

2020年 10月 第2週 新着論文サーベイ

10月5日(月曜日)

[1] [arxiv:2010.01095](#)

Title: "Effect of the surface shape of a large space body on its fragmentation in a planetary atmosphere"

Author: Daniil E. Khrennikov, Andrei K. Titov, Alexander E. Ershov, Andrei B. Klyuchantsev, Vladimir I. Pariev, Sergei V. Karpov

Comments: 9 pages, 14 figures

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

[理論/観測/実験 etc....]

Comment!!!!

[2] [arxiv:2010.01074](#)

Title: "Refining the transit timing and photometric analysis of TRAPPIST-1: Masses, radii, densities, dynamics, and ephemerides"

Author: Eric Agol, Caroline Dorn, Simon L. Grimm, Martin Turbet, Elsa Ducrot, Laetitia Delrez, Michael Gillon, Brice-Olivier Demory, Artem Burdanov, Khalid Barkaoui, Zouhair Benkhaldoun, Emeline Bolmont, Adam Burgasser, Sean Carey, Julien de Wit, Daniel Fabrycky, Daniel Foreman-Mackey, Jonas Haldemann, David M. Hernandez, James Ingalls, Emmanuel Jehin, Zachary Langford, Jeremy Leconte, Susan M. Lederer, Rodrigo Luger, Renu Malhotra, Victoria S. Meadows, Brett M. Morris, Francisco J. Pozuelos, Didier Queloz, Sean M. Raymond, Franck Selsis, Marko Sestovic, Amaury H.M.J. Triaud, Valerie Van Grootel

Comments: Comments welcome. Revised draft submitted to the Planetary Sciences Journal in response to first referee report. 56 pages, 30 figures. Data from the paper and a complete table of forecast JWST times may be found at this [https URL](#)

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

[理論/観測/実験 etc....]

Comment!!!!

[3] [arxiv:2010.00997](#)

Title: "A data-driven approach to constraining the atmospheric temperature

structure of KELT-9b”

Author:L. Fossati, D. Shulyak, A. G. Sreejith, T. Koskinen, M. E. Young, P. E. Cubillos, L. M. Lara, K. France, M. Rengel, P. W. Cauley, J. D. Turner, A. Wyttenbach, F. Yan

Comments: Accepted for publication 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!!!!

[4] [arxiv:2010.00870](#)

Title: ”Multiple subglacial water bodies below the south pole of Mars unveiled by new MARSIS data”

Author:Sebastian Emanuel Lauro, Elena Pettinelli, Graziella Caprarelli, Luca Guallini, Angelo Pio Rossi, Elisabetta Mattei, Barbara Cosciotti, Andrea Cicchetti, Francesco Soldovieri, Marco Cartacci, Federico Di Paolo, Raffaella Noschese, Roberto Orosei

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

[理論/観測/実験 etc....]

Comment!!!!

[5] [arxiv:2010.00862](#)

Title: ”Parametric instability in a free evolving warped protoplanetary disc”

Author:Hongping Deng, Gordon I. Ogilvie, Lucio Mayer

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

[理論/観測/実験 etc....]

Comment!!!!

[6] [arxiv:2010.00687](#)

Title: ”A Comprehensive Reanalysis of Spitzer’s 4.5 μm Phase Curves, and the Phase Variations of the Ultra-hot Jupiters MASCARA-1b and KELT-16b”

Author:Taylor J. Bell, Lisa Dang, Nicolas B. Cowan, Jacob Bean, Jean-Michel Désert, Jonathan J. Fortney, Dylan Keating, Eliza Kempton, Laura Kreidberg, Michael R. Line, Megan Mansfield, Vivien Parmentier, Kevin B. Stevenson, Mark Swain, Robert T. Zellem

Comments: Submitted to MNRAS on October 1, 2020, comments welcome. 19 pages, 15 figures, and 5 tables. 16 pages of supplementary information with 15 additional figures

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

[理論/観測/実験 etc....]

Comment!!!!

