

# 2019年 8月 第3週 新着論文サーベイ

8月12日(月曜日)

[1] [arXiv:1908.03537](#)

Title: "The Evolution of Earth's Magnetosphere During the Solar Main Sequence"

Author: S. Carolan, A. A. Vidotto, C. Loesch, P. Coogan

Comments: Accepted to MNRAS

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

[理論/観測/実験 etc....]

Comment!!!!

[2] [arXiv:1908.03510](#)

Title: "Evolution of atmospheric escape in close-in giant planets and their associated Ly $\alpha$  and H $\alpha$  transit predictions"

Author: A. Allan, A. A. Vidotto

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

[理論/観測/実験 etc....]

Comment!!!!

[3] [arXiv:1908.03468](#)

Title: "On the accuracy of symplectic integrators for secularly evolving planetary systems"

Author: Hanno Rein, Garrett Brown, Daniel Tamayo

Comments: 13 pages, 7 figures, submitted

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

[理論/観測/実験 etc....]

Comment!!!!

[4] [arXiv:1908.03267](#)

Title: "Systematic Variations of CO Gas Abundance with Radius in Gas-rich Protoplanetary Disks"

Author: Ke Zhang, Edwin A. Bergin, Kamber R. Schwarz, Sebastiaan Krijt, Fred Ciesla

Comments: 17 pages, 8 figures, accepted for publication in the ApJ

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

[理論/観測/実験 etc....]

Comment!!!!

[5] [arXiv:1908.03248](#)

Title: "Impacts into rotating targets: angular momentum draining and efficient formation of synthetic families"

Author: P. Ševeček, M. Brož, M. Jutzi

Comments: Accepted for publication in A&A

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

[理論/観測/実験 etc....]

Comment!!!!

[6] [arXiv:1908.03222](#)

Title: "Analytic Planetary Transit Light Curves and Derivatives for Stars with Polynomial Limb Darkening"

Author: Eric Agol, Rodrigo Luger, Daniel Foreman-Mackey

Comments: 54 pages, 16 figures. Revised version re-submitted to AAS journals

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:1908.03277](#)

Title: "A Great Successor to the Hubble Space Telescope"

Author: B. Scott Gaudi, John C. Clarke, Shawn Domagal-Goldman, Debra Fischer, Alina Kiessling, Bertrand Mennesson, Bradley M. Peterson, Aki Roberge, Dan Stern, Keith Warfield

Comments: 11 pages, 9 figures, Astro2020 APC White Paper. Corrected with the proper attribution of Figure 3 to Todd Tripp

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

[理論/観測/実験 etc....]

Comment!!!!

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8月13日(火曜日)

[1] [arxiv:1908.04269](#)

Title: "Venus: Key to understanding the evolution of terrestrial planets"

Author: Colin Frank Wilson, Thomas Widemann

Comments: A response to ESA's Call for White Papers for the Voyage 2050 long-term plan in the ESA Science Programme, submitted in August 2019. arXiv admin note: substantial text overlap with arXiv:1703.10961

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

[理論/観測/実験 etc....]

ホワイトペーパー。地球型惑星の進化を知る上で金星は良いターゲットという理由で、ESA が 2015 年までに 2 つの M-class Venus missions を始めることを推奨している。

[2] [arxiv:1908.04185](#)

Title: "29P/Schwassmann-Wachmann 1, A Centaur in the Gateway to the Jupiter-Family Comets"

Author: Gal Sarid, Kathryn Volk, Jordan Steckloff, Walter Harris, Maria Womack, Laura Woodney

Comments: 11 pages, 4 figures, 1 table. Submitted to AAS journals

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

[理論/観測/実験 etc....]

(一部の)TNOs はケンタウルス族として進化することで太陽系の内部まで移動するような Jupiter Family Comets(JFCs)になる。その進化の途中に、木星の外側にある一時的な dynamical Gateway があることがわかった。

[3] [arxiv:1908.04166](#)

Title: "Pebbles versus Planetesimals: The case of Trappist-1"

Author: Gavin A. L. Coleman, Adrien Leleu, Yann Alibert, Willy Benz

Comments: Accepted for publication in A&A. 26 pages, 18 figures. Abridged abstract

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

[理論/観測/実験 etc....]

微惑星もしくはペブルから TRAPPIST-1 系と似たような系を再現できるかを研究した。マイグレーションや光蒸発、熱的進化を含めた粘性円盤モデルを使って N 体シミュレーションを何度も実行した。どちらの条件でも似たような惑星系を形成できた。基本的にはスノーライン以遠で形成され、マイグレーションによって現在の状態になる。ペブルから形成された場合は条件によっては非常に乾燥した環境になるため、今後 TRAPPIST-1 系の水含有量が決定されたら形成過程が分かるかもしれない。

[4] [arxiv:1908.04089](#)

Title: "Biofluorescent Worlds I: Global Biological Fluorescence as a Biosignature"

Author: J. T. O'Malley-James, L. Kaltenegger

Comments: Published in MNRAS. 11 pages, 7 figures

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

[理論/観測/実験 etc....]

