

2020年 12月 第4週 新着論文サーベイ

12月 21日 (月曜日)

[1] [arxiv:2012.10435](#)

Title: "The GAPS Programme at TNG. XXX. No detection of reflected light from 51 Peg b using optical high-resolution spectroscopy"

Author: G. Scandariato, F. Borsa, D. Sicilia, L. Malavolta, K. Biazzo, A. S. Bonomo, G. Bruno, R. Claudi, E. Covino, P. Di Marcantonio, M. Esposito, G. Frustagli, A. F. Lanza, J. Maldonado, A. Maggio, L. Mancini, G. Micela, D. Nardiello, M. Rainer, V. Singh, A. Sozzetti, L. Affer, S. Benatti, A. Bignamini, V. Biliotti, R. Capuzzo-Dolcetta, I. Carleo, R. Cosentino, M. Damasso, S. Desidera, A. Garcia de Gurtubai, A. Ghedina, P. Giacobbe, E. Giani, A. Harutyunyan, N. Hernandez, M. Hernandez Diaz, C. Knapic, G. Leto, A. F. Martinez Fiorenzano, E. Molinari, V. Nascimbeni, I. Pagano

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:2012.10305](#)

Title: "The water abundance in Jupiter's equatorial zone"

Author: Cheng Li, Andrew Ingersoll, Scott Bolton, Steven Levin, Michael Janssen, Sushil Atreya, Jonathan Lunine, Paul Steffes, Shannon Brown, Tristan Guillot, Michael Allison, John Arballo, Amadeo Bellotti, Virgil Adumitroaie, Samuel Gulkis, Amoree Hodges, Liming Li, Sidharth Misra, Glenn Orton, Fabiano Oyafuso, Daniel Santos-Costa, Hunter Waite, Zhimeng Zhang

Comments: 27 pages, 7 figures

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

[理論/観測/実験 etc....]

Comment!!!!

[3] [arxiv:2012.10143](#)

Title: "Debris discs in binaries: morphology and photometric signatures"

Author:Philippe Thebault, Quentin Kral, Johan Olofsson

Comments: Accepted for publication in Astronomy & Astrophysics (abstract shortened to fit arxiv requirements)

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:2012.10035](#)

Title: "Searching for Possible Exoplanet Transits from BRITTE Data through a Machine Learning Technique"

Author:Li-Chin Yeh, Ing-Guey Jiang

Comments: 23 pages, 4 tables, 8 figures, published by PASP

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

[理論/観測/実験 etc....]

Comment!!!!

[5] [arxiv:2012.10329](#)

Title: "Development of Techniques Enabling Suborbital Small Object Capture Around Low Gravity Asteroids"

Author:Leonard Vance, Jekan Thangavelautham

Comments: 15 pages, 12 figures, Accepted to AIAA SciTech 2021

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

[理論/観測/実験 etc....]

Comment!!!!

[6] [arxiv:2012.10199](#)

Title: "Stellar chromospheric activity of 1,674 FGK stars from the AMBRE-HARPS sample I. A catalogue of homogeneous chromospheric activity"

Author:J. Gomes da Silva, N.C. Santos, V. Adibekyan, S.G. Sousa, Tiago L. Campante, P. Figueira, D. Bossini, E. Delgado-Mena, Mário J.P.F.G. Monteiro, P. de Lavern, A. Recio-Blanco, C. Lovis

Comments: 24 pages, 24 figures, Accepted for publication in A&A. Full catalogue will be available in CDS after publication

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

[理論/観測/実験 etc....]

Comment!!!!

[7] [arXiv:2012.10000](#)

Title: "Exploiting symmetries and progressive refinement for apodized pupil Lyot coronagraph design"

Author: Emiel H. Por, Rémi Soummer, James Noss, Kathryn St. Laurent

Comments: 17 pages, 8 figures, 2 tables, SPIE Proceedings 11443-165

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

[理論/観測/実験 etc....]

Comment!!!!

[8] [arXiv:2012.09879](#)

Title: "Double trouble: Gaia reveals (proto)-planetary systems that may experience more than one dense star-forming environment"

Author: Christina Schoettler, Richard J. Parker

Comments: 6 pages, 1 figure, 2 tables, published in MNRAS Letters

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!!!!

[9] [arXiv:2012.09863](#)

Title: "Keys of a Mission to Uranus or Neptune, the Closest Ice Giants"

Author: Tristan Guillot, Jonathan Fortney, Emily Rauscher, Mark S. Marley, Vivien Parmentier, Mike Line, Hannah Wakeford, Yohai Kaspi, Ravit Helled, Masahiro Ikoma, Heather Knutson, Kristen Menou, Diana Valencia, Daniele Durante, Shigeru Ida, Scott J. Bolton, Cheng Li, Kevin B. Stevenson, Jacob Bean, Nicolas B. Cowan, Mark D. Hofstadter, Ricardo Hueso, Jeremy Leconte, Liming Li, Christoph Mordasini, Olivier Mousis, Nadine Nettelmann, Krista Soderlund, Michael H. Wong

Comments: arXiv admin note: substantial text overlap with arXiv:1908.02092

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!!!!