[7] [arxive:2010.00604](#)

Title: "EvryFlare III: Temperature Evolution and Habitability Impacts of Dozens of Superflares Observed Simultaneously by Evryscope and TESS"

Author:Ward S. Howard, Hank Corbett, Nicholas M. Law, Jeffrey K. Ratzloff, Nathan Galliher, Amy L. Glazier, Ramses Gonzalez, Alan Vasquez Soto, Octavi Fors, Daniel del Ser, Joshua Haislip

Comments: 14 pages, 9 figures, 2 tables. Accepted for publication to the Astrophysical Journal. In press

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

[理論/観測/実験 etc....]

Comment!!!!

10月6日(火曜日)

[1] [arxive:2010.02197](#)

Title: "Eigenspectra: A Framework for Identifying Spectra from 3D Eclipse Mapping"

Author:Megan Mansfield, Everett Schlawin, Jacob Lustig-Yaeger, Arthur D. Adams, Emily Rauscher, Jacob Arcangeli, Y. Katherina Feng, Prashansa Gupta, Dylan Keating, Kevin B. Stevenson, Thomas G. Beatty

Comments: 13 pages, 17 figures, accepted to MNRAS

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

[理論/観測/実験 etc....]

Comment!!!!

[2] [arxive:2010.02133](#)

Title: "Spectropolarimetry of primitive phototrophs as global surface biosignatures"

Author:William B. Sparks, M. Niki Parenteau, Robert E. Blankenship, Thomas A. Germer, C.H. Lucas Patty, Kimberly M. Bott, Charles M. Telesco, Victoria S. Meadows

Comments: 26 pages, 8 figures. To be published in Astrobiology

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

[理論/観測/実験 etc....]

Comment!!!!

[3] [arXiv:2010.02118](#)

Title: "Time-resolved rotational velocities in the upper atmosphere of WASP-33 b"

Author: P. Wilson Cauley, Ji Wang, Evgenya L. Shkolnik, Ilya Ilyin, Klaus G. Strassmeier, Seth Redfield, Adam Jensen

Comments: 24 pages, 17 figures including 2 appendix figures. Under review at AAS journals

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

[理論/観測/実験 etc....]

Comment!!!!

[4] [arXiv:2010.02109](#)

Title: "Asteroid Thermal Inertia Estimates from Remote Infrared Observations: The Effects of Surface Roughness and Rotation Rate"

Author: Alan W. Harris, Line Drube

Comments: 24 pages, 9 figures, Accepted Manuscript, ApJ

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

[理論/観測/実験 etc....]

Comment!!!!

[5] [arXiv:2010.01993](#)

Title: "K2-111: an old system with two planets in near-resonance"

Author: A. Mortier, M.R. Zapatero Osorio, L. Malavolta, Y. Alibert, K. Rice, J. Lillo-Box, A. Vanderburg, M. Oshagh, L. Buchhave, V. Adibekyan, E. Delgado Mena, M. Lopez-Morales, D. Charbonneau, S.G. Sousa, C. Lovis, L. Affer, C. Allende Prieto, S.C.C. Barros, S. Benatti, A.S. Bonomo, W. Boschin, F. Bouchy, A. Cabral, A. Collier Cameron, R. Cosentino, S. Cristiani, O. D. S. Demangeon, P. Di Marcantonio, V. D'Odorico, X. Dumusque, D. Ehrenreich, P. Figueira, A. Fiorenzano, A. Ghedina, J.I. González Hernández, J. Haldemann, A. Harutyunyan, R.D. Haywood, D.W. Latham, B. Lavie, G. Lo Curto, J. Maldonado, A. Manescau, C.J.A.P. Martins, M. Mayor, D. Mégevand, A. Mehner, G. Micela, P. Molaro, E. Molinari, N. J. Nunes, F.A. Pepe, E. Pallé, D. Phillips, G. Piotto, M. Pinamonti, E. Poretti

Comments: Accepted for publication in MNRAS on 28 Sept 2020. Paper is 18 pages with an additional 12 pages of supplementary material

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

[理論/観測/実験 etc....]

Comment!!!!

[6] [arXiv:2010.01915](#)

Title: "Direct radio discovery of a cold brown dwarf"

Author: H. K. Vedantham, J. R. Callingham, T. W. Shimwell, T. Dupuy, William M. J. Best, Michael C. Liu, Zhoujian Zhang, K. De, L. Lamy, P. Zarka, H. J. A. Rottgering, A. Shulevski

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

[理論/観測/実験 etc....]