F 型周りの惑星表面を観測する時に、生体蛍光が新しいバイオシグネチャーになるのではないかという話。

[5] [arxiv:1908.04046](#)

Title: "Cometary Chemistry and the Origin of Icy Solar System Bodies, the view after Rosetta"

Author: Kathrin Altwegg, Hans Balsiger, Stephen A. Fuselier

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

[理論/観測/実験 etc....]

Rosetta による 67P/Churyumov-Gerasimenko のその場観測により、彗星の同位体比が太陽とは異なることがわかった。これは彗星起源が不均一な原始惑星円盤であることを示唆している。67P のキセノン同位体比は地球大気のカセノン起源として説明することができる。

[6] [arxiv:1908.03611](#)

Title: "New Astronomy Reviews Special Issue: History of Kepler's Major Exoplanet "Firsts" "

Author: Jack J. Lissauer, Joann Eisberg

Comments: Editorial

Subjects: Earth and Planetary Astrophysics (astro-ph.EP); History and Philosophy of Physics (physics.hist-ph)

[理論/観測/実験 etc....]

社説。Kepler の舞台裏で行われていた研究努力とかそのあたりの話。

[7] [arxiv:1908.03593](#)

Title: "Design Considerations for a Ground-Based Search for Transiting Planets around L and T Dwarfs"

Author: Patrick Tamburo, Philip S. Muirhead

Comments: 18 pages, 9 figures; accepted for publication in PASP

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

[理論/観測/実験 etc....]

L 型や T 型星周りのトランジット惑星を検出したい。M 型星周りの惑星存在量を仮定して、L または T 型星周りでのシミュレーションを行った。NIR 観測装置を搭載した 2m クラス望遠鏡を使えば、少なくとも 1 つの惑星が発見できる確率が 80% 以上で、平均では 2 つ以上検出できる。

[8] [arxiv:1908.03623](#)

Title: "High-resolution Infrared Spectrograph for Exoplanet Characterization with the Keck and Thirty Meter Telescopes"

Author: Dimitri Mawet, Michael Fitzgerald, Quinn Konopacky, Charles Beichman, Nemanja Jovanovic, Richard Dekany, David Hover, Eric Chisholm, David

Ciardi, Etienne Artigau, Ravinder Banyal, Thomas Beatty, Bjorn Benneke, Geoffrey A. Blake, Adam Burgasser, Gabriela Canalizo, Guo Chen, Tuan Do, Greg Doppmann, Rene Doyon, Courtney Dressing, Min Fang, Thomas Greene, Lynne Hillenbrand, Andrew Howard, Stephen Kane, Tiffany Kataria, Eliza Kempton, Heather Knutson, Takayuki Kotani, David Lafreniere, Chao Liu, Shogo Nishiyama, Gajendra Pandey, Peter Plavchan, Lisa Prato, S.P. Rajaguru, Paul Robertson, Colette Salyk, Bunei Sato, Everett Schlawin, Sujan Sengupta, Thirupathi Sivarani, Warren Skidmore, Motohide Tamura, Hiroshi Terada, Gautam Vasisht, Ji Wang, Hui Zhang

Subjects: Instrumentation and Methods for Astrophysics (astro-ph.IM); Cosmology and Nongalactic Astrophysics (astro-ph.CO); 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....]

Keck や TMT 用に開発された HISPEC (High-resolution Infrared Spectrograph for Exoplanet Characterization) についての説明。

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## 8 月 14 日 (水曜日)

### [1] [arXiv:1908.04717](#)

Title: "Red Dots: A temperate 1.5 Earth-mass planet in a compact multi-terrestrial planet system around GJ1061"

Author: S. Dreizler, S.V., Jeffers, E. Rodríguez, M. Zechmeister, J.R. Barnes, C.A. Haswell, G. Coleman, S. Lalitha, D. Hidalgo Soto, J.B.P. Strachan, F.-J. Hamsch, M.J. López-González, N. Morales, C. Rodríguez López, Z.M. Berdiñas, I. Ribas, E. Pallé, A. Reiners, G. Anglada-Escudé

Comments: 14 pages, 17 figures

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:1908.04627](#)

Title: "Catalog for the ESPRESSO blind radial velocity exoplanet survey"

Author: S. Hojjatpanah, P. Figueira, N.C. Santos, V. Adibekyan, S. G. Sousa, E. Delgado-Mena, Y. Alibert, S. Cristiani, J. I. González Hernández, A. F. Lanza, P. Di Marcantonio, J. H. C. Martins, G. Micela, P. Molaro, V.

