2019年 3月 第3週　新着論文サーベイ

3 月 11 日 (月曜日)

[1] arxive:1903.03603

Title: "Interior properties of the inner Saturnian moons from space astrometry data"

Author: Valéry Lainey, Benoît Noyelles, Nicholas Cooper, Carl Murray, Ryan Park, Nicolas Rambaux

Comments: Accepted for publication in Icarus

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

[観測]

カッシーニに夜測定から、土星の内側の衛星 (Atlas, Prometheus, Pandora, Janus and Epimetheus) 軌道が自身の自転による力学的なフィードバックの検出が可能になった。これらの衛星についてカッシーニの Imagin Science Subsystem(ISS) データを解析して平均密度や内部構造を求めた。分化していない Janus, Epimetheus はこれまでの値と誤差の範囲で一致したが、Pandora, Prometheus は土星重力のモデルに起因するズレがあった。

[2] arxive:1903.03576

Title: "Hubble Ultraviolet Spectroscopy of Jupiter Trojans"

Author: Ian Wong, Michael E. Brown, Jordana Blacksberg, Bethany L. Ehlmann, Ahmed Mahjoub

Comments: 7 pages, 4 figures, accepted by AJ

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

[観測]

HST を用いた木星トロや軍の紫外線分光観測 (200-550nm 波長帯)。吸収線は確認されず、red と less-red のトロヤ色亜群で UV スペクトルが大きく異なることがわかった。less-red は 450nm 付近で強い勾配からゆるくなるのに対し、red のスペクトルは逆の trend を示した。UV 吸収が見られないことから、トロヤ群の bimodal な色分布は H2S のみのせいではないことが示唆された。

[3] arxive:1903.03540

Title: "Building protoplanetary disks from the molecular cloud: redefining the disk timeline"

Author: Kevin Baillié, Joao Marques, Laurent Piau

Comments: 14 pages, 11 figures, accepted in A&A 2019

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

[理論]

分子雲の崩壊による原始惑星系円盤の形成と進化を流体計算で調べた。分子雲が崩壊して円盤質量が最大になったところで粘性拡散によって MMSN と同じ進化が始まった。円盤中の温度障壁に原始惑星が捕獲されることで type-I

migration による落下を防ぐことができた。

[4] arxive:1903.03529

Title: "Millimeter-wave polarization due to grain alignment by the gas flow in protoplanetary disks"

Author: Akimasa Kataoka, Satoshi Okuzumi, Ryo Tazaki

Comments: 7 pages, 5 figures, accepted for publication in The Astrophysical Journal Letters

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

[観測]

細長いダストが外力によってある方向に揃っている場合、その放射は偏光する。原始惑星系円盤のガス流によって整列したダストの偏光を調べた。Stokes 数が 1 未満の場合はガスに対するダストの速度が道警方向になり、偏光は方位角方向になる。Stokes 数が 1 程度の場合はダストから見たガス速度の動径成分と方位角成分が等しくなり、偏光ベクトルは渦を描くことがわかった。

[5] arxive:1903.03199

Title: "Oort cloud asteroids: Collisional evolution, the Nice Model, and the Grand Tack"

Author: Andrew Shannon, Alan P. Jackson, Mark C. Wyatt

Comments: Resubmitted to MNRAS after revision from referee's report

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

[理論]

過去の太陽系で惑星移動が起こっていれば、散乱された小惑星や彗星の分布からその痕跡が得られるかもしれない。オールとの雲の小惑星分布を Nice と Grand Tack モデル、それと惑星が移動しなかったモデルのそれぞれで仮定して C/2014 S3 (PANSTARRS) の軌道と比較した。結果、C/2014 S3 (PANSTARRS) の検出はたった 1% の確率で、1-2au に巨大惑星がいる場合、つまり Grand Tack 的な惑星移動があったことが示唆された。

[6] arxive:1903.03159

Title: "Constraining the Shape Distribution of Near Earth Objects from Partial Lightcurves"

Author: Andrew McNeill, Joseph L. Hora, Annika Gustafsson, David E. Trilling, Michael Mommert

Comments: 8 pages, 7 figures. Accepted to ApJ

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

[観測]

Spitzer でとった 867 のライトカーブから sub-km の地球近傍天体 (NEOs) の形状分布を決定した。結果、平均の偏平度は $b/a = 0.72 \pm 0.08$ で、これは Pan-STARRS1 で観測された同じ大きさの NEOs1869 個の形状分布とよく一致した。

[7] arxive:1903.03123

Title: "Planetary Magnetism as a Parameter in Exoplanet Habitability"

Author:Sarah R.N. McIntyre, Charles H. Lineweaver, Michael J. Ireland

Comments: Accepted for publication in MNRAS, 14 pages, 4 figures

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

[理論]

地球は磁気ダイポールモーメントを持つおかげで表面に液体の水を保持しているように、惑星地場が岩石惑星の大気や液体水の長期保持に重要な役割を果たしている可能性がある。 Olson and Christensen's (2006) のモデルを用いて 1.23 地球半径以下の岩石惑星の磁気ダイポールモーメント強度を計算した。結果、磁気ダイポールモーメントが最大の場合でも、地球地場より強い地場を持つのは Kepler-186f だけで、ハビタブルゾーンに見つかっている岩石惑星の半分はほとんど磁気モーメントはほとんどなかった。

[8] arxive:1903.03118

Title: "New substellar discoveries from Kepler and K2: Is there a brown dwarf desert?"

Author:Theron Carmichael, David Latham, Andrew Vanderburg

Comments: 15 pages, 6 figures, submitted to AJ, email lead author for machine readable file of Table 7

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

[観測]

Kepler, K2 で褐色矮星 EPIC 212036875b と低質量星 KOI-607b を発見した。新しく見つかった BD は brown dwarf desert の真ん中に位置していて、これが超レアなのか、そもそも desert がリアルなのかよくわからなくなった。

[9] arxive:1903.03114

Title: "Revealing signatures of planets migrating in protoplanetary discs with ALMA multi-wavelength observations"

Author:Pooneh Nazari, Richard A. Booth, Cathie J. Clarke, Giovanni P. Rosotti, Marco Tazzari, Attila Juhasz, Farzana Meru

Comments: Resubmitted version to MNRAS after incorporating for the referee's comments

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

[理論/観測/実験 etc....]

原始惑星系円盤のリングやギャップ構造は普遍的で、惑星の存在によるものと考えられることが多い。しかし惑星の migration によるこのような構造への影響はこれまで調べられていなかった。mm/submm の多波長観測で惑星 migration の痕跡を検出できるかを 2 次元流体計算と ALMA の模擬観測で調べた。migration する惑星について、3 つの構造が確認された：(1) ゆっくり migration する惑星は軌道の外側にリングが 1 本、(2)migration が速い惑星は軌道の内側に 1 本のリング、(3) 中くらいの速度の惑星は軌道の内側と外側にリングを 1 本ずつ作る。

[10] arxive:1903.03108

Title: "On beryllium-10 production in gaseous protoplanetary disks and implications on the astrophysical setting of refractory inclusions"

Author:Emmanuel Jacquet

Comments: Accepted to Astronomy 12 pages

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

[理論]

Calcium-Aluminum-rich Inclusions (CAIs) は太陽系で最も古い固体で、寿命の短い放射性 Be10 が過去に存在していたことがわかっている。Be10 は原始星フレアによるスポレーション (高エネルギー粒子の衝撃によって，原子核から数個の陽子と中性子が放出される核反応現象) で生成され、これまでは円盤内縁での生成が言われていたが、今回は円盤表面でのスポレーションで生成される Be10/Be9 比を計算した。

[11] arxive:1903.03481

Title: "The MESAS Project: Long wavelength follow-up observations of Sirius A"

