

2020年5月第1週 新着論文サーベイ

4月27日(月曜日)

[1] [arXiv:2004.11394](#)

Title: "The efficiency of dust trapping in ringed proto-planetary discs"

Author: Giovanni P. Rosotti, Richard Teague, Cornelis Dullemond, Richard A. Booth, Cathie Clarke

Comments: 10 pages, 4 figures; 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!!!!

[2] [arXiv:2004.11379](#)

Title: "Impacts of Dust Grains Accelerated by Supernovae on the Moon"

Author: Amir Siraj, Abraham Loeb

Comments: 4 pages, 2 figures; submitted for publication

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

[理論/観測/実験 etc....]

Comment!!!!

4月28日(火曜日)

[1] [arXiv:2004.12996](#)

Title: "Col-OSSOS: Compositional homogeneity of three Kuiper belt binaries"

Author: Michael Marsset, Wesley C. Fraser, Michele T. Bannister, Megan E. Schwamb, Rosemary E. Pike, Susan Benecchi, J. J. Kavelaars, Mike Alexandersen, Ying-Tung Chen, Brett J. Gladman, Stephen D. J. Gwyn, Jean-Marc Petit, Kathryn Volk

Comments: 10 pages, 4 figures, accepted to The Planetary Science Journal

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

[理論/観測/実験 etc....]

Comment!!!!

[2] [arXiv:2004.12985](#)

Title: "El Bahr: A Prospective Impact Crater"

Author: Antonia Paris, Shalabiea Osama M, Ahmed Mohamed, Evan Davies

Comments: 7 Pages, 8 Figures, Peer-reviewed and published

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

[理論/観測/実験 etc....]

Comment!!!!

[3] [arXiv:2004.12878](#)

Title: "K-Stacker, an algorithm to hack the orbital parameters of planets hidden in high-contrast imaging. First applications to VLT SPHERE multi-epoch observations"

Author: H. Le Coroller, M. Nowak, P. Delorme, G. Chauvin, R. Gratton, M. Devinat, J. Bec-Canet, A. Schneeberger, D. Estevez, L. Arnold, H. Beust, M. Bonnefoy, A. Boccaletti, C. Desgrange, S. Desidera, R. Galicher, A.M. Lagrange, M. Langlois, A.L. Maire, F. Menard, P. Vernazza, A. Vigan, A. Zurlo, T. Fenouillet, J.C. Lambert, M. Bonavita, A. Cheetham, V. Dorazi, M. Feldt, M. Janson, R. Ligi, D. Mesa, M. Meyer, M. Samland, E. Sissa, J.L. Beuzit, K. Dohlen, T. Fusco, D. Le Mignant, D. Mouillet, J. Ramos, S. Rochat, J.F. Sauvage

Comments: Astronomy & Astrophysics accepted, 13 Pages, 11 Figures

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!!!!

[4] [arXiv:2004.12872](#)

Title: "Ions in the Thermosphere of Exoplanets: Observable Constraints Revealed by Innovative Laboratory Experiments"

Author: Jérémy Bourgalais, Nathalie Carrasco, Quentin Changeat, Olivia Venot, Lora Jovanović, Pascal Pernot, Jonathan Tennyson, Katy L. Chubb, Sergey N. Yurchenko, Giovanna Tinetti

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

[理論/観測/実験 etc....]

Comment!!!!

[5] [arXiv:2004.12812](#)

Title: "A He I upper atmosphere around the warm Neptune GJ 3470b"

Author: E. Pallé, L. Nortmann, N. Casasayas-Barris, M. Lampón, M. López-Puertas, J. A. Caballero, J. Sanz-Forcada, L. M. Lara, E. Nagel, F. Yan, F. J. Alonso-Floriano, P. J. Amado, G. Chen, C. Cifuentes, M. Cortés-Contreras, S. Czesla, K. Molaverdikhani, D. Montes, V. M. Passegger, A. Quirrenbach, A. Reiners, I. Ribas, A. Sánchez-López, A. Schweitzer, M. Stangret, M. R. Zapatero Osorio, M. Zechmeister

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!!!!