Comment!!!!

[7] [arXiv:2010.01820](#)

Title: "Asteroid models reconstructed from ATLAS photometry"

Author: J. Durech, J. Tonry, N. Erasmus, L. Denneau, A. N. Heinze, H. Flewelling, R. Vanco

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

[理論/観測/実験 etc....]

Comment!!!!

[8] [arXiv:2010.01734](#)

Title: "Finding Signs of Life on Earth-like Planets: High-resolution Transmission Spectra of Earth through time around FGKM stars"

Author: L. Kaltenegger, Z. Lin, S. Rugheimer

Comments: 9 pages, accepted in ApJ

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

[理論/観測/実験 etc....]

Comment!!!!

[9] [arXiv:2010.01466](#)

Title: "How does Background Air Pressure Influence the Inner Edge of the Habitable Zone for Tidally Locked Planets in a 3D View?"

Author: Yixiao Zhang, Jun Yang

Comments: 14 Pages, 4 Figures, accepted for publication in ApJL

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

[理論/観測/実験 etc....]

Comment!!!!

[10] [arXiv:2010.01395](#)

Title: "Evidence for sulfur-bearing species on Callisto's leading hemisphere:
Sourced from Jupiter's irregular satellites or Io?"

Author: Richard J. Cartwright, Tom A. Nordheim, Dale P. Cruikshank, Kevin P. Hand, Joseph E. Roser, William M. Grundy, Chloe B. Beddingfield, Joshua P. Emery

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

[理論/観測/実験 etc....]

Comment!!!!

[11] [arXiv:2010.01310](#)

Title: "KELT-11 b: Abundances of water and constraints on carbon-bearing molecules from the Hubble transmission spectrum"

Author: Quentin Changeat, Billy Edwards, Ahmed F. Al-Refaie, Mario Morvan, Angelos Tsiaras, Ingo P. Waldmann, Giovanna Tinetti

Comments: 24 pages, 14 figures, Accepted in AJ

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

[理論/観測/実験 etc....]

Comment!!!!

[12] [arXiv:2010.01225](#)

Title: "Four Billion Year Stability of the Earth-Mars Belt"

Author: Yukun Huang, Brett Gladman

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

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

[理論/観測/実験 etc....]

Comment!!!!

[13] [arXiv:2010.01145](#)

Title: "Polydisperse Streaming Instability I. Tightly coupled particles and the terminal velocity approximation"

Author: Sijme-Jan Paardekooper, Colin P. McNally, Francesco Lovascio

Comments: 17 pages, 10 figures, 1 table. Submitted

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

[理論/観測/実験 etc....]

Comment!!!!

[14] [arXiv:2010.02186](#)

Title: "On the accuracy of the ALMA flux calibration in the time domain and across spectral windows"

Author: Logan Francis, Doug Johnstone, Gregory Herczeg, Todd R. Hunter, Daniel Harsono

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!!!!

[15] [arXiv:2010.01953](#)

Title: "On the grain-size distribution of turbulent dust growth"

Author: Lars Mattsson

Comments: 9 pages, 7 figures, accepted for publication in MNRAS

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

[理論/観測/実験 etc....]

Comment!!!!

[16] [arXiv:2010.01224](#)

Title: "Retrieval of SDSS J1416+1348AB"

Author: Eileen Gonzales, Ben Burningham, Jackie Faherty, Colleen Cleary, Channon Visscher, Mark Marley, Roxana Lupu, Richard Freedman

Comments: 40 pages, 25 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月7日(水曜日)

[1] [arXiv:2010.02603](#)

Title: "A close-encounter method for simulating the dynamics of planetesimals"

Author: Sebastian Lorek, Anders Johansen

Comments: accepted for publication in A&A

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:2010.02589](#)

Title: "Earth as an Exoplanet: I. Time variable thermal emission using spatially resolved MODIS data"

Author: Jean-Noël Mettler, Sascha P. Quanz, Ravit Helled

Comments: 13 pages, 10 figures, accepted for publishing in ApJ

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

[理論/観測/実験 etc....]

Comment!!!!