Author:Jacob Aaron White, Jason Aufdenberg, Aaron C. Boley, Mark Devlin, Peter Hauschildt, Anna G. Hughes, A. Meredith Hughes, Brian Mason, Brenda Matthews, Attila Moór, Tony Mroczkowski, Charles Romero, Jonathan Sievers, Sara Stanchfield, Francisco Tapia, David J. Wilner

Comments: 7 pages, 1 figure, accepted for publication in ApJ

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

[観測]

星のサブミリ-センチメートル輻射のモデル化は、この波長での詳細な観測例がないため困難である。Measuring the Emission of Stellar Atmospheres at Submillimeter/millimeter wavelengths (MESAS) と言う、ALMA, GBT, VLA で Sirius A を 1.4-9.0mm で観測するプロジェクトを立ち上げ、現在進行中。これによりミリメートルデータの補完して長波長の輻射モデル化ができる。

[12] arxive:1903.03157

Title: "Stellar Astrophysics and Exoplanet Science with the Maunakea Spectroscopic Explorer (MSE)"

Author:Maria Bergemann, Daniel Huber, Vardan Adibekyan, George Angelou, Daniela Barría, Timothy C. Beers, Paul G. Beck, Earl P. Bellinger, Joachim M. Bestenlehner, Bertram Bitsch, Adam Burgasser, Derek Buzasi, Santi Cassisi, Márcio Catelan, Ana Escorza, Scott W. Fleming, Boris T. Gänsicke, Davide Gandolfi, Rafael A. García, Mark Gieles, Amanda Karakas, Yveline Lebreton, Nicolas Lodieu, Carl Melis, Thibault Merle, Szabolcs Mészáros, Andrea Miglio, Karan Molaverdikhani, Richard Monier, Thierry Morel, Hilding R. Neilson, Mahmoudreza Oshagh, Jan Rybizki, Aldo Serenelli, Rodolfo Smiljanic, Gyula M. Szabó, Silvia Toonen, Pier-Emmanuel Tremblay, Marica Valentini, Sophie Van Eck, Konstanze Zwintz, Amelia Bayo, Jan Cami, Luca Casagrande, Maksim Gabdeev, Patrick Gaulme

Comments: 31 pages, 11 figures; To appear as a chapter for the Detailed Science Case of the Maunakea Spectroscopic Explorer

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

[観測]

The Maunakea Spectroscopic Explorer (MSE) は計画中の口径 11.25m、視野 1.5 度 ^{2} の、multi-object 分光観測専用望遠鏡である。形骸惑星の発見や大気の特徴づけなどの MSE によって期待されるサイエンスについていろいろ。

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3 月 12 日 (火曜日)

[1] arxive:1903.04482

Title: "Tracing the Origins and Evolution of Small Planets using Their Orbital Obliquities"

Author: Marshall C. Johnson, George Zhou, Brett C. Addison, David R. Ciardi, Diana Dragomir, Yasuhiro Hasegawa, Eve J. Lee, Songhu Wang, Lauren Weiss

Comments: Submitted to the Astro2020 call for science white papers. 7 pages, 2 figures

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

[White Paper/系外惑星の軌道傾斜角]

惑星の軌道傾斜角を知ることは、惑星形成や軌道移動の様子を知る手がかりになる。次世代の大型望遠鏡でトランジット分光をすれば、$2R_\oplus$ くらい小さな惑星の軌道傾斜角を知ることができるので、やっていきましょうという提案。

[2] arxive:1903.04470

Title: "Impact of thermal effects on the evolution of eccentricity and inclination of low-mass planets"

Author: Sebastien Fromenteau, Frederic Masset

Comments: 15 pages, 4 figures, Accepted to MNRAS publication

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

[理論/軌道進化]

有限の熱拡散率を持つ原始惑星系円盤の中にいる惑星の軌道進化を解析的に計算した。惑星の光度が 0 のとき、惑星の離心率や軌道傾斜角は速やかに減衰するが、惑星の光度/質量比がある閾値を超えると、惑星の離心率や軌道傾斜角は指数関数的に増大することがわかった。また、惑星の光度が非常に大きい極限では、離心率の増加率は軌道傾斜角の増加率の 2.5 倍であることがわかった。

[3] arxive:1903.04451

Title: "A hypothesis for the rapid formation of planets"

Author: Susanne Pfalzner, Michele T. Bannister

Comments: Accepted to ApJL. Conversation welcome

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

[理論/惑星形成]

オウムアムアの発見によって、惑星形成の際に星間空間へ弾き出されたであろう微惑星がたくさんあることがわかった。よって、分子雲内にも微惑星がたくさんあることから、そこから生まれる原始惑星系円盤の中にも微惑星は存在するだろう。計算によって、原始惑星系円盤内には 100m サイズ以上の微惑星が 10^7 個程度あるはずだとわかった。これによって、今まで考えられていたよりも速く惑星形成ができるかもしれない。

[4] arxive:1903.04095

Title: "Earth wind as a possible source of lunar surface hydration"

Author: H. Z. Wang, J. Zhang, Q. Q. Shi, Y. Saito, A. W. Degeling, I. J. Rae, J. Liu, R. L. Guo, Z. H. Yao, A. M. Tian, X. H. Fu, Q.G. Zong, J. Z. Liu, Z. C. Ling, W. J. Sun, S. C. Bai, J. Chen, S. T. Yao, H. Zhang, Y. Wei, W. L. Liu, L. D. Xia, Y. Chen, Y. Y. Feng, S. Y. Fu, Z. Y. Pu

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

[観測/月の水]

月の水 (水酸化物) は太陽風の作用で生成されたと考えられている。ところで、月は、3-5 日周期で地球の磁気圏を通過する際に太陽風が遮蔽されるため、先行研究によればその間水酸化物は減るはずである。しかし、観測の結果、極の OH/H2O の量は変わらなかった。よって、地球の磁気圏からやってくる地球風 (Earth wind) が水酸化物の生成に貢献しているのかもしれない。

[5] arxive:1903.03997

Title: "Effectively Calculating Gaseous Absorption in Radiative Transfer Models of Exoplanetary and Brown Dwarf Atmospheres"

Author: R. Garland, P. G. J. Irwin

Comments: Accepted for publication in MNRAS after moderate revisions in early 2018, but the time lapsed to resubmit as I left academia. Hopefully it will still be useful to some

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

[理論/輻射輸送]

惑星や褐色矮星の大気での輻射輸送計算において、ガスによる吸収をどのように計算するのかということは重要である。今回、cross-section 法と correlated-k 法という 2 つの方法による計算結果を比較した。

[6] arxive:1903.03817

Title: "A shorter Archean day-length biases interpretations of the early Earth's climate"

Author: Christopher Spalding, Woodward W. Fischer

Comments: 15 pages. 7 Figures. Accepted for publication in Earth and Planetary Science Letters

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

[理論/始生代の地球の温度]

始生代には太陽の明るさは今より 25% 暗かったのに、地球の大昔の沈殿物には、地球の気温は今と同じくらいか暖かかったという証拠がある。これを Faint Young Sun Paradox という。解決策として、昔は温室効果ガスが多かったという説があるが、地質学的証拠が不十分である。そこで、新たな解決策を提案した。それは、始生代の地球の自転は今より

速いことから、それによって赤道はより暖かく、極はより寒くなることで、二酸化炭素の蓄積がより暖かい海の方に偏るというものである。また、自転が速いと ice-albedo feedback が起こりにくくなって全球凍結を免れるという効果もあるだろう。

[7] arxive:1903.03729

Title: "The Upcoming Mutual Event Season for the Patroclus - Menoetius Trojan Binary"

Author:W.M. Grundy, K.S. Noll, M.W. Buie, H.F. Levison

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

[観測/二重小惑星]

木星のトロヤ群にある二重小惑星 Patroclus と Menoetius の軌道の解を、HST と Keck 天文台の観測によって求めた。また、お互いの食の時期を予測した。