[6] [arXiv:2004.12663](#)

Title: "Observational features of exoplanetary synchrotron radio bursts"

Author: Yang Gao, Lei Qian, Di Li

Comments: Accepted for publication in ApJ, 3 figures

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:2004.12509](#)

Title: "Pluto's Ultraviolet Spectrum, Surface Reflectance, and Airglow Emissions"

Author: Andrew J. Steffl, Leslie A. Young, Darrell F. Strobel, Joshua A. Kammer, J. Scott Evans, Michael H. Stevens, Rebecca N. Schindhelm, Joel Wm. Parker, S. Alan Stern, Harold A. Weaver, Catherine B. Olkin, Kimberly Ennico, Jay R. Cummings, G. Randall Gladstone, Thomas K. Greathouse, David P. Hinson, Kurt D. Retherford, Michael E. Summers, Maarten Versteeg

Comments: 27 pages, 8 figures

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

[理論/観測/実験 etc....]

Comment!!!!

[8] [arXiv:2004.12475](#)

Title: "Properties of Sub-Neptune Atmospheres: TOI-270 System"

Author: J. Chouqar, Z. Benkhaldoun, A. Jabiri, J. Lustig-Yaeger, A. Soubkiou, A.

Szentgyorgyi

Comments: accepted for publication on MNRAS

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

[理論/観測/実験 etc....]

Comment!!!!

[9] [arXiv:2004.12136](#)

Title: "SpecPhot: A Comparison of Spectroscopic and Photometric Exoplanet Follow-Up Methods"

Author: Benjamin F. Cooke, Don Pollacco

Comments: 10 pages, 7 figures. Accepted for publication in MNRAS

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

[理論/観測/実験 etc....]

Comment!!!!

[10] [arXiv:2004.12907](#)

Title: "Photometric Limits on the High Resolution Imaging of Exoplanets Using the Solar Gravity Lens"

Author: Phil A. Willems

Subjects: Instrumentation and Methods for Astrophysics (astro-ph.IM); Earth and Planetary Astrophysics (astro-ph.EP); Solar and Stellar Astrophysics (astro-ph.SR); General Relativity and Quantum Cosmology (gr-qc)

[理論/観測/実験 etc....]

Comment!!!!

[11] [arXiv:2004.12829](#)

Title: "WISEA J083011.95+283716.0: A Missing Link Planetary-Mass Object"

Author: Daniella C. Bardalez Gagliuffi, Jacqueline K. Faherty, Adam C. Schneider, Aaron Meisner, Dan Caselden, Guillaume Colin, Sam Goodman, J. Davy Kirkpatrick, Marc J. Kuchner, Jonathan Gagné, Sarah E. Logsdon, Adam J. Burgasser, Katelyn Allers, John Debes, John Wisniewski, Austin Rothermich, Nikolaj S. Andersen, Melina Thévenot, Jim Walla

Comments: 13 pages, 6 figures, 5 tables

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!!!!

[12] [arXiv:2004.12597](#)

Title: "Herschel Observations of Disks around Late-type Stars"

Author: Angelle Tanner, Peter Plavchan, Geoff Bryden, Grant Kennedy, Luca Matrá, Patrick Cronin-Coltsmann, Patrick Lowrance, Todd Henry, Basmah Riaz, John E. Gizis, Adric Riedel, Elodie Choquet

Comments: Accepted for publication in PASP

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:2004.12176](#)

Title: "Measuring turbulent motion in planet-forming disks with ALMA: A detection around DM Tau and non-detections around MWC 480 and V4046 Sgr"

Author: Kevin Flaherty, A. Meredith Hughes, Jacob B. Simon, Chunhua Qi, Xue-ning Bai, Alyssa Bulatek, Sean M. Andrews, David J. Wilner, Agnes Kospal

Comments: 21 pages, 10 figures, accepted to ApJ

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!!!!

