2007.13945](#)

Title: "The Transient Jupiter Trojan-Like Orbit of P/2019 LD2 (ATLAS)"

Author: Henry H. Hsieh, Alan Fitzsimmons, Bojan Novakovic, Larry Denneau, Aren N. Heinze

Comments: 7 pages, 3 figures. Accepted for publication in Icarus

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

[理論/観測/実験 etc....]

Comment!!!!

[3] [arxiv:2007.13927](#)

Title: "TESS Reveals a Short-period Sub-Neptune Sibling (HD 86226c) to a Known Long-period Giant Planet"

Author: Johanna Teske, Matías R. Díaz, Rafael Luque, Teo Močnik, Julia V. Seidel, Jon Fernández Otegi, Fabo Feng, James S. Jenkins, Enric Pallè, Damien Ségransan, Stéphane Udry, Karen A. Collins, Jason D. Eastman, George R. Ricker, Roland Vanderspek, David W. Latham, Sara Seager, Joshua N. Winn, Jon M. Jenkins, David R. Anderson, Thomas Barclay, François Bouchy, Jennifer A. Burt, R. Paul Butler, Douglas A. Caldwell, Kevin I. Collins, Jeffrey D. Crane, Caroline Dorn, Erin Flowers, Jonas Haldemann, Ravit Helled, Coel Hellier, Eric L. N. Jensen, Stephen R. Kane, Nicholas Law, Jack J. Lissauer, Andrew W. Mann, Maxime Marmier, Louise Dyregaard Nielsen, Mark E. Rose, Stephen A. Shtetman, Avi Shporer, Guillermo Torres, Sharon X. Wang, Angie Wolfgang, Ian Wong, Carl Ziegler

Comments: Accepted in AJ on 22 June 2020

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

[理論/観測/実験 etc....]

Comment!!!!

[4] [arXiv:2007.13814](#)

Title: "The structure of the co-orbital stable regions as a function of the mass ratio"

Author: L. Liberato, O. Winter

Comments: 8 pages, 12 figures, 2 tables, MNRAS article doi: 10.1093/mnras/staa1727

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

[理論/観測/実験 etc....]

Comment!!!!

[5] [arXiv:2007.13779](#)

Title: "A Machine Learning model to infer planet masses from gaps observed in protoplanetary disks"

Author: Sayantan Auddy, Min-Kai Lin

Comments: 16 Pages, 8 Figures, to appear in ApJ

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

[理論/観測/実験 etc....]

Comment!!!!

[6] [arXiv:2007.13766](#)

Title: "Gaps and Rings in Protoplanetary Disks with Realistic Thermodynamics: The Critical Role of In-Plane Radiation Transport"

Author: Ryan Miranda, Roman R. Rafikov

Comments: 30 pages, 15 figures (including 5 full-page figures), submitted to ApJ

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

[理論/観測/実験 etc....]

Comment!!!!

[7] [arXiv:2007.14210](#)

Title: "KELT-17: a chemically peculiar Am star and a hot-Jupiter planet"

Author: C. Saffe, P. Miquelarena, J. Alacoria, J. F. Gonzalez, M. Flores, M. Jaque Arancibia, D. Calvo, E. Jofre, A. Collado

Comments: 5 pages, 8 figures, 2 tables, A&A accepted

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

[理論/観測/実験 etc....]

Comment!!!!

[8] [arxiv:2007.13892](#)

Title: "Estimating Satellite Orbital Drag During Historical Magnetic Superstorms"

Author: Denny M. Oliveira, Eftyhia Zesta, Hisashi Hayakawa, Ankush Bhaskar

Comments: 25 pages, 7 figures, 3 tables

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

[理論/観測/実験 etc....]

Comment!!!!

[9] [arxiv:2007.13773](#)

Title: "BEER analysis of Kepler and CoRoT light curves. V. eBEER: Extension of the Algorithm to Eccentric Binaries"

Author: M. Engel, S. Faigler, S. Shahaf, T. Mazeh

Comments: Accepted 2020 July 16. Received 2020 July 15; in original form 2019 October 16. 21 pages, 2 figures

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

[理論/観測/実験 etc....]