[8] arxive:1903.03728

Title: "Pluto's Haze as a Surface Material"

Author:W.M. Grundy, T. Bertrand, R.P. Binzel, M.W. Buie, B.J. Buratti, A.F. Cheng, J.C. Cook, D.P. Cruikshank, S.L. Devins, C.M. Dalle Ore, A.M. Earle, K. Ennico, F. Forget, P. Gao, G.R. Gladstone1, C.J.A. Howett, D.E. Jennings, J.A. Kammer, T.R. Lauer, I.R. Linscott, C.M. Lisse, A.W. Lunsford, W.B. McKinnon, C.B. Olkin, A.H. Parker, S. Protopapa, E. Quirico, D.C. Reuter, B. Schmitt, K.N. Singer, J.A. Spencer, S.A. Stern, D.F. Strobel, M.E. Summers, H.A. Weaver, G.E. Weigle II, M.L. Wong, E.F. Young, L.A. Young, X. Zhang

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

[観測/冥王星]

冥王星には 3 つの地域があって、それぞれ表面の色が異なるが、その理由を知りたい。今回、冥王星の大気のヘイズが沈降して表面を着色したと考え、(1) 同じ物質からなるヘイズの沈降後に、異なる地域で異なる化学反応が起きた結果色が異なったという説、(2) ヘイズの物質が非一様的で、異なる地域に異なる物質が沈降した結果色が異なったという説 を提案した。

[9] arxive:1903.03726

Title: "Mechanisms leading to a warmer climate on high obliquity planets"

Author:Wanying Kang

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

[理論/惑星気候]

先行研究で、ice-albedo feedback が起こるような寒い気候下では、自転傾斜角が小さい惑星よりも自転傾斜角が大きい惑星の方が暖かいということが示された。今回、氷の有無に関わらず、自転傾斜角が小さい惑星よりも自転傾斜角が大きい惑星の方が暖かいということを示した。

[10] arxive:1903.03724

Title: "Formation of Charon's Red Poles From Seasonally Cold-Trapped Volatiles"

Author: W.M. Grundy, D.P. Cruikshank, G.R. Gladstone, C.J.A. Howett, T.R. Lauer, J.R. Spencer, M.E. Summers, M.W. Buie, A.M. Earle, K. Ennico, J. Wm. Parker, S.B. Porter, K.N. Singer, S.A. Stern, A.J. Verbiscer, R.A. Beyer, R.P. Binzel, B.J. Buratti, J.C. Cook, C.M. Dalle Ore, C.B. Olkin, A.H. Parker, S. Protopapa, E. Quirico, K.D. Retherford, S.J. Robbins, B. Schmitt, J.A. Stansberry, O.M. Umurhan, H.A. Weaver, L.A. Young, A.M. Zangari, V.J. Bray, A.F. Cheng, W.B. McKinnon, R.L. McNutt Jr., J.M. Moore, F. Nimmo, D.C. Reuter, P.M. Schenk, New Horizons Science Team

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

[観測/カロン]

カロンの北極は暗く、赤い。これは、炭化水素が日光によって有機高分子になったものだと考えられている。この形成過程を考えた。

[11] arxive:1903.03706

Title: "Habitable zone predictions and how to test them"

Author: Ramses M. Ramirez, Dorian S. Abbot, Yuka Fujii, Keiko Hamano, Edwin Kite, Amit Levi, Manasvi Lingam, Theresa Lueftinger, Tyler D. Robinson, Andrew Rushby, Laura Schaefer, Elizabeth Tasker, Giovanni Vladilo, Robin D. Wordsworth

Comments: White paper submitted to the NAS Astro 2020 decadal survey(5 pages, 1 figure + cover page, 13 co-authors + 10 co-signers). First author name added to description. In this arxiv version, one more co-signer was added after the NAS version was submitted. Link: this http URL

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

[理論/ハビタブルゾーン]

古典的なハビタブルゾーンの定義には、惑星の主要な温室効果ガスは CO2 と H2O であること、惑星は主系列星を公転していること、炭素-ケイ素循環が惑星で普遍的に起こっていることなどの仮定が含まれている。この仮定が成り立たない状況下で、第一原理的にハビタブルゾーンを決定することを提案した。

[12] arxive:1903.03644

Title: "The first multi-dimensional view of mass loss from externally FUV irradiated protoplanetary discs"

Author: Thomas J. Haworth, Cathie J. Clarke

Comments: 15 pages, 12 figures. Accepted for publication in the MNRAS main journal

Subjects:

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

[理論/原始惑星系円盤]

外からの FUV の放射を受けている原始惑星系円盤の光分解とそれによる質量損失を計算した。先行研究では 1D の計算だけだったが、今回、2D 軸対称モデルを用いて計算し、先行研究と比較した。結果、2D 軸対称モデルでの質量損失率は 1D モデルの 4 倍になった。

[13] arxive:1903.03620

Title: "Dust settling against hydrodynamic turbulence in protoplanetary discs"

Author:Min-Kai Lin

Comments: Accepted by MNRAS; see this https URL for a summary

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

[理論/原始惑星系円盤]

原始惑星系円盤内で微惑星を作るためにはダストが中央面に沈殿する必要があるが、乱流はそれを妨げてしまう。今回、乱流下での vertical shear instability によるダストの沈殿を計算した。軸対称の数値計算を行ったところ、ストークス数 $\sim 10^{-3}$ のダストは、ガススケールハイトの 10% 以下まで沈殿できることがわかった。

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3 月 13 日 (水曜日)

[1] arxive:1903.05077

Title: "Protoplanetary Disk Science Enabled by Extremely Large Telescopes"

Author:Hannah Jang-Condell, Sean Brittain, Alycia Weinberger, Michael Liu, Jacqueline Faherty, Jaehan Bae, Sean Andrews, Megan Ansdell, Til Birnstiel, Alan Boss, Laird Close, Thayne Currie, Steven J Desch, Sarah Dodson-Robinson, Chuanfei Dong, Gaspard Duchene, Catherine Espaillat, Kate Follette, Eric Gaidos, Peter Gao, Nader Haghighipour, Hilairy Hartnett, Yasuhiro Hasegawa, Mihkel Kama, Jinyoung Serena Kim, Ágnes Kóspál, Carey Lisse, Wladimir Lyra, Bruce Macintosh, Dimitri Mawet, Peregrine McGehee, Michael Meyer, Eliad Peretz, Laura Perez, Klaus Pontoppidan, Steph Sallum, Colette Salyk, Andrew Szentgyorgyi, Kevin Wagner

Comments: Science white paper submitted to the Astro2020 Decadal Survey

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

[理論/観測/実験 etc....]

Comment!!!!

[2] arxive:1903.05034

Title: "High Resolution Thermal Infrared Imaging of 3200 Phaethon"

Author: David Jewitt, Daniel Asmus, Bin Yang, Jing Li

Comments: 33 pages, 7 figures

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

[理論/観測/実験 etc....]

Comment!!!!

[3] arxive:1903.05012

Title: "The Importance of 3D General Circulation Models for Characterizing the Climate and Habitability of Terrestrial Extrasolar Planets"

Author: Eric T. Wolf, Ravi Kopparapu, Vladimir Airapetian, Thomas Fauchez, Scott D. Guzewich, Stephen R. Kane, Daria Pidhorodetska, Michael J. Way, Dorian S. Abbot, Jade H. Checlair, Christopher E. Davis, Anthony Del Genio, Chaunfei Dong, Siegfried Eggl, David P. Fleming, Yuka Fujii, Nader Haghighipour, Nicholas Heavens, Wade G. Henning, Nancy Y. Kiang, Mercedes Lopez-Morales, Jacob Lustig-Yaeger, Vikki Meadows, Christopher T. Reinhard, Sarah Rugheimer, Edward W. Schwieterman, Aomawa L. Shields, Linda Sohl, Martin Turbet, Robin D. Wordsworth

Comments: NAS ASTRO 2020, White Paper! 2 figures, and 10 pages

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

[理論/観測/実験 etc....]