4 月 29 日 (水曜日)

[1] [arXiv:2004.13679](#)

Title: "Aluminium oxide in the atmosphere of hot Jupiter WASP-43b"

Author: Katy L. Chubb, Michiel Min, Yui Kawashima, Christiane Helling, Ingo Waldmann

Comments: Accepted for publication in A&A. 16 pages, 7 figures

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

[観測]

ホットジュピター WASP-43b の、HST/WFC3 でトランジット観測したデータを Tau-REx でベイジアン再解析したところ、大気中に AIO が高レベルで検出された。AIO は、今回の観測データで見ている大気圧と温度における化学平衡では本来検出されないはずなので、待機中で非平衡なプロセスが起きている証拠。

[2] [arxiv:2004.13561](#)

Title: "Thermal evolution of protoplanetary disks: from β -cooling to decoupled gas and dust temperatures"

Author: Eduard I. Vorobyov, Ryoki Matsukoba, Kazuyuki Omukai, Manuel Guedel

Comments: 19 pages, 21 Figures, accepted for publication in Astronomy & Astrophysics

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....]

若い原始惑星系円盤の長期進化について、様々な冷却/加熱プロセスを用いた数値計算で調べた。結果、若い円盤の外側領域でガスの温度がダストの温度を大きく上回ることがあることがわかった。これは、円盤進化初期のエンベロープの落下による圧縮加熱と、低密度領域でガスとダストの衝突によるエネルギー交換が少ないことが原因らしい。円盤のグローバルな進化の温度デカップリングへの依存性はごくわずかだが、ダストとガスそれぞれの温度は化学組成やダスト成長に大きく影響するため、円盤の化学やダスト成長を重点的に調べるにはダストとガスの温度を分けられるモデルが必要。

[3] [arxiv:2004.13534](#)

Title: "The Challenge of Forming a Fuzzy Core in Jupiter"

Author: Simon Müller, Ravit Helled, Andrew Cumming

Comments: 11 pages, 9 figures, accepted for publication in A&A

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

[理論/木星]

近年の Juno による重力場測定の結果、木星内部のコアは重元素が広がって分布しており、コアが曖昧であることが示唆された。始原的な組成勾配と、原始木星のガス獲得による組成勾配の両方を考慮して木星の形成と長期進化をモデル化して、このような構造の形成過程を調べた。今回モデル化したどの形成シナリオも、曖昧なコア構造を再現できなかった。全てのケースで木星のエンベロープは対流によって数百万年で完全に攪拌され、標準的な形成モデルでは木星の曖昧なコアを説明することはできなかった。

[4] [arxiv:2004.13502](#)

Title: "Mineral snowflakes on exoplanets and brown dwarfs: Effects of porosity, size distributions, and particle shape"

Author: Dominic Samra, Christiane Helling, Michiel Min

Comments: 20 pages, 15 figures, accepted for publication in A&A

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

[理論/雲]

系外惑星大気の characterisation は系外惑星形成の理解に重要であるが、雲の影響が障害となる。雲粒子の多孔度による雲の構造、粒子サイズ、鉱物組成への影響を、粒子の多孔度とサイズ分布によるスペクトル変化を見ることで調べた。

[5] [arxiv:2004.13422](#)

Title:

”Dynamical friction with radiative feedback – II. High resolution study of the subsonic regime”

Author: David A. Velasco-Romero, Frédéric S. Masset

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

[理論/観測/実験 etc....]