Comment!!!!

[10] [arxiv:2007.13771](#)

Title: "USuRPER: Unit-Sphere Representation PERiodogram for full spectra"

Author: Avraham Binnendijk, Sahar Shahaf, Shay Zucker

Comments: 6 pages, 10 figures. Submitted to A&A. Comments are welcome. The code is available at: [this https URL](#)

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

[理論/観測/実験 etc....]

Comment!!!!

7月29日(水後半曜日)

[11] [arxiv:2007.13766](#)

Title: "Gaps and Rings in Protoplanetary Disks with Realistic Thermodynamics: The Critical Role of In-Plane Radiation Transport"

Author: Ryan Miranda, Roman R. Rafikov

Comments: 30 pages, 15 figures (including 5 full-page figures), submitted to ApJ

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

[理論/観測/実験 etc....]

ギャップの開いた原始惑星系円盤が観測されていて、惑星と円盤の相互作用という説がある。従来のシミュレーションでは円盤の熱力学が単純化されていたので、円盤表面の cooling や赤道面からの輻射輸送を入れて計算した。円盤内部の cooling のほうが表面での cooling よりもタイムスケールが短いことがわかった。また、密度波に対する粘性の効果は無視できることがわかった。

[12] [arXiv:2007.14210](#)

Title: "KELT-17: a chemically peculiar Am star and a hot-Jupiter planet"

Author: C. Saffe, P. Miquelarena, J. Alacoria, J. F. Gonzalez, M. Flores, M. Jaque Arancibia, D. Calvo, E. Jofre, A. Collado

Comments: 5 pages, 8 figures, 2 tables, A&A accepted

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

[理論/観測/実験 etc....]

KELT-17 にはホットジュピターがあることがわかっている。KELT-17 の化学組成を調べたところ、Am 型星と近いことがわかった。これは系外惑星を保有する星の中では初めてである。

[13] [arXiv:2007.13892](#)

Title: "Estimating Satellite Orbital Drag During Historical Magnetic Superstorms"

Author: Denny M. Oliveira, Eftyhia Zesta, Hisashi Hayakawa, Ankush Bhaskar

Comments: 25 pages, 7 figures, 3 tables

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

[理論/観測/実験 etc....]

太陽フレアで人工衛星の軌道がずれるんじゃないかみたいな話。ちゃんと読んでないです。

[14] [arXiv:2007.13773](#)

Title: "BEER analysis of Kepler and CoRoT light curves. V. eBEER: Extension of the Algorithm to Eccentric Binaries"

Author: M. Engel, S. Faigler, S. Shahaf, T. Mazeh

Comments: Accepted 2020 July 16. Received 2020 July 15; in original form 2019 October 16. 21 pages, 2 figures

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

[理論/観測/実験 etc....]

連星のスペクトルの解析手法？

[15] [arXiv:2007.13771](#)

Title: "USuRPER: Unit-Sphere Representation PERiodogram for full spectra"

Author: Avraham Binnenfeld, Sahar Shahaf, Shay Zucker

Comments:

6 pages, 10 figures. Submitted to A&A. Comments are welcome. The code is available at: this [https URL](#)

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

[理論/観測/実験 etc....]

革新的なデータ解析手法を開発したみたいな話.

7月30日(木曜日)

[1] [arXiv:2007.14973](#)

Title: "**Transient Jupiter Co-orbitals from Solar System Sources**"

Author: Sarah Greenstreet, Brett Gladman, Henry Ngo

Comments: Accepted at AJ

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

[理論/観測/実験 etc....]