12月22日(火曜日)

[1] [arXiv:2012.11426](#)

Title: "Detectability of biosignatures on LHS 1140 b"

Author: Fabian Wunderlich, Markus Scheucher, John Lee Grenfell, Franz Schreier, Clara Sousa-Silva, Mareike Godolt, Heike Rauer

Comments: 18 pages, 11 figures

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

[理論/観測/実験 etc....]

Comment!!!!

[2] [arXiv:2012.11080](#)

Title: "OGLE-2017-blg-1049: another giant planet microlensing event"

Author: Yun Hak Kim, Sun-Ju Chung, A. Udalski, Ian A. Bond, Youn Kil Jung, Andrew Gould, Michael D. Albrow, Cheongho Han, Kyu-Ha Hwang, Yoon-Hyun Ryu, In-Gu Shin, Yossi Shvartzvald, Jennifer C. Yee, Weicheng Zang, Sang-Mok Cha, Dong-Jin Kim, Hyoun-Woo Kim, Seung-Lee Kim, Chung-Uk Lee, Dong-Joo Lee, Yongseok Lee, Byeong-Gon Park, Richard W. Pogge, Radek Poleski, Przemek Mroz, Jan Skowron, Michal K. Szymanski, Igor Soszynski, Pawel Pietrukowicz, Syzmon Kozlowski, Krzysztof Ulaczyk, Krzysztof A. Rybicki, Patryk Iwanek, Fumio Abe, Richard Barry, David P. Bennett, Aparna Bhattacharya, Martin Donachie, Hirosane Fujii, Akihiko Fukui, Yoshitaka Itow, Yuki Hirao, Rintaro Kirikawa, Iona Kondo, Naoki Koshimoto, Yutaka Matsubara, Yasushi Muraki, Shota Miyazaki, Clement Ranc, Nicholas J. Rattenbury, Yuki Satoh

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

[理論/観測/実験 etc....]

Comment!!!!

[3] [arXiv:2012.11068](#)

Title: "Sustained Kozai-Lidov oscillations in misaligned circumstellar gas disks"

Author: Jeremy L. Smallwood, Rebecca G. Martin, Stephen H. Lubow

Comments: 7 pages, 3 figures, Accepted to ApJL

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:2012.10828](#)

Title: "Centroid migration on an impacted granular slope due to asymmetric ejecta deposition and landsliding"

Author: Tomomi Omura, Shinta Takizawa, Hiroaki Katsuragi

Comments: 7 pages, 7 figures

Subjects: Earth and Planetary Astrophysics (astro-ph.EP); Soft Condensed Matter (cond-mat.soft)

[理論/観測/実験 etc....]

Comment!!!!

[5] [arXiv:2012.10724](#)

Title: "Extremely low linear polarization of comet C/2018 V1 (Machholz-Fujikawa-Iwamoto)"

Author: E. Zubko, E. Chornaya, M. Zheltobryukhov, A. Matkin, O.V. Ivanova, D. Bodewits, A. Kochergin, G. Kornienko, I. Luk'yanyk, D. C. Hines, G. Videen

Comments: 9 pages, 5 figures

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

[理論/観測/実験 etc....]

Comment!!!!

[6] [arXiv:2012.10718](#)

Title: "Comet 29P/Schwassmann-Wachmann 1 dust environment from photometric observation at the SOAR Telescope"

Author: E. Picazzio, I.V. Luk'yanyk, O.V. Ivanova, E. Zubko, O. Cavichia, G. Videen, S.M. Andrievsky

Comments: 10 pages, 7 figures

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

[理論/観測/実験 etc....]

Comment!!!!

[7] [arXiv:2012.10705](#)

Title: "Photometric and spectroscopic analysis of Comet 29P/Schwassmann-Wachmann 1 activity"

Author: O.V. Ivanova, I.V. Luk'yanyk, N.N. Kiselev, V.L. Afanasiev, E. Picazzi, O. Cavichia, A.A. de Almeida, S.M. Andrievsky

Comments: 8 pages, 6 figures

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

[理論/観測/実験 etc....]

Comment!!!!

[8] [arXiv:2012.10616](#)

Title: "H₂O₂-induced Greenhouse Warming on Oxidized Early Mars"

Author: Yuichi Ito, George L. Hashimoto, Yoshiyuki O. Takahashi, Masaki Ishiwatari, Kiyoshi Kuramoto

Comments: 8 pages, 7 figures, published in ApJ

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

[理論/観測/実験 etc....]

Comment!!!!