最近の研究で、ガスや opacity の高い物質中を運動する massive で明るい天体に働く正味の重力が天体の運動と同じ向きになることがある (negative dynamical friction) ことが知られている。これまでの解析では、天体の Bondi 半径内の流れを分解できず、天体による摂動が小さい場合に限られていた。今回、高解像度のシミュレーションを行い、Bondi 半径以内の流れを分解した。解析の結果、原始惑星系円盤中の、十分に明るい小質量の embryo に negative dynamical friction が働く可能性があることがわかった。

[6] [arxiv:2004.13212](#)

Title: ”Contribution of magnetism to the origin and stability of the rings of Saturn due to superconductivity of protoplanetary iced particles”

Author: Vladimir V. Tchernyi, Sergey V. Kapranov, Andrey Yu. Pospelov

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

[理論/土星リング]

土星リングの氷粒子の、原始惑星系雲と土星磁場の中におけるカオスな振る舞いを検証した。

[7] [arxiv:2004.13209](#)

Title: ”Solar System Physics for Exoplanet Research”

Author: J. Horner, S. R. Kane, J. P. Marshall, P. A. Dalba, T. R. Holt, J. Wood, H. E. Maynard-Casely, R. Wittenmyer, P. S. Lykawka, M. Hill, R. Salmeron, J. Bailey, T. Löhne, M. Agnew, B. D. Carter, C. C. E. Tylor

Comments: Invited Review, Accepted for publication in Publications of the Astronomical Society of the Pacific; 23 figures, plus a further 18 in the appendix; 4 tables

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

[レビュー/系外惑星]

太陽系形成の理論を系外惑星のサイエンスにつなげようという感じのレビュー。

[8] [arxiv:2004.13199](#)

Title: ”Limitations in the determination of surface emission distributions on comets through modelling of observational data – A case study based on Rosetta observations”

Author: Raphael Marschall, Ying Liao, Nicolas Thomas, Jong-Shinn Wu

Comments: Icarus (in press)

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

[理論/観測/実験 etc....]

ESA の Rosetta ミッションによる 67P 彗星の内部ガスコマのデータは多くのグループによって解析され、彗星核のガス分布が推定されてきたが、それぞれの解析によって結果が大きく異なっている。今回、Rosetta に搭載されていた観測装置の感度による影響を議論し、コマ表面のガス分布に制限を与えた。

[9] [arxiv:2004.13156](#)

Title: "Prospective Lava Tubes at Hellas Planitia"

Author: Antonio Paris, Evan Davies, Laurence Tognetti, Carly Zahniser

Comments: 16

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

[火星探査]

MRO からの 1500 枚におよぶ火星表面の画像を分析した結果、Hadriacus Mons 近傍に火星有人探査候補地となる溶岩チューブを 3 つ選んだ。

[10] [arxiv:2004.13551](#)

Title: "Protoplanetary disk masses in NGC 2024: Evidence for two populations"

Author: Sierk E. van Terwisga, Ewine F. van Dishoeck, Rita K. Mann, James Di Francesco, Nienke van der Marel, Michael Meyer, Sean M. Andrews, John Carpenter, Josh A. Eisner, Carlo F. Manara, Jonathan P. Williams

Comments: Accepted for publication in A 19 pages, 13 figures. Key results shown in Fig. 8 & 10

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

[観測/原始惑星系円盤]

NGC2024 星団の 179 の原始惑星系円盤の質量のばらつきから、外的な光蒸発による円盤構造への影響を調べた。

[11] [arxiv:2004.13032](#)

Title: "Eclipsing binaries in the open cluster Ruprecht 147. III: The triple system EPIC 219552514 at the main-sequence turnoff"

Author: Guillermo Torres, Andrew Vanderburg, Jason L. Curtis, Adam L. Kraus, Aaron C. Rizzuto, Michael J. Ireland

Comments: 12 pages in emulatepj format, including figures and tables. 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....]

食連星 EPIC 219552514 を分光観測した。

4 月 30 日 (木曜日)

[1] [arXiv:2004.14380](#)

Title: "Dynamics of Colombo's Top: Generating Exoplanet Obliquities from Planet-Disc Interactions"

Author: Yubo Su, Dong Lai

Comments: 17 pages, 18 figures, 2 appendices. To be submitted

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

[理論/観測/実験 etc....]

Comment!!!!

[2] [arXiv:2004.14192](#)

Title: "Searching for a Black Hole in the Outer Solar System"

Author: Edward Witten

Comments: 4 pp

Subjects: Earth and Planetary Astrophysics (astro-ph.EP); High Energy Physics - Phenomenology (hep-ph); High Energy Physics - Theory (hep-th)

[理論/観測/実験 etc....]