Comment!!!!

[4] arxive:1903.04972

Title: "Hybrid Symplectic Integrators for Planetary Dynamics"

Author: Hanno Rein, David M. Hernandez, Daniel Tamayo, Garett Brown, Emily Eckels, Emma Holmes, Michelle Lau, Rejean Leblanc, Ari Silburt

Comments: Accepted for publication in MNRAS, 9 pages, 2 figures

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!!!!

[5] arxive:1903.04960

Title: "Emissivity of Ammonia Ice"

Author: S. Wang, J. I. Katz

Comments: 7 pp., 3 figs

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

[理論/観測/実験 etc....]

Comment!!!!

[6] arxive:1903.04937

Title: "The Metallicity-Period-Mass Diagram of low-mass exoplanets"

Author: S. G. Sousa, V. Adibekyan, N. C. Santos, A. Mortier, S. C. C. Barros, E. Delgado-Mena, O. Demangeon, G. Israelian, J. P. Faria, P. Figueira, B. Rojas-Ayala, M. Tsantaki, D. T. Andreasen, I. Brandao, A. C. S. Ferreira, M. Montalto, A. Santerne

Comments: 12 pages, 9 Figures, Accepted for MNRAS

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

[理論/観測/実験 etc....]

Comment!!!!

[7] arxive:1903.04817

Title: "The sub-Jovian desert of exoplanets: parameter dependent boundaries and implications on planet formation"

Author: Gyula M. Szabó, Szilárd Kálmán

Comments: 5 pages, 4 figures, accepted for publication in Monthly Notices of the Royal Astronomical Society Letters

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

[理論/観測/実験 etc....]

Comment!!!!

[8] arxive:1903.04808

Title: "Gliese 49: Activity evolution and detection of a super-Earth"

Author: M Perger, G Scandariato, I Ribas, J C Morales, L Affer, M Azzaro, P J Amado, G Anglada-Escudé, D Baroch, D Barrado, F F Bauer, V J S Béjar, J A Caballero, M Cortés-Contreras, M Damasso, S Dreizler, L González-Cuesta, J I González Hernández, E W Guenther, T Henning, E Herrero, S.V Jeffers, A Kaminski, M Kürster, M Lafarga, G Leto, M J López-González, J Maldonado, G Micela, D Montes, M Pinamonti, A Quirrenbach, R Rebolo, A Reiners, E Rodríguez, C Rodríguez-López, J H M M Schmitt, A Sozzetti, A Suárez Mascareño, B Toledo-Padrón, R Zanmar Sánchez, M R Zapatero Osorio, M Zechmeister

Subjects: Earth and Planetary Astrophysics (astro-ph.EP)
[理論/観測/実験 etc....]
Comment!!!!

[9] arxive:1903.04800

Title: "Pluto's ephemeris from ground-based stellar occultations (1988-2016)"

Author: J. Desmars, E. Meza, B. Sicardy, M. Assafin, J.I.B. Camargo, F. Braga-Ribas, G. Benedetti-Rossi, A. Dias-Oliveira, B. Morgado, A.R. Gomes-Junior, R. Vieira-Martins, R. Behrend, J. Luis Ortiz, R. Duffard, N. Morales, P. Santos Sanz

Comments: accepted for publication in A&A, 15 pages, 29 figures

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

[理論/観測/実験 etc....]
Comment!!!!

[10] arxive:1903.04764

Title: "Time and phase resolved optical spectra of potentially hazardous asteroid 2014 JO25"

Author: Kumar Venkataramani, Shashikiran Ganesh, Archita Rai, Marek Husárik, K.S.Baliyan, U.C.Joshi

Comments: Accepted for publication in The Astronomical Journal

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

[理論/観測/実験 etc....]
Comment!!!!

[11] arxive:1903.04723

Title: "On the Anomalous Acceleration of 1I/2017 U1 'Oumuamua"

Author: Darryl Seligman, Gregory Laughlin, Konstantin Batygin

Comments: 6 Pages, 3 Figures, Accepted for Publication in ApJL. Spin dynamic animations may be found here: this https URL

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

[理論/観測/実験 etc....]
Comment!!!!

[12] arxive:1903.04675

Title: "Fates of hydrous materials during planetesimal collisions"

Author: Shigeru Wakita, Hidenori Genda

Comments:

38 pages, 14 figures, accepted for publication in Icarus

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

[理論/観測/実験 etc....]

Comment!!!!

[13] arxive:1903.04669

Title: "Asteroseismic determination of the stellar rotation period of the Kepler transiting planetary systems and its implications for the spin-orbit architecture"

Author: Yasushi Suto, Shoya Kamiaka, Othman Benomar

Comments: 25 pages, 14 figures, 3 tables, accepted for publication in AJ

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

[理論/観測/実験 etc....]

Comment!!!!

[14] arxive:1903.04624

Title: "A magnetically driven equatorial jet in Europa's ocean"

Author: Christophe Gissinger, Ludovic Petitdemange

Comments: 10 pages, 4 figures + 1 Method section

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

[理論/観測/実験 etc....]

Comment!!!!

[15] arxive:1903.04623

Title: "Evolution and Spectral Response of a Steam Atmosphere for Early Earth with a coupled climate-interior model"

Author: Nisha Katyal, Athanasia Nikolaou, Mareike Godolt, John Lee Grenfell, Nicola Tosi, Franz Schreier, Heike Rauer

Comments: 22 pages, 17 Figures, accepted for publication in ApJ on March 4

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

[理論/観測/実験 etc....]

Comment!!!!

[16] arxive:1903.04565

Title: "Lightning and charge processes in brown dwarf and exoplanet atmospheres"

Author: Christiane Helling, Paul B Rimmer

Comments: 16 pages, accepted for publication in the Philosophical Transactions A of the Royal Society, (some typos corrected)

Subjects: Earth and Planetary Astrophysics (astro-ph.EP); High Energy Astrophysical Phenomena (astro-ph.HE); Solar and Stellar Astrophysics (astro-ph.SR); Atmospheric and Oceanic Physics (physics.ao-ph); Space Physics (physics.space-ph)

[理論/観測/実験 etc....]

Comment!!!!

[17] arxive:1903.04559

Title: "Identification and characterization of the host stars in planetary microlensing with ELTs"

Author: Chien-Hsiu Lee, Rachel Street, Kailash Sahu, Eliad Peretz

Comments: Astro2020 White Paper

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

[理論/観測/実験 etc....]

Comment!!!!

[18] arxive:1903.04546

Title: "Planet formation: The case for large efforts on the computational side"

Author: Wladimir Lyra, Thomas Haworth, Bertram Bitsch, Simon Casassus, Nicolás Cuello, Thayne Currie, Andras Gáspár, Hannah Jang-Condell, Hubert Klahr, Nathan Leigh, Giuseppe Lodato, Mordecai-Mark Mac Low, Sarah Maddison, George Mamatsashvili, Colin McNally, Andrea Isella, Sebastián Pérez, Luca Ricci, Debanjan Sengupta, Dimitris Stamatellos, Judit Szulágyi, Richard Teague, Neal Turner, Orkan Umurhan, Jacob White, Al Wootten, Felipe Alarcon, Daniel Apai, Amelia Bayo, Edwin Bergin, Daniel Carrera, Ilse Cleeves, Asantha Cooray, Gregor Golabek, Oliver Gressel, Mark Gurwell, Sebastiaan Krijt, Cassandra Hall, Ruobing Dong, Fujun Du, Ilaria Pascucci, John Ilee, Andre Izidoro, Jes Jorgensen, Mihkel Kama, Dimitri Mawet, Jinyoung Serena Kim, David Leisawitz, Tim Lichtenberg, Nienke van der Marel

Comments: White paper submitted to the Astro2020 decadal survey

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

[理論/観測/実験 etc....]