[9] [arXiv:2012.10605](#)

Title: "Hydrodynamic Escape of Mineral Atmosphere from Hot Rocky Exoplanet. I. Model Description"

Author: Yuichi Ito, Masahiro Ikoma

Comments: 23 pages, accepted for publication in the Monthly Notices of the Royal Astronomical Society

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

[理論/観測/実験 etc....]

Comment!!!!

[10] [arXiv:2012.10556](#)

Title: "Earth as a Proxy Exoplanet: Deconstructing and Reconstructing Spectrophotometric Light Curves"

Author: Lixiang Gu, Siteng Fan, Jiazheng Li, Stuart Bartlett, Vijay Natraj, Jonathan H. Jiang, David Crisp, Yongyun Hu, Giovanna Tinetti, Yuk L. Yung

Comments: Accepted by AJ, 10 pages, 2 tables, 13 figures

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

[理論/観測/実験 etc....]

Comment!!!!

[11] [arXiv:2012.10464](#)

Title: "A search for companions via direct imaging in the DSHARP planet-forming disks"

Author: Sebastián Jorquera, Laura M. Pérez, Gaël Chauvin, Myriam Benisty, Zhaohuan Zhu, Andrea Isella, Jane Huang, Luca Ricci, Sean M. Andrews,

Shangjia Zhang, John Carpenter, Nicolás T. Kurtovic, Tilman Birnstiel

Comments: 19 pages, 10 figures; Accepted by AJ

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

[理論/観測/実験 etc....]

Comment!!!!

[12] [arxiv:2012.11350](#)

Title: "LOCNES: a solar telescope to study stellar activity in the near infrared"

Author:Claudi R., Ghedina A., Pace E., Di Giorgio A.M., D'Orazi V., Gallorini L., Lanza A.F., Liu S.J., Rainer M., Tozzi A., Carleo I., Maldonado Prado J., Micela G., Molinari E., Poretti E., Phillips D., Tripodo G., Cecconi M., Galli A., Gonzalez M. D., Guerra Padilla V., Guerra Ramòn J.G., Harutyunyan A., Hernández Càceres N., Hernández Díaz M., Lodi M., Pèrez Ventura H., Riverol Rodríguez A. L., Riverol Rodríguez C. A., San Juan Gómez J

Comments: 12 pages, 8 Figures, SPIE 2020 Conference

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!!!!

[13] [arxiv:2012.10797](#)

Title: "TESS Asteroseismology of α Mensae: Benchmark Ages for a G7 Dwarf and its M-dwarf Companion"

Author:Ashley Chontos, Daniel Huber, Hans Kjeldsen, Aldo M. Serenelli, Victor Silva Aguirre, Warrick H. Ball, Sarbani Basu, Timothy R. Bedding, William J. Chaplin, Zachary R. Clayton, Enrico Corsaro, Rafael A. García, Steve B. Howell, Mia S. Lundkvist, Savita Mathur, Travis S. Metcalfe, Martin B. Nielsen, Jia Mian Joel Ong, Maïssa Salama, Keivan G. Stassun, R. H. D. Townsend, Jennifer L. van Saders, Mark Winther, R. Paul Butler, C. G. Tinney, Robert A. Wittenmyer

Comments: 19 pages, 10 figures, 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....]

Comment!!!!

[14] [arXiv:2012.10720](#)

Title: "The Confirmation of Three Faint Variable Stars and the Observation of Eleven Others in the Vicinity of Kepler-8b by the Lookout Observatory"

Author: Neil Thomas, Margaret Paczkowski

Comments: 15 pages, 7 figures To be published in JAAVSO

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

[理論/観測/実験 etc....]

Comment!!!!

[15] [arXiv:2012.10466](#)

Title: "Tracing Molecular Stratification within an Edge-on Protoplanetary Disk"

Author: D. Ruíz-Rodríguez, J. H. Kastner, P. Hily-Blant, T. Forveille

Comments: Accepted; 15 pages, 8 figures, 4 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月23日(水曜日)

[1] [arXiv:2012.12172](#)

Title: "A Photometric and Dynamic Study of Comet C/2013 A1 (Siding Spring) from Observations at a Heliocentric Distance of 4.1 AU"

Author: Yu.S. Andrienko, A.V. Golovin, A.V. Ivanova, V.N. Reshetnik, S.N. Kolesnik, S.A. Borisenko

Comments: 11 pages, 10 figures

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

[観測/彗星 etc....]

comet C/2013 A1 (Siding Spring) の SSO にある Faulkes 望遠鏡による測光観測の解析結果に関する論文。太陽中心から約 4.1AU と大きく離れているが、激しい活動が観測され、色指数 $V - R$ ・彗星のダストの反射スペクトル勾配・ダスト生成率などのパラメータの測定ができた。さらに彗星の軌道進化をシミュレーションした結果、太陽系惑星の全ての軌道を横切った後にもほとんど放物線軌道のままであることが予測された。