Comment!!!!

[3] [arXiv:2004.14121](#)

Title: "Scattered light may reveal the existence of ringed exoplanets"

Author: Mario Sucerquia, Jaime A. Alvarado-Montes, Jorge I. Zuluaga, Matías Montesinos, Amelia Bayo

Comments: Accepted for publication in MNRAS Letters. 7 pages, 6 figures

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

[理論/観測/exoringsの検出方法]

系外惑星のリング (exorings) を検出する方法について。従来はトランジット時のライトカーブからリングを検出する方法が考えられてきた。今回はトランジットしない惑星のリングを測光観測から検出する方法を提案した。リングを持った惑星が公転するとき、恒星から見たリングの断面積は時間とともに変化する。したがって、リングで散乱される恒星光の量も時間変化する。すると恒星のライトカーブに周期的な変動が乗る。この変動を検出するというもの。散乱光の変化のモデルを作り、既存/将来の観測装置で検出できるかどうか検討した。

[4] [arXiv:2004.14058](#)

Title: "Thermodynamic and Energetic Limits on Continental Silicate Weathering Strongly Impact the Climate and Habitability of Wet, Rocky Worlds"

Author: R.J. Graham, R.T. Pierrehumbert

Comments: 27 pages excluding references, 8 figures. Submitted to ApJ, revised, resubmitted

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

[理論/観測/実験 etc....]

Comment!!!!

[5] [arXiv:2004.14041](#)

Title: "Electromagnetic induction heating as a driver of volcanic activity on massive rocky planets"

Author: Kristina Kislyakova, Lena Noack

Comments: Five pages, three figures, accepted for publication in A&A letters

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

[理論/電磁誘導による火山活動]

3-4 地球質量程度のスーパーアースの火山活動について。恒星磁場からの電磁誘導によって惑星表面が過熱され、火山活動が誘発されるかもしれない。スーパーアース HD 1367b を例として、本当にそうなるかシミュレーションで調べた。その結果、電磁誘導を考慮した場合の火山ガスの放出量は、考慮しない場合と比べて多くなった。確かに電磁誘導は火山活動を誘発する。

[6] [arXiv:2004.13987](#)

Title: "The deep composition of Uranus and Neptune from in situ exploration and thermochemical modeling"

Author: Thibault Cavalié, Olivia Venot, Yamila Miguel, Leigh N. Fletcher, Peter Wurz, Olivier Mousis, Roda Bounaceur, Vincent Hue, Jérémy Leconte, Michel Dobrijevic

Comments: Accepted for publication in Space Science Reviews

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:2004.13951](#)

Title: "Near-infrared observations of active asteroid (3200) Phaethon reveal no evidence for hydration"

Author: Driss Takir, Theodore Kareta, Joshua P. Emery, Josef Hanus, Vishnu Reddy, Ellen S. Howell, Andrew S. Rivkin, Tomoko Arai

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

[理論/観測/実験 etc....]

Comment!!!!

[8] [arXiv:2004.13911](#)

Title: "Dynamic evolution of major element chemistry in protoplanetary disks and

its implications for chondrite formation”

Author:Yoshinori Miyazaki, Jun Korenaga

Comments: 16 pages, 6 figures, 1 table

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

[理論/観測/実験 etc....]

Comment!!!!

[9] [arxiv:2004.13794](#)

Title: ”Chemistry of Temperate Super-Earth and Mini-Neptune Atmospheric Hazes from Laboratory Experiments”

Author:Sarah E. Moran, Sarah M. Hörst, Véronique Vuitton, Chao He, Nikole K. Lewis, Laurène Flandinet, Julianne I. Moses, Nicole North, François-Régis Orthous-Daunay, Joshua Seabee, Cédric Wolters, Eliza M.-R. Kempton, Mark S. Marley, Caroline V. Morley, Jeff A. Valenti

Comments: 22 pages, 8 figures, 9 tables, accepted for publication in the Planetary Science Journal

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

[理論/観測/実験 etc....]