Comment!!!!

[19] arxive:1903.04520

Title:

”A Pluto–Charon Sonata: Dynamical Limits on the Masses of the Small Satellites”

Author:Scott J. Kenyon, Benjamin C. Bromley

Comments: 20 pages of text, 3 tables, 9 figures, submitted to Astronomical Journal

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

[理論/観測/実験 etc....]

Comment!!!!

[20] arxive:1903.04508

Title: ”Fate of the runner in hit-and-run collisions”

Author:Alexandre Emsenhuber, Erik Asphaug

Comments: 24 pages, 14 figures, 4 tables, accepted for publication in ApJ

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

[理論/観測/実験 etc....]

Comment!!!!

[21] arxive:1903.04507

Title: ”Realistic On-The-Fly Outcomes of Planetary Collisions: Machine Learning Applied to Simulations of Giant Impacts”

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

Comments: 18 pages, 7 figures, 3 tables. Accepted for publication on ApJ

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

[理論/観測/実験 etc....]

Comment!!!!

[22] arxive:1903.04501

Title: ”Tides between the TRAPPIST-1 planets”

Author:Hamish Hay, Isamu Matsuyama

Comments: 14 pages - 7 figures - accepted to ApJ

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

[理論/観測/実験 etc....]

Comment!!!!

[23] arxive:1903.04759

Title: ”A high-order weighted finite difference scheme with a multi-state approximate Riemann solver for divergence-free magnetohydrodynamic simulations”

Author:Takashi Minoshima, Takahiro Miyoshi, Yosuke Matsumoto

Comments: 53 pages, 19 figures, 2 tables, submitted to ApJ

Subjects: Instrumentation and Methods for Astrophysics (astro-ph.IM); Earth and Planetary Astrophysics (astro-ph.EP); Solar and Stellar Astrophysics (astro-ph.SR); Numerical Analysis (cs.NA); Computational Physics (physics.comp-ph)

[理論/観測/実験 etc....]

Comment!!!!

[24] arxive:1903.04686

Title: "Discovery of Cold Brown Dwarfs or Free-Floating Giant Planets Close to the Sun"

Author:Sandy K. Leggett, Daniel Apai, Adam Burgasser, Michael Cushing, Trent Dupuy, Jackie Faherty, John Gizis, J. Davy Kirkpatrick, Mark Marley, Caroline Morley, Adam Schneider, Clara Sousa-Silva

Comments: White Paper submitted for Astro2020 Science

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

[理論/観測/実験 etc....]

Comment!!!!

[25] arxive:1903.04667

Title: "Astro2020 Science White Paper: Fundamental Physics with Brown Dwarfs: The Mass-Radius Relation"

Author:Adam Burgasser, Isabelle Baraffe, Matthew Browning, Adam Burrows, Gilles Chabrier, Michelle Creech-Eakman, Brice Demory, Sergio Dieterich, Jacqueline Faherty, Daniel Huber, Nicolas Lodieu, Peter Plavchan, R. Michael Rich, Didier Saumon, Keivan Stassun, Amaury Triaud, Gerard van Belle, Valerie Van Grootel, Johanna M. Vos, Rakesh Yadav

Comments: 7 pages, submitted to Astro2020 Science White Paper call

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

[理論/観測/実験 etc....]

Comment!!!!

[26] arxive:1903.04664

Title: "Astro2020 Science White Paper: High-Resolution Spectroscopic Surveys of Ultracool Dwarf Stars & Brown Dwarfs"

Author:Adam Burgasser, Daniel Apai, Daniella Bardalez Gagliuffi, Cullen Blake,

Jonathan Gagne, Quinn Konopacky, Emily Martin, Stanimir Metchev, Peter Plavchan, Ansgar Reiners, Everett Schlawin, Clara Sousa-Silva, Johanna Vos

Comments: 9 pages, submitted to Astro2020 Science White Paper Call

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

[理論/観測/実験 etc....]

Comment!!!!

[27] arxive:1903.04589

Title: "Near-Earth Supernova Explosions: Evidence, Implications, and Opportunities"

Author: Brian D. Fields, John R. Ellis, Walter R. Binns, Dieter Breitschwerdt, Georgia A. de Nolfo, Roland Diehl, Vikram V. Dwarkadas, Adrienne Ertel, Thomas Faestermann, Jenny Feige, Caroline Fitoussi, Priscilla Frisch, David Graham, Brian Haley, Alexander Heger, Wolfgang Hillebrandt, Martin H. Israel, Thomas Janka, Michael Kachelriess, Gunther Korschinek, Marco Limongi, Maria Lugaro, Franciole Marinho, Adrian Melott, Richard A. Mewaldt, Jesse Miller, Ryan C. Ogliore, Michael Paul, Laura Paulucci, Mark Pecaut, Brian F. Rauch, Karl E. Rehm, Michael Schulreich, Ivo Seitenzahl, Mads Sorensen, Friedrich-Karl Thielemann, Francis X. Timmes, Brian C. Thomas, Anton Wallner

Comments: 11 pages, 2 figures. Astro2020 Science White Paper submitted to the 2020 Decadal Survey on Astronomy and Astrophysics

Subjects: Solar and Stellar Astrophysics (astro-ph.SR); Earth and Planetary Astrophysics (astro-ph.EP); High Energy Astrophysical Phenomena (astro-ph.HE); Nuclear Experiment (nucl-ex); Space Physics (physics.space-ph)

[理論/観測/実験 etc....]

Comment!!!!

[28] arxive:1903.04529

Title: "Discovery of a Compact Companion to a Nearby Star"

Author: Stephen R. Kane, Paul A. Dalba, Jonathan Horner, Zhexing Li, Robert A. Wittenmyer, Elliott P. Horch, Steve B. Howell, Mark E. Everett

Comments: 7 pages, 3 figures, 2 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....]

Comment!!!!

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3 月 14 日 (木曜日)

[1] arxive:1903.05624

Title: "Exoplanet Exergy: Why useful work matters for planetary habitabilty"

Author:Caleb Scharf

Comments: 8 pages, 2 figures, submitted to ApJ

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

[理論/観測/実験 etc....]

Comment!!!!

[2] arxive:1903.05623

Title: "The transiting system HD 15337: a pair of nearly equal-mass sub-Neptunes on opposite sides of the radius gap"

Author:Davide Gandolfi, Luca Fossati, John H. Livingston, Keivan G. Stassun, Sascha Grziwa, Oscar Barragán, Malcolm Fridlund, Daria Kubyshkina, Carina M. Persson, Fei Dai, Kristine W. F. Lam, Simon Albrecht, Paul Beck, Anders Bo Justesen, Juan Cabrera, William D. Cochran, Szilard Csizmadia, Jerome P. de Leon, Hans J. Deeg, Philipp Eigmüller, Michael Endl, Anders Erikson, Massimiliano Esposito, Akihiko Fukui, Eike W. Guenther, Artie P. Hatzes, Diego Hidalgo, Teruyuki Hirano, Maria Hjorth, Petr Kabath, Emil Knudstrup, Judith Korth, Mikkel N. Lund, Rafael Luque, Savita Mathur, Pilar Montañes Rodríguez, Norio Narita, David Nespral, Prajwal Niraula, Grzegorz Nowak, Enric Palle, Martin Pätzold, Jorge Prieto-Arranz, Heike Rauer, Seth Redfield, Ignasi Ribas, Marek Skarka, Alexis M. S. Smith

Comments: 15 pages, 8 figures (with corrected title). Submitted to AAS

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

[理論/観測/実験 etc....]