[3] [arXiv:2010.02553](#)

Title: "Potential asteroid discoveries by the ESA Gaia mission: Results from follow-up observations"

Author: B. Carry, W. Thuillot, F. Spoto, P. David, J. Berthier, P. Tanga, F. Mignard, S. Bouquillon, R. A. Mendez, J.-P. Rivet, A. Le Van Suu, A. Dell'Oro, G. Fedorets, B. Frezouls, M. Granvik, J. Guiraud, K. Muinonen, C. Panem, T. Pauwels, W. Roux, G. Walmsley, J.-M. Petit, L. Abe, V. Ayvazian, K. Baillié, A. Baransky, P. Bendjoya, M. Dennefeld, J. Desmars, S. Eggl, V. Godunova, D. Hestroffer, R. Inasaridze, V. Kashuba, Y. N. Krugly, I. E. Molotov, V. Robert, A. Simon, I. Sokolov, D. Souami, V. Tarady, F. Taris, V. Troianskyi, V. Vasylenko, D. Vernet

Comments: Submitted to Astronomy & Astrophysics

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

[理論/観測/実験 etc....]

Comment!!!!

[4] [arXiv:2010.02431](#)

Title: "Multi-harmonic Hamiltonian models with applications to first-order resonances"

Author: Hanlun Lei, Jian Li

Comments: Accepted for publication by MNRAS on October 2, 2020. The paper contains 18 pages and 15 figures

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

[理論/観測/実験 etc....]

Comment!!!!

[5] [arXiv:2010.02249](#)

Title: "Multi-wavelength continuum sizes of protoplanetary discs: scaling relations and implications for grain growth and radial drift"

Author:Marco Tazzari, Cathie J. Clarke, Leonardo Testi, Jonathan P. Williams,
Stefano Facchini, Carlo F. Manara, Antonella Natta, Giovanni Rosotti

Comments:Submitted to MNRAS; 20 pages, 12 figures, 5 tables. Detailed fit results in Appendix C (27 pages, 75
figures); added reference to Paper I (2010.02248)

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

[理論/観測/実験 etc....]

Comment!!!!

[6] [arXiv:2010.02248](#)

Title: "The first ALMA survey of protoplanetary discs at 3 mm: demographics of
grain growth in the Lupus region"

Author:Marco Tazzari, Leonardo Testi, Antonella Natta, Jonathan P. Williams,
Megan Ansdell, Jonathan M. Carpenter, Stefano Facchini, Greta Guidi,
Michiel Hogherheijde, Carlo F. Manara, Anna Miotello, Nienke van der
Marel

Comments:Submitted to MNRAS; 11 pages, 5 figures, 2 tables; added reference to Paper II (2010.02249)

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!!!!

[7] [arXiv:2010.02234](#)

Title: "The Resonance Hopping Effect in the Neptune-Planet Nine System"

Author:Tali Khain, Juliette Becker, Fred C. Adams

Comments:accepted to PASP

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

[理論/観測/実験 etc....]

Comment!!!!

[8] [arXiv:2010.02215](#)

Title: "Lunar Exploration as a Probe of Ancient Venus"

Author:Samuel H. C. Cabot, Gregory Laughlin

Comments:23 pages, 7 figures, accepted to PSJ

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

[理論/観測/実験 etc....]

Comment!!!!

[9] [arXiv:2010.02214](#)

Title: "Observable Signatures of the Ejection Speed of Interstellar Objects from their Birth Systems"

Author: Amir Siraj, Abraham Loeb

Comments: 4 pages, 5 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!!!!

[10] [arXiv:2010.02734](#)

Title: "Can the Blackett conjecture directly account for the magnetic fields of celestial bodies and galaxies? And, is a lab-based test for the Blackett conjecture feasible?"

Author: L. Campanelli

Comments: 3 pages, no figures

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

[理論/観測/実験 etc....]

Comment!!!!