Comment!!!!

[10] [arxiv:2004.13767](#)

Title: ”Photometry as a proxy for stellar activity in radial velocity analyses”

Author:Molly R. Kosiarek, Ian J.M. Crossfield

Comments: 10 pages, accepted in AJ

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

[観測]

視線速度観測では恒星の活動が偽の信号となる。恒星の活動と惑星の公転を切り分けるために、同時に測光観測を行って恒星活動をモニターするという方法が考えられる。今回、太陽の観測を通してこの方法の有効性を確かめた。

[11] [arxiv:2004.13743](#)

Title: ”Properties of F Stars with Stable Radial Velocity Timeseries: A Useful Metric for Selecting Low-jitter F Stars”

Author:Jacob K. Luhn, Jason T. Wright, Howard Isaacson

Comments: 10 pages, 8 figures, published in The Astronomical Journal

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

[観測/]

次の 12 本目の続き。活動由来のシグナルが特に弱い (=視線速度観測に適した)F 型星が複数見つかった。それらの観測的特徴をまとめた。さらに、Gaia のデータだけを使って同種の恒星を選び出す方法を確立した。

[12] [arXiv:2004.13734](#)

Title: "Astrophysical Insights into Radial Velocity Jitter from an Analysis of 600 Planet-search Stars"

Author: Jacob K. Luhn, Jason T. Wright, Andrew W. Howard, Howard Isaacson

Comments: 44 pages, 11 figures, published in The Astronomical Journal

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

[観測/]

視線速度観測では恒星の活動が偽の信号になる。California Planet Survey で観測された 600 個の恒星のデータについて、惑星によるシグナルと活動によるシグナルを分離した。さらに、恒星の質量や年齢によって、活動由来のシグナルの強度がどう変化するか調べた。0.7-1.7 太陽質量の恒星では、若い時は磁気活動によるシグナルが強く、年老いた時は対流活動によるシグナルが強かった。その中間の年代 (jitter minimum) で、活動由来のシグナルが最小となることを発見した。また、重い星ほど jitter minimum に到達するまで時間がかかることが分かった。

[13] [arXiv:2004.13733](#)

Title: "Mass loss rate and local thermodynamic state of KELT-9 b thermosphere from the hydrogen Balmer series"

Author: A. Wyttenbach, P. Mollière, D. Ehrenreich, H. M. Cegla, V. Bourrier, C. Lovis, L. Pino, R. Allart, J. V. Seidel, H. J. Hoeijmakers, L. D. Nielsen, B. Lavie, F. Pepe, X. Bonfils, I. A. G. Snellen

Comments: 20 pages, 25 figures, accepted for publication in A&A (2020-04-25)

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:2004.13731](#)

Title: "High-Resolution Spectral Discriminants of Ocean Loss for M Dwarf Terrestrial Exoplanets"

Author: Michaela Leung, Victoria S. Meadows, Jacob Lustig-Yaeger

Comments: 14 pages, 11 figures

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]

地球型惑星の反射光のスペクトルについて。地球型惑星の反射光を分光して、バイオシグネチャーである酸素の吸収線を探したい。しかしながら、酸素は光合成だけでなく海洋蒸発によっても生成される。光合成由来の酸素吸収線を検出するには、海洋蒸発由来の酸素吸収線と区別しなければならない。そこで、Proxima Centauri b を例として、光合成がある場合と海洋蒸発がある場合のスペクトルをそれぞれ予想して比較した。その結果、光合成がある場合は波長 1.27 μm 付近に鋭い酸素吸収線が見られたが、海洋蒸発がある場合はほとんど見られなかった。海洋蒸発では光合成よりも多くの酸素が生成され、酸素どうしの衝突による吸収が発生する。その結果 broad な吸収が起き、鋭い吸収線が埋もれて見えなくなったと考えられる。したがって、1.27 μm の酸素吸収線がバイオシグネチャーとして有効である。