木星に近い軌道上を回転している小惑星の軌道について、逆行しているものもふくめて数値計算して検証した論文。多くの小惑星は馬蹄形軌道をとっている。また木星と近い軌道上を回転している小惑星の1パーセント程度は逆行しているとのこと。また数値計算の結果、馬蹄軌道の方はケンタウルス族由来のものが多くを占めており、一方逆行しているものは地球に近い軌道上からやってきた小惑星が一時的に軌道共鳴はいった結果できたものっぽいとのこと。

[2] [arXiv:2007.14905](#)

Title: "**Retention of Long-Period Gas Giant Planets: Type II Migration Revisited**"

Author: Yi-Xian Chen, Xiaojia Zhang, Ya-Ping Li, Hui Li, Douglas N. C. Lin

Comments: 21 pages, 12 figures, accepted by ApJ

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

[理論/観測/実験 etc....]

タイプ2マイグレーションを考慮すると木星のようなガス惑星が現在のような軌道を長時間保ち続けるのは難しいと思われる。この研究では流体シミュレーションを用いて、枠組みの異なるタイプ2マイグレーション間の遷移をしらべた。結果として、ガス惑星の位置及び内側と外側のどちらに軌道移動するかは円盤の初期面密度に大きく依存することが分かったとのこと。

[3] [arXiv:2007.14493](#)

Title: "**A Volatile-Poor Formation of LHS 3844b based on its Lack of Significant Atmosphere**"

Author: Stephen R. Kane, Rachael M. Roettenbacher, Cayman T. Unterborn, Bradford J. Foley, Michelle L. Hill

Comments: 23 pages, 14 figures, accepted for publication in the Planetary Science Journal

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

[理論/観測/実験 etc....]

LHS 3844b は矮星の周りを 0.46day の周期で周る 1.3 地球半径の惑星である。フォローアップ観測で大気が極めて欠けていることが分かっている。また、中心星の年齢を見積もったところ 7.8Gyrs くらいで、過去に活発な時期があったということが分かった。この研究ではこの大気がどのようなメカニズムで欠けたのかを調べたとのこと。

[4] [arxiv:2007.14473](#)

Title: "Architectures of Exoplanetary Systems: Eccentricity and Mutual Inclination Distributions of AMD-Stable Planetary Systems"

Author: Matthias Y. He, Eric B. Ford, Darin Ragozzine, Daniel Carrera

Comments: Submitted to AAS Journals; 40 pages, 14 figures, plus supplemental online materials with 8 figures

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

[理論/観測/実験 etc....]

Comment!!!!

[5] [arxiv:2007.14899](#)

Title: "Volatile Sample Return in the Solar System"

Author: Stefanie N. Milam, Jason P. Dworkin, Jamie E. Elsila, Daniel P. Glavin, Perry A. Gerakines, Julie L. Mitchell, Keiko Nakamura-Messenger, Marc Neveu, Larry Nittler, James Parker, Elisa Quintana, Scott A. Sandford, Joshua E. Schlieder, Rhonda Stroud, Melissa G. Trainer, Meenakshi Wadhwa, Andrew J. Westphal, Michael Zolensky, Dennis Bodewits, Simon Clemett

Comments: White paper submitted to the Planetary Science and Astrobiology Decadal Survey 2023-2032

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

[理論/観測/実験 etc....]

太陽系内のさまざまな場所から揮発性のサンプルをとってくることの科学的な重要性と、それに向けた技術のレビュー。

[6] [arxiv:2007.14743](#)

Title: "Prediction of the in situ coronal mass ejection rate for solar cycle 25: Implications for Parker Solar Probe in situ observations"

Author: Christian Möstl, Andreas J. Weiss, Rachel L. Bailey, Martin A. Reiss, Ute V. Amerstorfer, Tanja Amerstorfer, Jürgen Hinterreiter, Maike Bauer, Scott W. McIntosh, Noé Lugaz, David Stansby

Comments: 11 pages, 6 figures, submitted to the Astrophysical Journal 2020 July 28

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

[理論/観測/実験 etc....]