[11] [arXiv:2010.02272](#)

Title: "When Do Stalled Stars Resume Spinning Down? Advancing Gyrochronology with Ruprecht 147"

Author: Jason Lee Curtis, Marcel A. Agüeros, Sean P. Matt, Kevin R. Covey, Stephanie T. Douglas, Ruth Angus, Steven H. Saar, Ann Marie Cody, Andrew Vanderburg, Nicholas M. Law, Adam L. Kraus, David W. Latham, Christoph Baranec, Reed Riddle, Carl Ziegler, Mikkel N. Lund, Guillermo Torres, Søren Meibom, Victor Silva Aguirre, Jason T. Wright

Comments: 51 pages and 21 figures. Machine-readable tables for Ruprecht 147 and the Benchmark Clusters catalogs are included in arXiv source

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!!!!

10月8日(木曜日)

[1] [arxiv:2010.03529](#)

Title: "Astrochemistry and compositions of planetary systems"

Author: Karin I. Oberg, Edwin A. Bergin

Comments: Authors' version of review to appear in Physics Reports. 47 pages, 20 figures

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....]

惑星形成の現場である原始惑星系円盤の仲での化学進化についてのレビュー。

[2] [arxiv:2010.03470](#)

Title: "Matched filtering with non-Gaussian noise for planet transit detections"

Author: Jakob Robnik, Uroš Seljak

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

[理論/観測/実験 etc....]

トランジットライトカーブから惑星シグナルを検出する手法。false positive がすごく少ないらしい。

[3] [arxiv:2010.03453](#)

Title: "The surface of (1) Ceres in visible light as seen by Dawn/VIR"

Author: B. Rousseau, M. C. De Sanctis, A. Raponi, M. Ciarniello, E. Ammannito, A. Frigeri, M. Ferrari, S. De Angelis, F. Tosi, S. E. Schröder, C. A. Raymond, C. T. Russell

Comments: 22 pages, 14 + 5 figures. Published online on Astronomy and Astrophysics on 07-10-2020

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

[理論/観測/実験 etc....]

ケレスの表面マッピングについて。

[4] [arxiv:2010.03237](#)

Title: "Occurrence rates of small planets from HARPS: Focus on the Galactic context"

Author: Dolev Bashi, Shay Zucker, Vardan Adibekyan, Nuno C. Santos, Lev Tal-Or, Trifon Trifonov, Tsevi Mazeh

Comments: 10 pages, 6 figures, accepted for publication in A&A

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....]

銀河系のなかの、thin disk と thick disk で惑星の性質が異なるかを調べた。それぞれの場合の、惑星の存在頻度を制限した。HARPS の RV データを使っていて、金属量の違いなども考慮したところ、二つの円盤で違いは無さそう。鉄が少ないと、thick disk のほうが、thin disk に比べて惑星の出現率は優位に大きくなる。

[5] [arxiv:2010.02961](#)

Title: "Mutual inclinations between giant planets and their debris discs in HD 113337 and HD 38529"

Author: Jerry W. Xuan, Grant M. Kennedy, Mark C. Wyatt, Ben Yelverton

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]

HD113337 と HD38529 は巨大ガス惑星とデブリ円盤をもち、遠方に M 型伴星がいる。Gaia DR2 と Hipparcos のアストロメトリを浸かって、惑星の軌道を推定した。軌道傾斜角についてそれぞれ 17–32 度、21–45 度と推定された。惑星と円盤が揃っている確率は 0.3% 以下と考えられる。伴星の影響で惑星の軌道傾斜角がズレているとすると、1Gyr 程度の古い系であって、原始惑星系円盤由来のズレだとすると 20Myr くらいの新しい天体になる。年齢が重要になりそう。

[6] [arxiv:2010.03534](#)

Title: "Interactive Visualization of Atmospheric Effects for Celestial Bodies"

Author: Jonathas Costa, Alexander Bock, Carter Emmart, Charles Hansen, Anders Ynnerman, Claudio Silva

Comments: To appear at IEEE VIS 2020

Subjects: Human-Computer Interaction (cs.HC); Earth and Planetary Astrophysics (astro-ph.EP); Instrumentation and Methods for Astrophysics (astro-ph.IM)

[理論/観測/実験 etc....]