[15] [arXiv:2004.13728](#)

Title: "Constraints on Metastable Helium in the Atmospheres of WASP-69b and WASP-52b with Ultra-Narrowband Photometry"

Author: Shreyas Vissapragada, Heather A. Knutson, Nemanja Jovanovic, Caleb K. Harada, Antonija Oklopčić, James Eriksen, Dimitri Mawet, Maxwell A. Millar-Blanchaer, Samaporn Tinyanont, Gautam Vasisht

Comments: 17 pages, 8 figures (figures 1 and 2 are rasterized for arXiv file size compliance), accepted 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....]

Comment!!!!

[16] [arXiv:2004.13722](#)

Title: "Debris Disk Results from the Gemini Planet Imager Exoplanet Survey's Polarimetric Imaging Campaign"

Author: Thomas M. Esposito, Paul Kalas, Michael P. Fitzgerald, Maxwell A. Millar-Blanchaer, Gaspard Duchene, Jennifer Patience, Justin Hom, Marshall D. Perrin, Robert J. De Rosa, Eugene Chiang, Ian Czekala, Bruce Macintosh, James R. Graham, Megan Ansdell, Pauline Arriaga, Sebastian Bruzzone, Joanna Bulger, Christine H. Chen, Tara Cotten, Ruobing Dong, Zachary H. Draper, Katherine B. Follette, Li-Wei Hung, Ronald Lopez, Brenda C. Matthews, Johan Mazoyer, Stan Metchev, Julien Rameau, Bin Ren, Malena Rice, Inseok Song, Kevin Stahl, Jason Wang, Schuyler Wolff, Ben Zuckerman, S. Mark Ammons, Vanessa P. Bailey, Travis Barman, Jeffrey Chilcote, Rene Doyon, Benjamin L. Gerard, Stephen J. Goodsell, Alexandra Z. Greenbaum, Pascale Hibon, Sasha Hinkley, Patrick Ingraham, Quinn Konopacky, Jerome Maire, Franck Marchis

Comments: Accepted for publication in AJ. 19 figures, 7 tables

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!!!!

[17] [arXiv:2004.13720](#)

Title: "How Consumption and Repulsion Set Planetary Gap Depths and the Final Masses of Gas Giants"

Author: Mickey Rosenthal, Eugene Chiang, Sivan Ginzburg, Ruth Murray-Clay

Comments: Submitted to MNRAS

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

[理論/観測/実験 etc....]

円盤上で惑星が作る gap の進化を解析的に記述する式を作った。さらに、シミュレーションの結果と照らし合わせてキャリブレーションした。

[18] [arXiv:2004.14347](#)

Title: "A Machine Learning Classifier for Microlensing in Wide-Field Surveys"

Author: D. Godines, E. Bachelet, G. Narayan, R.A. Street

Subjects: Instrumentation and Methods for Astrophysics (astro-ph.IM); 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!!!!

[19] [arXiv:2004.14232](#)

Title: "X-Shooter survey of disk accretion in Upper Scorpius I. Very high accretion rates at age > 5 Myr"

Author: C.F. Manara, A. Natta, G.P. Rosotti, J.M. Alcalá, B. Nisini, G. Lodato, L. Testi, I. Pascucci, L. Hillenbrand, J. Carpenter, A. Scholz, D. Fedele, A. Frasca, G. Mulders, E. Rigliaco, C. Scardoni, E. Zari

Comments: Under review on Astronomy & Astrophysics. Revised version after first positive referee report

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!!!!

[20] [arXiv:2004.14122](#)

Title: "Substructure Formation in a Protostellar Disk of L1527 IRS"

Author: Riouhei Nakatani, Haoyu Baobab Liu, Satoshi Ohashi, Yichen Zhang, Tomoyuki Hanawa, Claire Chandler, Yoko Oya, Nami Sakai

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!!!!