Solar cycle 25 での interplanetary coronal mass ejection(ICME) の発生数の予測と、その Parker Solar Probe での観測について。

[7] [arxiv:2007.14413](#)

Title: "Laboratory Demonstration of Spatial Linear Dark Field Control For Imaging Extrasolar Planets in Reflected Light"

Author:Thayne Currie, Eugene Pluzhnik, Olivier Guyon, Ruslan Belikov, Kelsey Miller, Steven Bos, Jared Males, Dan Sirbu, Charlotte Bond, Richard Frazin, Tyler Groff, Brian Kern, Julien Lozi, Benjamin Mazin, Bijan Nemati, Barnaby Norris, Hari Subedi, Scott Will

Comments: 13 pages, 7 figures, accepted for publication in Publications of the Astronomical Society of the Pacific
Subjects: Instrumentation and Methods for Astrophysics (astro-ph.IM); Earth and Planetary Astrophysics (astro-ph.EP)

[理論/観測/実験 etc....]

惑星の直接撮像には stellar halo を数回折ビームの幅でゼロに保つ必要がある。これを達成するための spatial Linear Dark Field Control (LDFC) のテスト実験を行った。

7 月 31 日 (金曜日)

[1] [arxiv:2007.15624](#)

Title: "Colors of an Earth-like exoplanet – Temporal flux and polarization signals of the Earth"

Author:A. Groot, L. Rossi, V.J.H. Trees, J.C.Y. Cheung, D.M. Stam

Comments: Accepted for publication in Astronomy & Astrophysics

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

[理論/観測/実験 etc....]

Comment!!!!

[2] [arxiv:2007.15485](#)

Title: "LBT transmission spectroscopy of HAT-P-12b: confirmation of a cloudy atmosphere with no significant alkali features"

Author:F. Yan, N. Espinoza, K. Molaverdikhani, Th. Henning, L. Mancini, M. Mallonn, B. V. Rackham, D. Apai, A. Jordán, P. Mollière, G. Chen, L. Carone, A. Reiners

Comments: 14 pages, 12 figures. Accepted for publication in Astronomy & Astrophysics

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

[理論/観測/実験 etc....]

Comment!!!!

[3] [arxive:2007.15432](#)

Title: "Particle-particle Particle-tree Code for Planetary System Formation with Individual Cut-off Method: GPLUM"

Author: Yota Ishigaki, Junko Kominami, Junichiro Makino, Masaki Fujimoto, Masaki Iwasawa

Comments: 15 pages, 15 figures

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

[理論/観測/実験 etc....]

Comment!!!!

[4] [arxive:2007.15363](#)

Title: "Atmospheric Dynamics of Hot Giant Planets and Brown Dwarfs"

Author: Adam P. Showman, Xianyu Tan, Vivien Parmentier

Comments: Invited review for Space Science Reviews special issue on "Understanding the Diversity of Planetary Atmospheres". Accepted. 52 pages, 33 figures. This may be the last published work led by Adam Showman, whose sudden death during the revision process of this manuscript deprived the field of one of his giant. He will be missed by all

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

[理論/観測/実験 etc....]

Comment!!!!

[5] [arxive:2007.15287](#)

Title: "A transition between the hot and the ultra-hot Jupiter atmospheres"

Author: Claire Baxter, Jean-Michel Désert, Vivien Parmentier, Mike Line, Jonathan Fortney, Jacob Arcangeli, Jacob L. Bean, Kamen O. Todorov, Megan Mansfield

Comments: Accepted 11th May 2020

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

[理論/観測/実験 etc....]

Comment!!!!

[6] [arxive:2007.15198](#)

Title: "Formation of "Blanets" from Dust Grains around the Supermassive Black Holes in Galaxies"

Author: Keiichi Wada, Yusuke Tsukamoto, Eiichiro Kokubo

Comments: 16 pages, 7 figures, submitted to ApJ

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

[理論/観測/実験 etc....]

Comment!!!!

[7] [arXiv:2007.15187](#)

Title: "The Galactic origin for the borders in the Earth history"

Author: R.S. Nigmatzyanov

Comments: Published in the journal Otechestvennaya geologiya [National geology], 2015, 3. pp.70-83

Subjects: Earth and Planetary Astrophysics (astro-ph.EP); Geophysics (physics.geo-ph)

[理論/観測/実験 etc....]

Comment!!!!