惑星表面を可視化するのに良いモデルの紹介。インタラクティブに操作出来る。

[7] [arxiv:2010.02928](#)

Title: "High Contrast Thermal Infrared Spectroscopy with ALES: The 3-4 μ m Spectrum of κ Andromedae b"

Author: Jordan M. Stone, Travis Barman, Andrew J. Skemer, Zackery W. Briese-meister, Laci S. Brock, Philip M. Hinz, Jarron M. Leisenring, Charles E. Woodward, Michael F. Skrutskie, Eckhart Spalding

Comments: Accepted for publication in AJ

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

[理論/観測]

LBT の ALES を使って、B9 型星の 1 秒角の距離にある κ And b の L バンドでの分光をはじめて行った。これまでの研究と比較すると、L' バンドではモデルと 20% くらい不定性がある。今回のデータで、過去の L バンド測光と一致する結果が得られて、伴星の大気モデルを考えると、L3 型の褐色矮星とよく一致した。1 μ m 以下の粒からなる雲が非常に高層まで広がっているモデル。

10月9日(金曜日)

[1] [arXiv:2010.04089](#)

Title: "Mutual detectability: a targeted SETI strategy that avoids the SETI Paradox"

Author: Eamonn Kerins

Comments: 8 pages, 1 figure. Submitted to AJ

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

[理論/観測/実験 etc....]

地球外知的生命体の探査 (SETI) と、知的生命体との交信 (METI) について。地球外生命体がいとも交信しようとしなければ、いくら SETI を頑張っても見つからないという SETI パラドックスがあるが、これを克服するため、相互性、対称性、機会性、優越性の 4 つに基づいた Mutual Detectability を提唱した。知的生命体は自らの優位性を示すために何かしらの発信をするので SETI パラドックスは回避できるらしい。

[2] [arXiv:2010.04032](#)

Title: "Modeling optical roughness and first-order scattering processes from OSIRIS-REx color images of the rough surface of asteroid (101955) Bennu"

Author: Pedro H. Hasselmann, Sonia Fornasier, Maria A. Barucci, Alice Praet, Beth E. Clark, Jian-Yang Li, Dathon R. Golish, Daniella N. DellaGiustina, Jasinghege Don P. Deshapriya, Xian-Duan Zou, Mike G. Daly, Olivier S. Barnouin, Amy A. Simon, Dante S. Lauretta

Comments: 15 pages, 11 figures

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

[理論/観測/実験 etc....]

OSIRIS-REx ミッションによって小惑星 Bennu 表面は礫が多く、ダストが少ないことがわかっている。高空間分解な地形データのある 4 地点について、一次散乱を半数値的統計モデルを用いて計算し、表面の光学的荒さを求めた。

[3] [arXiv:2010.04016](#)

Title: "Cosmic radiation does not prevent collisional charging in (Pre)-Planetary Atmospheres"

Author: Felix Jungmann, Tetyana Bila, Laura Kleinert, Andre Mölleken, Rolf Möller, Lars Schmidt, Niclas Schneider, Jens Teiser, Detlef Utzat, Victoria Volkenborn, Gerhard Wurm

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

[理論/観測/実験 etc....]

惑星環境ではダスト粒子が絶えず衝突し、電荷の交換が行われているが、この時の電荷の平衡状態に恒星の輻射が与える影響を調べた。成層圏でのバルーン実験の結果、高度の上昇による輻射の増加は 54 倍程度で、粒子の電荷現象は 30% に止まった。地球の雷や、火星表面の粒子移動など分単位の時間スケールの現象には構成輻射の影響はないことがわかった。

[4] [arXiv:2010.03693](#)

Title: "Five New Post-Main-Sequence Debris Disks with Gaseous Emission"

Author: Erik Dennihy, Siyi Xu, Samuel Lai, Amy Bonsor, J. C. Clemens, Patrick Dufour, Boris T. Gansicke, Nicola Pietro Gentile Fusillo, Francois Hardy, R. J. Hegedus, J. J. Hermes, B. C. Kaiser, Markus Kissler-Patig, Beth Klein, Christopher J. Manser, Joshua S. Reding

Comments: Submitted to ApJ, under review

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

[理論/観測/実験 etc....]

post-main-sequence 星周りのデブリ円盤は惑星破壊を観測できるターゲットである。今回、白色矮星周りのデブリ円盤を 5 つ発見した。全ての例でダストからの赤外線放射、ガス輝線、大気吸収が見られたことから、金属リッチなダストが降着中であることが示唆された。