Comment!!!!

[3] arxive:1903.05611

Title: "The remote detectability of Earth's biosphere through time and the importance of UV capability for characterizing habitable exoplanets"

Author:Christopher T. Reinhard, Edward W. Schwieterman, Stephanie L. Olson, Noah J. Planavsky, Giada N. Arney, Kazumi Ozaki, Sanjoy Som, Tyler D. Robinson, Shawn D. Domagal-Goldman, Doug Lisman, Bertrand Men-

nesson, Victoria S. Meadows, Timothy W. Lyons

Comments: White paper submitted in response to the solicitation of feedback for the Decadal Survey on Astronomy and Astrophysics (Astro 2020) by the National Academy of Sciences

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

[理論/観測/実験 etc....]

Comment!!!!

[4] arxive:1903.05574

Title: "Reorientation of Sputnik Planitia implies a Subsurface Ocean on Pluto"

Author: F. Nimmo, D.P. Hamilton, W.B. McKinnon P.M. Schenk, R.P. Binzel, C.J. Bierson, R.A. Beyer, J.M. Moore, S. A. Stern, H. A. Weaver, C. Olkin, L. A. Young, K. E. Smith, J.R. Spencer, M. Buie, B. Buratti, A. Cheng, D. Cruikshank, C. Dalle Ore, A. Earle, R. Gladstone, W. Grundy, A.D. Howard, T.Lauer, I. Linscott, J. Parker, S. Porter, H. Reitsema, D. Reuter, J.H. Roberts, S. Robbins, M. Showalter, K. Singer, D. Strobel, M. Summers, L. Tyler, H. Weaver, O.L. White, O.M. Umurhan, M. Banks, O. Barnouin, V. Bray, B. Carcich, A. Chaikin, C. Chavez, C. Conrad, C. Howett, J. Hofgartner, J. Kammer, C. Lisse, A. Marcotte, A. Parker, K. Retherford, M. Saina, K. Runyon, E. Schindhelm, J. Stansberry, A. Steffl, T. Stryk, . H. Throop, C. Tsang, A. Verbiscer

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

[理論/観測/実験 etc....]

Comment!!!!

[5] arxive:1903.05571

Title: "Convection in a volatile nitrogen-ice-rich layer drives Pluto's geological vigor"

Author: William B. McKinnon, Francis Nimmo, Teresa Wong, Paul M. Schenk, Oliver L. White, J. H. Roberts, J. M. Moore, J. R. Spencer, A. D. Howard, O. M. Umurhan, S. A. Stern, H. A. Weaver, C.B. Olkin, L. A. Young, K. E. Smith, R. Beyer, R.P. Binzel, M. Buie, B. Buratti, A. Cheng, D. Cruikshank, C.Dalle Ore, A. Earle, R. Gladstone, W. Grundy, T.Lauer, I. Linscott, J. Parker, S. Porter, H. Reitsema, D. Reuter, S. Robbins, M. Showalter, K. Singer, D. Strobel, M. Summers, L. Tyler, H. Weaver, M. Banks, O. Barnouin, V. Bray, B. Carcich, A. Chaikin, C. Chavez, C. Conrad, D. Hamilton, C. Howett, J. Hofgartner, J. Kammer, C. Lisse, A.

Marcotte, A. Parker, K. Retherford, M. Saina, K. Runyon, E. Schindhelm, J. Stansberry, A. Steffl, T. Stryk, . H. Throop

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

[理論/観測/実験 etc....]

Comment!!!!

[6] arxive:1903.05563

Title: "The ground-based optical transmission spectrum of hot Jupiter HAT-P-1b"

Author: Kamen O. Todorov, Jean-Michel Desert, Catherine M. Huitson, Jacob L. Bean, Vatsal Panwar, Filipe de Matos, Kevin B. Stevenson, Jonathan J. Fortney, M. Bergmann

Comments: Submitted to A&A

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

[理論/観測/実験 etc....]

Comment!!!!

[7] arxive:1903.05544

Title: "The radio search for technosignatures in the decade 2020-2030"

Author: Jean-Luc Margot, Steve Croft, T. Joseph W. Lazio, Jill Tarter, Eric J. Korpela

Comments: 8 pages, 2 figures, science white paper submitted to the Astro2020 decadal survey on Astronomy and 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!!!!

[8] arxive:1903.05468

Title: "The Critical, Strategic Importance of Adaptive Optics-Assisted Ground-Based Telescopes for the Success of Future NASA Exoplanet Direct Imaging Missions"

Author: Thayne Currie, Ruslan Belikov, Olivier Guyon, N. Jeremy Kasdin, Christian Marois, Mark S. Marley, Kerri Cahoy, Dimitri Mawet, Michael McElwain, Eduardo Bendek, Marc J. Kuchner, Michael R. Meyer, S. Mark Ammons, Julien Girard, Yasuhiro Hasegawa, Mercedes Lopez-Morales, Wladimir Lyra

Comments:

5 pages, 3 figures; Astro2020 Decadal Survey submission; argues for strategic NASA support of ground-based exoplanet direct imaging science programs and tech development. arXiv admin note: substantial text overlap with arXiv:1803.05453

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!!!!

[9] arxive:1903.05439

Title: "The mass and density of the dwarf planet (225088) 2007 OR10"

Author: Csaba Kiss, Gabor Marton, Alex H. Parker, Will Grundy, Aniko Farkas-Takacs, John Stansberry, Andras Pal, Thomas Muller, Keith S. Noll, Megan E. Schwamb, Amy C. Barr, Leslie A. Young, Jozsef Vinko

Comments: Accepted for publication in Icarus

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

[理論/観測/実験 etc....]

Comment!!!!

[10] arxive:1903.05419

Title: "A hot rocky and a warm puffy super-Earth orbiting TOI-402 (HD 15337)"

Author: X. Dumusque, O. Turner, C. Dorn, J.D. Eastman, R. Allart, V. Adibekyan, S. Sousa, N.C. Santos, F. Bouchy, A. Coffinet, M.D. Davies, R.F. Diaz, M.M. Fausnaugh, A. Glidden, N. Guerrero, C.E. Henze, J.M. Jenkins, D.W. Latham, C. Lovis, M. Mayor, F. Pepe, E.V. Quintana, G.R. Ricker, P. Rowden, D. Segransan, A. Suarez Mascareno, S. Seager, J .D. Twicken, S. Udry, J.N. Winn

Comments: 25 pages, 15 figures, 6 tables, submitted to A&A

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

[理論/観測/実験 etc....]

Comment!!!!

[11] arxive:1903.05320

Title: "Multiple Outbursts of Asteroid (6478) Gault"

Author: Quanzhi Ye, Michael S. P. Kelley, Dennis Bodewits, Bryce Bolin, Zhong-Yi Lin, Eric C. Bellm, Richard Dekany, Dmitry A. Duev, Steven Groom, George Helou, Shrinivas R. Kulkarni, Thomas Kupfer, Frank J. Masci, Thomas A. Prince, Maayane T. Soumagnac

Comments: ApJL in press. Animation of Figure 1 at this https URL Data and codes that generate the figures of

this paper are available at this https URL

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

[理論/観測/実験 etc....]

Comment!!!!

[12] arxive:1903.05319

Title: "Imaging Giant Protoplanets with the ELTs"

Author: Steph Sallum, Vanessa P. Bailey, Rebecca A. Bernstein, Alan P. Boss, Brendan P. Bowler, Laird Close, Thayne Currie, Ruobing Dong, Catherine Espaillat, Michael P. Fitzgerald, Katherine B. Follette, Jonathan Fortney, Yasuhiro Hasegawa, Hannah Jang-Condell, Nemanja Jovanovic, Stephen R. Kane, Quinn Konopacky, Michael Liu, Julien Lozi, Jared Males, Dimitri Mawet, Benjamin Mazin, Max Millar-Blanchaer, Ruth Murray-Clay, Garreth Ruane, Andrew Skemer, Motohide Tamura, Gautam Vasisht, Jason Wang, Ji Wang

Comments: Science white paper submitted to the Astro2020 Decadal Survey

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

[理論/観測/実験 etc....]