[8] [arXiv:2007.15014](#)

Title: "Solving grain size inconsistency between ALMA polarization and VLA continuum in the Ophiuchus IRS 48 protoplanetary disk"

Author: Satoshi Ohashi, Akimasa Kataoka, Nienke Van der Marel, Charles L. H. Hull, William R. F. Dent, Adriana Pohl, Paola Pinilla, Ewine F. van Dishoeck, Thomas Henning

Comments: 22 pages, 17 figures, accepted for publication in ApJ

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!!!!

[9] [arXiv:2007.15004](#)

Title: "Considerations for Atmospheric Retrieval of High-Precision Brown Dwarf Spectra"

Author: Anjali A. A. Piette, Nikku Madhusudhan

Comments: Accepted for publication in MNRAS, 21 pages, 15 figures

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

[理論/観測/実験 etc....]

Comment!!!!

[10] [arXiv:2007.15529](#)

Title: "Exoplanets Sciences with Nulling Interferometers and a Single-Mode Fiber-Fed Spectrograph"

Author: Ji Wang, Colby Jurgenson

Comments: Submitted to AAS Journals

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

[理論/観測/実験 etc....]

Comment!!!!

[11] [arXiv:2007.15463](#)

Title: "Asteroid impact, Schumann resonances and the end of dinosaurs"

Author: Z.K. Silagadze

Comments: 24 pages, no figures, elsarticle

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

[理論/観測/実験 etc....]

Comment!!!!

[12] [arXiv:2007.15389](#)

Title: "Confirming new white dwarf-ultracool dwarf binary candidates"

Author: Miriam Hogg, Sarah Casewell, Graham Wynn, Emma Longstaff, Ian Braker, Matthew Burleigh, Rosanna Tilbrook, Stephan Geier, Detlev Koester, John Debes, Nicolas Lodieu

Comments: Accepted to MNRAS

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!!!!

[13] [arXiv:2007.15129](#)

Title: "Integrating Machine Learning for Planetary Science: Perspectives for the Next Decade"

Author: Abigail R. Azari, John B. Biersteker, Ryan M. Dewey, Gary Doran, Emily J. Forsberg, Camilla D. K. Harris, Hannah R. Kerner, Katherine A. Skinner, Andy W. Smith, Rashied Amini, Saverio Cambioni, Victoria Da Poian, Tadhg M. Garton, Michael D. Himes, Sarah Millholland, Suranga Ruhunusiri

Comments: 10 pages (expanded citations compared to 8 page submitted version for decadal survey), 3 figures, white paper submitted to the Planetary Science and Astrobiology Decadal Survey 2023-2032

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

[理論/観測/実験 etc....]

Comment!!!!

[14] [arXiv:2007.15053](#)

Title: "Oceanic and atmospheric methane cycling in the cGENIE Earth system model"

Author: Christopher T. Reinhard, Stephanie L. Olson, Sandra Kirtland Turner, Cecily Palike, Yoshiki Kanzaki, Andy Ridgwell

Comments: Manuscript in review at Geoscientific Model Development

Subjects: Atmospheric and Oceanic Physics (physics.ao-ph); Earth and Planetary Astrophysics (astro-ph.EP); Geophysics (physics.geo-ph)

[理論/観測/実験 etc....]

Comment!!!!

[15] [arXiv:2007.14993](#)

Title: "Ultraviolet-Based Science in the Solar System: Advances and Next Steps"

Author: Amanda R. Hendrix, Tracy M. Becker, Dennis Bodewits, E. Todd Bradley, Shawn Brooks, Ben Byron, Josh Cahill, John Clarke, Lori Feaga, Paul Feldman, G. Randall Gladstone, Candice J. Hansen, Charles Hibbitts, Tommi T. Koskinen, Lizeth Magana, Philippa Molyneux, Shouleh Nikzad, John Noonan, Wayne Pryor, Ujjwal Raut, Kurt D. Retherford, Lorenz Roth, Emilie Royer, Ella Sciamma-O'Brien, Alan Stern, Karen Stockstill-Cahill, Faith Vilas, Bob West

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

[理論/観測/実験 etc....]

Comment!!!!

Nature

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Science

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