Neves, M. Oshagh, F. Pepe, E. Poretti, B. Rojas-Ayala, R. Rebolo, A. Suárez Mascareño, M. R. Zapatero Osorio

Comments: Corrected a typo in references. Corrected typo in table B.2

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

[理論/観測/実験 etc....]

Comment!!!!

[3] [arXiv:1908.04602](#)

Title: "The Beam Balance – Measuring Binary Systems via Relativistic Beaming Signals from Stars and their Companions"

Author: Zephyr Penoyre

Comments: 7 pages, 9 figures, 1 appendix, 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!!!!

[4] [arXiv:1908.04570](#)

Title: "Lack of close-in, massive planets of main-sequence A-type stars from Kepler"

Author: Silvia Sabotta, Petr Kabath, Judith Korth, Eike W. Guenther, Daniel Dupkala, Sascha Grziwa, Tereza Klocova, Marek Skarka

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

[理論/観測/実験 etc....]

Comment!!!!

[5] [arXiv:1908.04505](#)

Title: "Homogeneously derived transit timings for 17 exoplanets and reassessed TTV trends for WASP-12 and WASP-4"

Author: R.V. Baluev, E.N. Sokov, H.R.A. Jones, V.Sh. Shaidulin, I.A. Sokova, L.D. Nielsen, P. Benni, E.M. Schneiter, C. Villarreal D'Angelo, E. Fernández-Lajús, R.P. Di Sisto, Ö. Baştürk, M. Bretton, A. Wunsche, V.-P. Hentunen, S. Shadick, Y. Jongen, W. Kang, T. Kim, E. Pakštienė, J.K.T. Qvam, C.R. Knight, P. Guerra, A. Marchini, F. Salvaggio, R. Papini, P. Evans, M. Salisbury, F. Garcia, D. Molina, J. Garlitz, N. Esseiva, Y. Ogmen, Yu. Karavaev, S. Rusov, M.A. Ibrahimov, R.G. Karimov

Comments: 19 pages, 4 figures, 6 tables; revised manuscript submitted to MNRAS; online-only supplements are in



the download archive

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

[理論/観測/実験 etc....]

Comment!!!!

[6] [arxiv:1908.04350](#)

Title: "Earth as an Exoplanet: A Two-dimensional Alien Map"

Author: Siteng Fan, Cheng Li, Jia-Zheng Li, Stuart Bartlett, Jonathan H. Jiang,  
Vijay Natraj, David Crisp, Yuk L. Yung

Comments: Accepted by ApJL, 7 pages, 4 figures

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

[理論/観測/実験 etc....]

Comment!!!!

[7] [arxiv:1908.04300](#)

Title: "In-Situ Scattering of Warm Jupiters and Implications for Dynamical Histories"

Author: Kassandra R. Anderson, Dong Lai, Bonan Pu

Comments: 16 pages, 12 figures, submitted to MNRAS

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

[理論/観測/実験 etc....]

Comment!!!!

[8] [arxiv:1908.04612](#)

Title: "Chaotic rotation and evolution of asteroids and small planets in high-eccentricity orbits around white dwarfs"

Author: Valeri V. Makarov, Dimitri Veras

Comments: Revised manuscript resubmitted to ApJ after referee report

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

[理論/観測/実験 etc....]

Comment!!!!

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8月15日(木曜日)

[1] [arxiv:1908.05175](#)

Title: "Chaos in the inert Oort cloud"

Author: Melaine Saillenfest, Marc Fouchard, Takashi Ito, Arika Higuchi

Comments: Accepted for publication in Astronomy & Astrophysics

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

[理論/観測/実験 etc....]

Comment!!!!

[2] [arXiv:1908.05169](#)

Title: "Abundant refractory sulfur in protoplanetary disks"

Author: Mihkel Kama, Oliver Shorttle, Adam S. Jermyn, Colin P. Folsom, Kenji Furuya, Edwin A. Bergin, Catherine Walsh, Lindsay Keller

Comments: 11 pages, 3 figures, accepted for publication in ApJ, correspondence welcome

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

[理論/観測/実験 etc....]

Comment!!!!

[3] [arXiv:1908.05045](#)

Title: "The First Detection of  $^{13}\text{C}^{17}\text{O}$  in a Protoplanetary Disk: a Robust Tracer of Disk Gas Mass"

Author: Alice S. Booth, Catherine Walsh, John D. Ilee, Shota Notsu, Chunhua Qi, Hideko Nomura, Eiji Akiyama

Comments: Accepted ApJL

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!!!!