[5] [arXiv:2010.03657](#)

Title: "Four annular structures in a protostellar disk less than 500,000 years old"

Author: Dominique M. Segura-Cox, Anika Schmiedeke, Jaime E. Pineda, Ian W. Stephens, Manuel Fernández-López, Leslie W. Looney, Paola Caselli, Zhi-Yun Li, Lee G. Mundy, Woojin Kwon, Robert J. Harris

Comments: Accepted for publication in Nature, appearing in the 8 Oct 2020 issue, DOI: 10.1038/s41586-020-2779-6

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

[理論/観測/実験 etc....]

原始惑星系円盤のリングやギャップの円環構造は年齢 100 万年くらいのクラス II 天体で検出されることが多く、巨大惑星形成の証拠と解釈されることが多い。このことから、惑星形成はそれよりも若いクラス I の段階から始まっていることを示しているが、このような若い円盤の観測は近年までされていなかった。今回、年齢 50 万年未満の若いクラス I 原始星 IRS 63 の原始惑星系円盤に 1.3mm のダスト放射で円環構造を観測した。IRS 63 ですでに惑星が形成されているのかはわからないが、クラス I の段階で惑星形成の過程が進行していることがわかった。

[6] [arXiv:2010.03650](#)

Title: "A Tale of Two Transition Disks: ALMA long-baseline observations of ISO-Oph 2 reveal two closely packed non-axisymmetric rings and a ~ 2 au cavity"

Author: Camilo González-Ruilova, Lucas A. Cieza, Antonio S. Hales, Sebastián Pérez, Alice Zurlo, Carla Arce-Tord, Simón Casassus, Hector Cánovas, Mario Flock, Gregory J. Herczeg, Paola Pinilla, Daniel J. Price, David A.

Principe, Dary Ruíz-Rodríguez, Jonathan P. Williams

Comments: 10 pages, 4 figures, 1 table

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

[理論/観測/実験 etc....]

連星系 ISO-Oph 2 は、primary の周りに質量 40 地球質量の絵イング状の円盤を持ち、secondary の周囲に 0.8 地球質量の円盤を持つ。今回、ALMA で 1.3mm 連続光と 12CO の分子輝線で $0''02(3\text{au})$ の空間分解能で観測したところ、secondary の円盤半径が 7au で、半径約 2.2au のキャビティを持つことがわかった。

[7] [arxiv:2010.03570](#)

Title: "A Highly Eccentric Warm Jupiter Orbiting TIC 237913194"

Author: Martin Schlecker, Diana Kossakowski, Rafael Brahm, Néstor Espinoza, Thomas Henning, Ludmila Carone, Karan Molaverdikhani, Trifon Trifonov, Paul Mollière, Melissa J. Hobson, Andrés Jordán, Felipe I. Rojas, Hubert Klahr, Paula Sarkis, Gáspár Á. Bakos, Waqas Bhatti, David Osip, Vincent Suc, George Ricker, Roland Vanderspek, David W. Latham, Sara Seager, Joshua N. Winn, Jon M. Jenkins, Michael Vezie, Jesus Noel Villaseñor, Mark E. Rose, David R. Rodriguez, Joseph E. Rodriguez, Samuel N. Quinn, Avi Shporer

Comments: 20 pages, 14 figures. Accepted for publication in AJ

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

[理論/観測/実験 etc....]

TESS の sector 1 と 2 の撮像からウォームジュピター TIC 237913194b を発見し、地上から追観測を行って RV の時間経過を測定した。質量と半径はそれぞれ $1.942M_J$, $1.117R_J$ で、軌道周期は 15.17 日だった。離心率が 0.58 と高いが、潮汐散逸のタイムスケールが長いので、高離心率の migration 中に捕獲されたホットジュピターの可能性は低い。

[8] [arxiv:2010.04156](#)

Title: "Automating Inference of Binary Microlensing Events with Neural Density Estimation"

Author: Keming Zhang, Joshua S. Bloom, B. Scott Gaudi, Francois Lanusse, Casey Lam, Jessica Lu

Comments: 7 pages, 1 figure. Submitted to the ML4PS workshop at NeurIPS 2020

Subjects: Instrumentation and Methods for Astrophysics (astro-ph.IM); Earth and Planetary Astrophysics (astro-ph.EP); Solar and Stellar Astrophysics (astro-ph.SR); Machine Learning (cs.LG); Data Analysis, Statistics and Probability (physics.data-an)

[理論/観測/実験 etc....]