[21] [arXiv:2004.13742](#)

Title: "Self-scattering of non-spherical dust grains"

Author: Florian Kirchsclager, Gesa H.-M. Bertrang

Comments: Accepted by A&A. Author accepted manuscript. Accepted on 28/04/2020. Deposited on 28/04/2020.

11 pages

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!!!!

5月1日(金曜日)

[1] [arXiv:2004.14980](#)

Title: "The Brute-Force Search for Planet Nine"

Author: Scott Lawrence, Zeeve Rogoszinski

Comments: 5 pages, fixed typo

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:2004.14972](#)

Title: "Effects of immersed moonlets in the ring arc particles of Saturn"

Author: Gustavo Madeira, Silvia Maria Giuliatti Winter

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

[理論/観測/実験 etc....]

Comment!!!!

[3] [arXiv:2004.14913](#)

Title: "Tilting Uranus: Collisions vs. Spin-Orbit Resonance"

Author: Zeeve Rogoszinski, Douglas P. Hamilton

Comments: 31 pages, 17 figures, submitted to a AAS journal

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

[理論/観測/実験 etc....]

Comment!!!!

[4] [arXiv:2004.14893](#)

Title: "Bayesian Methods for Joint Exoplanet Transit Detection and Systematic Noise Characterization"

Author: Jamila Taaki, Farzad Kamalabadi, Athol J. Kemball

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

[理論/観測/実験 etc....]

Comment!!!!

[5] [arxiv:2004.14812](#)

Title: "KELT-9 b's Asymmetric TESS Transit Caused by Rapid Stellar Rotation and Spin-Orbit Misalignment"

Author: John P. Ahlers, Marshall C. Johnson, Keivan G Stassun, Knicole D. Colon, Jason W. Barnes, Daniel J. Stevens, Thomas Beatty, B. Scott Gaudi, Karen A. Collins, Joseph Rodriguez, George Ricker, Roland Vanderspek, David Latham, Sara Seager, Joshua Winn, Jon M. Jenkins, Douglas A. Caldwell, Robert F. Goeke, Hugh P. Osborn, Martin Paegert, Pam Rowden, Peter Tenenbaum

Comments: Accepted for Publication in ApJ. arXiv admin note: text overlap with arXiv:1911.05025

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:2004.14673](#)

Title: "Atmospheric dynamics on terrestrial planets with eccentric orbits"

Author: Ilai Guendelman, Yohai Kaspi

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

[理論/観測/実験 etc....]

Comment!!!!

[7] [arxiv:2004.14645](#)

Title: "Discovery and characterization of the exoplanets WASP-148b and c. A transiting system with two interacting giant planets"

Author: G. Hebrard, R.F. Diaz, A.C.M. Correia, A. Collier Cameron, J. Laskar, D. Pollacco, J.-M. Almenara, D.R. Anderson, S.C.C. Barros, I. Boisse, A.S. Bonomo, F. Bouchy, G. Boue, P. Boumis, D.J.A. Brown, S. Dalal, M. Deleuil, O. Demangeon, A.P. Doyle, C.A. Haswell, C. Hellier, H. Osborn, F. Kiefer, U.C. Kolb, K. Lam, A. Lecavelier des Etangs, T. Lopez, M. Martin-Lagarde, P. Maxted, J. McCormac, L.D. Nielsen, E. Palle, J. Prieto-Arranz, D. Queloz, A. Santerne, B. Smalley, O. Turner, S. Udry, D. Verilhac, R. West, P.J. Wheatley, P.A. Wilson

Comments: 15 pages, 9 figures, 6 tables, submitted to A&A

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

[理論/観測/実験 etc....]

Comment!!!!

[8] [arxiv:2004.14396](https://arxiv.org/abs/2004.14396)

Title: "Toward Complete Characterization: Prospects for Directly Imaging Transiting Exoplanets"

Author: Christopher C. Stark, Courtney Dressing, Shannon Dulz, Eric Lopez, Mark S. Marley, Peter Plavchan, Johannes Sahlmann

Comments: 13 pages, 9 figures, Accepted for publication in AJ

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!!!!

Nature

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Science

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