[4] [arXiv:1908.04934](#)

Title: "Constraining the Formation of the Four Terrestrial Planets in the Solar System"

Author: Patryk Sofia Lykawka, Takashi Ito

Comments: 42 pages, 5 figures, 8 tables. Accepted for publication in The Astrophysical Journal

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

[理論/観測/実験 etc....]

Comment!!!!

[5] [arXiv:1908.04789](#)

Title: "Measuring the Orbital Parameters of Radial Velocity Systems in Mean Motion Resonance—a Case Study of HD 200964"

Author: M. M. Rosenthal, W. Jacobson-Galan, B. Nelson, R. A. Murray-Clay, J.



A. Burt, B. Holden, E. Chang, N. Kaaz, J. Yant, R. P. Butler, S. S. Vogt

Comments: 26 pages, 23 figures

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

[理論/観測/実験 etc....]

Comment!!!!

[6] [arxiv:1908.05171](#)

Title: "Linking the Solar System and Extrasolar Planetary Systems with Radar Astronomy: Infrastructure for "Ground Truth" Comparison"

Author: Joseph Lazio, Amber Bonsall, Marina Brozovic, Jon D. Giorgini, Karen O'Neil, Edgard Rivera-Valentin, Anne K. Virkki, Francisco Cordova, Michael Busch, Bruce A. Campbell, P. G. Edwards, Yanga R. Fernandez, Ed Kruzins, Noemi Pinilla-Alonso, Martin A. Slade

Comments: 9 pages, 3 figures; Astro2020 Activities, Projects, or State of the Profession Consideration white paper

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

[理論/観測/実験 etc....]

Comment!!!!

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## 8月16日(金曜日)

[1] [arxiv:1908.05634](#)

Title: "REBOUNDx: A Library for Adding Conservative and Dissipative Forces to Otherwise Symplectic N-body Integrations"

Author: Daniel Tamayo, Hanno Rein, Pengshuai Shi, David M. Hernandez

Comments: Submitted. Paper repository: this [https URL](https://github.com/ReinTAMAYO/REBOUNDx), Library Documentation: this [https URL](https://github.com/ReinTAMAYO/REBOUNDx/blob/master/README.md)

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

[理論/観測/実験 etc....]

惑星系の長期間の様子を Wisdom - Holman マップでしらべてみる。python で動かせるパッケージを配布。

[2] [arxiv:1908.05335](#)

Title: "First resolved observations of a highly asymmetric debris disc around HD 160305 with VLT/SPHERE"

Author: Clément Perrot, Philippe Thebault, Anne-Marie Lagrange, Anthony Boccaletti, Arthur Vigan, Silvano Desidera, Jean-Charles Augereau, Mickael Bonnefoy, Élodie Choquet, Quentin Kral, Alan Loh, Anne-Lise Maire,

François Ménard, Sergio Messina, Johan Olofsson, Raffaele Gratton, Beth Biller, Wolfgang Brandner, Esther Buenzli, Gaël Chauvin, Anthony Cheetham, Sebastien Daemgen, Philippe Delorme, Markus Feldt, Eric Lagadec, Maud Langlois, Justine Lannier, Dino Mesa, David Mouillet, Sébastien Peretti, Pierre Janin-Potiron, Graeme Salter, Elena Sissa, Alain Roux, Marc Llored, Jean-Tristan Buey, Alexei Pavlov, Luc Weber, Cyril Petit

Comments: 13 pages

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

[観測]

VLT/SPHERE を使って、HD160305 のデブリ円盤を始めて撮像観測。近赤外の散乱光で、デブリ円盤が  $82^\circ$  と非常に傾いていることがわかり、2 方向に非対称なことが分かった。これは見えていない惑星の影響ではないかと考えられる。怪しい点源候補も見つかっているので、今後も調べて見たい。

### [3] [arxiv:1908.05375](https://arxiv.org/abs/1908.05375)

Title: "Properties of the Interstellar Medium along Sight Lines to Nearby Planet Hosting Stars"

Author: Eric Edelman, Seth Redfield, Jeffrey L. Linsky, Brian E. Wood, Hans Müller

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]

系外惑星を持つ 3 つ恒星の紫外線での高分解能分光観測を試みた。恒星間の様子などを調べたい。HST/STIS で Lyman- $\alpha$  と Mg II, Fe II のラインで、それぞれの恒星で視線速度を計測。青方偏移の吸収をしている構成はなかった。これは電離している星間ガスの所為だともわれる。20pc 以内に存在している総ての系外惑星で星間空間の状態を調べて、雲の速度の方向などを調べられるようにしたい。

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Nature

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Science

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