MCMC など従来の sample-based アルゴリズムによる連星のマイクロレンズイベントの検出の自動化は物理モデルや尤度平面によって処理が遅くなるらしい。また、最適解を導くのに高度な専門知識と広範囲のグリッド走査が必要。Roman Space Observatory による次世代のマイクロレンズの宇宙観測に備え、neural density estimation(NDS) を用いた新しい自動化アルゴリズムを開発した。これで従来よりも高速、かつ高精度な検出ができるらしい。

[9] [arXiv:2010.04122](#)

Title: "Recurrent Solar Energetic Particle Flux Enhancements Observed near Earth and Mars"

Author: C. Krishnaprasad, Smitha V. Thampi, Anil Bhardwaj, Christina O. Lee, K. Kishore Kumar, Tarun K. Pant

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

[理論/観測/実験 etc....]

Comment!!!!

[10] [arXiv:2010.04024](#)

Title: "Elemental Abundances of M Dwarfs Based on High-Resolution Near-Infrared Spectra: Verification by Binary Systems"

Author: Hiroyuki Tako, Ishikawa, Wako Aoki, Takayuki Kotani, Masayuki Kuzuhara, Masashi Omiya, Ansgar Reiners, Mathias Zechmeister

Comments: 19 pages, 11 figures, accepted for publication in PASJ

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

[理論/観測/実験 etc....]

G/K 型星と連星を成す M 型矮星の高分解分光観測を行い、8 つの元素 (Na, Mg, K, Ca, Ti, Cr, Mn, and Fe) のアバUNDANCE を調べた。多くの元素の輝線が、自身の含有量だけでなく他の元素の含有量にも sensitive であることがわかった。このことから、金属量やある元素の含有量を正確に求めるにはそれぞれの元素について個別に含有量を整合的に求める必要がある。

[11] [arXiv:2010.03927](#)

Title: "Rough-Surface Shadowing of Self-Affine Random Rough Surfaces"

Author: Hannu Parviainen, Karri Muinonen

Comments: Published in JQSRT 106 (2007)

Subjects: Optics (physics.optics); Earth and Planetary Astrophysics (astro-ph.EP)

[理論/観測/実験 etc....]

Comment!!!!

[12] [arXiv:2010.03695](#)

Title: "Serendipitous Discovery of Nine White Dwarfs With Gaseous Debris Disks"

Author: Carl Melis, B. Klein, A. E. Doyle, A. J. Weinberger, B. Zuckerman, P. Dufour

Comments: ApJ accepted. 66 pages, 20 main text. 2 figures and 2 tables in main text (many more in Appendices)

Subjects: Solar and Stellar Astrophysics (astro-ph.SR); Earth and Planetary Astrophysics (astro-ph.EP)
[理論/観測/実験 etc....]

[13] [arXiv:2010.03576](#)

Title: "JWST Noise Floor II: Systematic Error Sources in JWST NIRCam Time Series"

Author: Everett Schlawin, Jarron Leisenring, Michael W. McElwain, Karl Misselt, Kenneth Don, Thomas P. Greene, Thomas Beatty, Nikolay Nikolov, Douglas Kelly, Marcia Rieke

Comments: AAS Journals, submitted

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

[理論/観測/実験 etc....]

JWST/NIRCam のシステム由来のノイズレベルを見積もった。

[14] [arXiv:2010.03564](#)

Title: "JWST Noise Floor I: Random Error Sources in JWST NIRCam Time Series"

Author: Everett Schlawin, Jarron Leisenring, Karl Misselt, Thomas P. Greene, Michael W. McElwain, Thomas Beatty, Marcia Rieke

Comments: Accepted to AJ

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

[理論/観測/実験 etc....]

JWST の NIRCam へのランダムノイズの影響を見積もった。

Nature

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Science

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