Comment!!!!

[13] arxive:1903.05317

Title: "Multiple Populations of Extrasolar Gas Giants"

Author: Shohei Goda, Taro Matsuo

Comments: 40 pages, 10 figures, 2 tables, accepted for publication in the Astrophysical Journal

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

[理論/観測/実験 etc....]

Comment!!!!

[14] arxive:1903.05258

Title: "The Super-Earth Opportunity - Search for Habitable Exoplanets in the 2020s"

Author: Renyu Hu, Charles A. Beichman, David Brain, Pin Chen, Mario Damiano, Rebekah Dawson, A. James Friedson, Yasuhiro Hasagawa, Andrew Howard, Robert Johnson, Tiffany Kataria, Richard Kidd, Edwin Kite, Heather Knutson, Wladimir Lyra, Michael Mischna, Noah Planavsky, Chris Reinhard, Hilke Schlichting, Sara Seager, Christophe Sotin, Mark Swain, Neal Turner, Robert West, Yuk Yung, Robert Zellem

Comments: Science white paper submitted to the 2020 Astronomy and Astrophysics Decadal Survey

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

[理論/観測/実験 etc....]

Comment!!!!

[15] arxive:1903.05211

Title: "A Statistical Comparative Planetology Approach to Maximize the Scientific Return of Future Exoplanet Characterization Efforts"

Author: Jade H. Checlair, Dorian S. Abbot, Robert J. Webber, Y. Katherina Feng, Jacob L. Bean, Edward W. Schwieterman, Christopher C. Stark, Tyler D. Robinson, Eliza Kempton, Olivia D. N. Alcabes, Daniel Apai, Giada Arney, Nicolas Cowan, Shawn Domagal-Goldman, Chuanfei Dong, David P. Fleming, Yuka Fujii, R.J. Graham, Scott D. Guzewich, Yasuhiro Hasegawa, Benjamin P.C. Hayworth, Stephen R. Kane, Edwin S. Kite, Thaddeus D. Komacek, Ravi K. Kopparapu, Megan Mansfield, Nadejda Marounina, Benjamin T. Montet, Stephanie L. Olson, Adiv Paradise, Predrag Popovic, Benjamin V. Rackham, Ramses M. Ramirez, Gioia Rau, Chris Reinhard, Joe Renaud, Leslie Rogers, Lucianne M. Walkowicz, Alexandra Warren, Eric. T. Wolf

Comments: White paper submitted in response to the solicitation of feedback for the "2020 Decadal Survey" by the National Academy of Sciences

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

[理論/観測/実験 etc....]

Comment!!!!

[16] arxive:1903.05478

Title: "Polarization in Disks"

Author: Ian Stephens, Zhi-Yun Li, Haifeng Yang, Akimasa Kataoka, Leslie W. Looney, Charles L. H. Hull, Manuel Fernández-López, Sarah I. Sadavoy, Woojin Kwon, Satoshi Ohashi, Ryo Tazaki, Dan Li, Thiem Hoang, Gesa H.-M. Bertrang, Carlos Carrasco-González, William R. F. Dent, Satoko Takahashi, Francesca Bacciotti, Felipe O. Alves, Josep M. Girart, Qizhou Zhang, Ramprasad Rao, Adriana Pohl, Marco Padovani, Daniele Galli, Chin-Fei Lee, Dominique M. Segura-Cox

Comments: Science white paper submitted to the Astro2020 Decadal Survey

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!!!!

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3 月 15 日 (金曜日)

[1] arxive:1903.06130

Title: "Hot exozodiacal dust: an exocometary origin?"

Author:Élie Sezestre, Jean-Charles Augereau, Philippe Thébault

Comments: 21 pages, 17 figures, abstract abridged, accepted for publication in A&A

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

[理論/観測]

系外黄道光を観測してポインティングロバートソン効果の確認などしたい。ダストの移動などに関するいろいろな計算モデルを開発。昇華や合体なども考慮していて、観測と直接比較できる。実際の系などと比較して、近赤外の干渉計で検出された熱い黄道光というのは、メインベルトからポインティングロバートソン効果でたまたま内向きにマイグレーとしていたものだったと思われる。

[2] arxive:1903.06107

Title: "A Super-Earth and two sub-Neptunes transiting the bright, nearby, and quiet M-dwarf TOI-270"

Author: Maximilian N. Günther, Francisco J. Pozuelos, Jason A. Dittmann, Diana Dragomir, Stephen Kane, Tansu Daylan, Adina Feinstein, Chelsea Huang, Tim Morton, Andrea Bonfanti, Luke Bouma, Jennifer Burt, Karen A. Collins, Jack J. Lissauer, Elisabeth Matthews, Andrew Vanderburg, Songhu Wang, Jennifer Winters, George R. Ricker, Roland K. Vanderspek, David W. Latham, Sara Seager, Joshua N. Winn, Jon M. Jenkins, James D. Armstrong, Khalid Barakoui, Natalie Batalha, Jacob Bean, Douglas A. Caldwell, David Ciardi, Kevin I. Collins, Ian Crossfield, Michael Fausnaugh, Gabor Furesz, Tianjun Gan, Michaël Gillon, Natalia Guerrero, Keith Horne, Steve Howell, Michael Ireland, Giovanni Isopi, Emmanuël Jehin, John F. Kielkopf, Sebastien Lepine, Franco Mallia, Rachel Matson, Gordon Myers, Enric Palle

Comments: 28 pages, 9 figures, 4 tables, submitted

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

[理論/観測/実験 etc....]

TESS の TOI-270 は 22.5pc にある明るい M 型星周りのトランジットイベント。今後は TTV を調べたり RV を測ったり、JWST で外側の惑星のトランジット分光ができるか検討したりしたい。

[3] arxive:1903.05839

Title: "A Shiny New Method for SETI: Specular Reflections from Interplanetary Artifacts"

Author:Brian C. Lacki

Comments: 13 pages, 8 figures, submitted

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

[理論]

地球外知的生命がなにか太陽系へ送り込んできていたら、鏡のような表面を持っているかも。自転していたらキラキラ光るはず。Pan-STARS や LSST 等を使ってこれが検出できるか見積もってみた。10m2 の鏡があった場合は 10^{-9}–10^{-7}AU3 くらいの範囲が 1 回の露出で調べられる。数年間かけて 10^5 回くらい調べたら何かが見つかるかも。

[4] arxive:1903.05834

Title: "Ultraviolet Spectropolarimetry as a Tool for Understanding the Diversity of Exoplanetary Atmospheres"

Author:L. Fossati, L. Rossi, D. Stam, A. García Muñoz, J. Berzosa-Molina, P. Marcos-Arenal, J. Caballero, J. Cabrera, A. Chiavassa, J.-M. Desert, M. Godolt, L. Grenfell, C. Haswell, P. Kabath, K. Kislyakova, A. Lanza, A. Lecavelier des Etangs, M. Lendl, E. Pallé, H. Rauer, S. Rugheimer, A. Vidotto

Comments: White paper submitted for Astro2020 Decadal Survey. 7 pages, 4 figures

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

[Decadal Survey]

Astro2020 Decadal Survey

惑星の大気を UV の偏光でみる。

[5] arxive:1903.05718

Title: "EUV influences on exoplanet atmospheric stability and evolution"

Author:Allison Youngblood, Kevin France, Tommi Koskinen, Luca Fossati, Ute Amerstorfer, Herbert Lichtenegger, Jeremy Drake, James Mason, Brian Fleming, Joel Allred, Zachory Berta-Thompson, Vincent Bourrier, Cynthia Froning, Cecilia Garraffo, Guillaume Gronoff, Meng Jin, Adam Kowalski, Rachel Osten

Comments: Science white paper submitted to the Astro2020 Decadal Survey. 7 pages, 2 figures

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

[Decadal Survey]

Astro2020 Decadal Survey

系外惑星の大気が EUV によって受ける影響を調べる。EUVE 衛星のアーカイブデータ解析と、モデル化と、EUV スペクトルのキャラクタリゼーションなどを惑星のホストスターや低質量星で行うべき。

[6] arxive:1903.05687

Title: "Shape and Rotational Motion Models for Tumbling and Monolithic Asteroid 2012 TC_4:High Time Resolution Lightcurve with the Tomo-e Gozen Camera"

Author:Seitaro Urakawa, Ryou Ohsawa, Shigeyuki Sako, Shin-ichiro Okumura, Yuri Sakurai, Jun Takahashi, Kazuyoshi Imamura, Hiroyuki Naito, Fumitake Watanabe, Ryoma Nagayoshi, Yasuhiko Murakami, Ryo Okazaki, Tomohiko Sekiguchi, Masateru Ishiguro, Tatsuhiro Michikami, Makoto Yoshikawa

Comments: 20 pages, 7 figures

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

[理論/観測/実験 etc....]

NEO の近赤と可視での観測で、50 万キロの距離まで迫っていた NEO 2012TC4 を調べた。自転周期が 8.47 分と 12.25 分。形状は 6.2x8.0x14.9m か 3.3x8.0x14.3m になった。

[7] arxive:1903.05665

Title: "Astro2020 Science White Paper: Toward Finding Earth 2.0: Masses and Orbits of Small Planets with Extreme Radial Velocity Precision"

Author:David R. Ciardi, Jacob Bean, Jennifer Burt, Diana Dragomir, Eric Gaidos, Marshall C. Johnson, Eliza Kempton, Quinn Konopacky, Michael Meyer, Johanna Teske, Lauren Weiss, George Zhou

Comments: Science White Paper Submitted to the Astro2020 Decadal Survey (35 co-signers in addition to co-authors)

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

[Decadal Survey]

Astro2020 Decadal Survey

地球サイズの惑星が普遍的に存在することが分かってきて、さらに地球のような惑星かも調べられそうになってきている。惑星の質量やサイズは分かってきているが、大気組成を調べていく必要がある。精密な RV 探査で質量と軌道が分かる。超精密な RV と分単位の観測頻度で、RV のジッターをモデルによって除外できる。TMT や GMT や宇宙望遠鏡を使って地球探しをしたい。

[8] arxive:1903.05649

Title: "Stellar Influence on Heavy Ion Escape from Unmagnetized Exoplanets"

Author:Hilary Egan, Riku Jarvinen, David Brain

Comments: Accepted to MNRAS. 10 pages, 3 figures, 2 tables

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

[理論]

惑星大気がハビタブルになるか考えるには、大気成分のうち重いイオンが脱出してしまう分が重要。M 型星周りの環

境だと太陽系環境とは変化しそう。ハイブリッドな global plasma モデルを適応して、イオンの脱出条件を調べた。恒星風の圧力が増加すると、大体半分のイオンがなくなってしまう。

[9] arxive:1903.06152

Title: "Constraining Stellar Photospheres as an Essential Step for Transmission Spectroscopy of Small Exoplanets"

Author: Benjamin V. Rackham, Arazi Pinhas, Dániel Apai, Raphaëlle Haywood, Heather Cegla, Néstor Espinoza, Johanna K. Teske, Michael Gully-Santiago, Gioia Rau, Brett M. Morris, Daniel Angerhausen, Thomas Barclay, Ludmila Carone, P. Wilson Cauley, Julien de Wit, Shawn Domagal-Goldman, Chuanfei Dong, Diana Dragomir, Mark S. Giampapa, Yasuhiro Hasegawa, Natalie R. Hinkel, Renyu Hu, Andrés Jordán, Irina Kitiashvili, Laura Kreidberg, Carey Lisse, Joe Llama, Mercedes López-Morales, Bertrand Mennesson, Karan Molaverdikhani, David J. Osip, Elisa V. Quintana

Comments: Science white paper submitted in response to the the U.S. National Academies of Science, Engineering, and Medicine's call for community input to the Astro2020 Decadal Survey; 9 pages, 3 figures

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

[Decadal Survey]

Astro2020 Decadal Survey

透過光分光などトランジット観測は、磁気的に活動的な領域ではまだまだ難しい。やれることとしては 1) 惑星イベント中の恒星の磁気活動領域を調べる。2) ホストスターのスペクトル分析。3) 恒星光球と惑星大気の透過光分光による探査。4) 長い側の可視光透過光分光観測を JWFS で調べる。ということで 1) トランジット源を精密な透過光分光によって同定。2) ホスト星の光球面のキャラクタリゼーション。3)ELT の建設補助。4) 太陽観測、恒星観測との連携。5)JWST による長波長側観測の可視透過分光からの支援。

[10] arxive:1903.05729

Title: "Opportunities for Astrophysical Science from the Inner and Outer Solar System"

Author: Michael Zemcov, Iair Arcavi, Richard G. Arendt, Etienne Bachelet, Chas Beichman, James Bock, Pontus Brandt, Ranga Ram Chary, Asantha Cooray, Diana Dragomir, Varoujan Gorjian, Chester E. Harman, Richard Conn Henry, Carey Lisse, Philip Lubin, Shuji Matsuura, Ralph McNutt, Jayant Murthy, Andrew R. Poppe, Michael V. Paul, William T. Reach, Yossi Shvartzvald, R. A. Street, Teresa Symons, Michael Werner

Comments: Science white paper submitted for the Astro2020 decadal review, 5 pages + references

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

[Decadal Survey]
Astro2020 Decadal Survey
1AU の位置から宇宙物理的な測定を行うのは、非常にチャレンジングだったり無理だったりすることがある。電磁波スペクトルで銀河外のバックグラウンドの光を調べたり、太陽系のとそれ以外のダストと氷の性質を調べたり、惑星と恒星残骸の質量を重力マイクロレンズで決定したり。こう言うのを調べるための分野連携での観測提案をしてみる。

[11] arxive:1903.05686

Title: "Rotation Period Evolution in Low-Mass Binary Stars: The Impact of Tidal Torques and Magnetic Braking"

Author:David P. Fleming, Rory Barnes, James R. A. Davenport, Rodrigo Luger

Comments: Submitted to AAS Journals

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

[理論/観測/実験 etc....]
公転周期が 100 日程度の連星系で自転速度がどうなっていくか。軌道周期が 20 日以下だと多くの連星は潮汐ロックされはじめて、さらに 4 日周期以下だと円軌道であれば自転周期とも同期する潮汐ロックになる。潮汐の効果と磁場によるブレーキがあって、自転が収まると磁場が弱まる。

[12] arxive:1903.05656

Title: "Direct Acceleration: Cosmic and Exoplanet Synergies"

Author:David Erskine, Alex Kim, Eric Linder, Malte Buschmann, Richard Easther, Simone Ferraro, Philip Muirhead, David Phillips, Aakash Ravi, Benjamin Safdi, Emmanuel Schaan, Hamish Silverwood, Ronald Walsworth

Comments: Science White Paper for the Astro2020 Decadal Survey

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

[Decadal Survey]
Astro2020 Decadal Survey。
加速度の直接計測は宇宙論でも系外惑星でも重要なゴール。宇宙論では赤方偏移で Friedmann-Lemaitre-Robertson-Walker モデルを直接検証できる。系外惑星では RV 観測でハビタブルゾーンの地球惑星が検出できる。

Nature
ない

Science
ない