[2] [arXiv:2012.12132](#)

Title: "MOVES IV. Modelling the influence of stellar XUV-flux, cosmic rays, and stellar energetic particles on the atmospheric composition of the hot Jupiter HD 189733b"

Author: Patrick Barth, Christiane Helling, Eva E. Stüeken, Vincent Bourrier, Nathan Mayne, Paul B. Rimmer, Moira Jardine, Aline A. Vidotto, Peter J. Wheatley, Rim Fares

Comments: Accepted by MNRAS, 15 pages, 11 figures, 4 tables

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

[**ホットジュピター etc....**]

MOVES (Multiwavelength Observations of an eVaporating Exoplanet and its Star) プログラムに関する 4 つ目の論文。このプログラムで期待される X 線と UV 観測と、三次元の気候モデルを組み合わせることで、ホットジュピター HD 189733b の大気中の有機物質や前生物的な分子などの化学物質にどのような影響を与えるかを調べた。

[3] [arxiv:2012.12119](#)

Title: "**A review of simulation and performance modeling for the Roman coronagraph instrument**"

Author: Ewan S. Douglas, Jaren N. Ashcraft, Ruslan Belikov, John Debes, Jeremy Kasdin, John Krist, Brianna I. Lacy, Bijan Nemati, Kian Milani, Leonid Pogorelyuk, A.J. Eldorado Riggs, Dmitry Savransky, Dan Sirbu

Comments: 11 pages, 5 figures

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

[**シミュレーション/コロナグラフ etc....**]

Roman 望遠鏡の CGI (Coronagraph Instrument) に関するシミュレーションや回折モデルなどのソフトウェアのまとめ。例えばスペックルや PSF モデルの作成、SN 比の計算、期待されるデブリ円盤や惑星のスペクトルの観測のシミュレーターなどが含まれる。

[4] [arxiv:2012.11932](#)

Title: "**Haze Formation on Triton**"

Author: Kazumasa Ohno, Xi Zhang, Ryo Tazaki, Satoshi Okuzumi

Comments: 29 pages, 14 figures, resubmitted to AAS Journals after addressing referee's comments

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

[**理論/トリトン etc....**]

ネプチューンの最大衛星トリトンは冷たくて hazy な大気を持つ。1989 年に行われた Voyager のフライバイによる観測で、表園付近にヘイズの層が発見されたが、ヘイズの形成機構はまだ調べられていない。そこでヘイズのマイクロ物理モデルを初めて作成し、 C_2H_4 氷が含まれる場合と含まれない場合とで球状のヘイズやヘイズの集合体が形成されるかをシミュレーションした。その結果氷が含まれない場合では Voyager 2 での UV と可視光観測の結果を同時に説明できないが、氷が含まれる場合には説明できることがわかった。

[5] [arxiv:2012.11737](#)

Title: "**Endogenic and Exogenic Contributions to Visible-wavelength Spectra of**

Europa's Trailing Hemisphere”

Author: Samantha K. Trumbo, Michael E. Brown, Kevin P. Hand

Comments: 10 pages, 1 table, 5 figures, published in The Astronomical Journal

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

[観測/エウロパ etc....]

ハッブル望遠鏡で観測されたエウロパの空間的に分解された可視光でのスペクトル観測を用いて、反公転方向に面した半球面の複数のスペクトルの吸収線をマッピングした。さらに、それらの位置と、大規模な地質・磁気圏・表面の色の分布との比較を行った。

[6] [arxiv:2012.11694](#)

Title: ”Magnetospheres of Terrestrial Exoplanets and Exomoons: Implications for Habitability and Detection”

Author: James Green, Scott Boardsen, Chuanfei Dong

Comments: submitted to ApJ Letters

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

[理論/磁気圏/原始大気 etc....]

地球のような惑星と衛星で見られるカップリングした磁気圏は惑星と衛星の両方の原始大気を保護するために協働する。そこで恒星風の環境下で衛星が惑星からいくつかの位置に存在する場合について、惑星と衛星の大気にどのような影響があるかを磁場のトポロジカルモデルを用いてシミュレートした。

[7] [arxiv:2012.11628](#)

Title: ”The Fundamental Connections Between the Solar System and Exoplanetary Science”

Author: Stephen R. Kane, Giada N. Arney, Paul K. Byrne, Paul A. Dalba, Steven J. Desch, Jonti Horner, Noam R. Izenberg, Kathleen E. Mandt, Victoria S. Meadows, Lynnae C. Quick

Comments: 53 pages, 5 figures, invited review, accepted for publication in the Journal of Geophysical Research: Planets

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

[太陽系内天体/レビュー etc....]

惑星科学の進歩に関するレビュー論文。太陽系に見られる岩石惑星・ガス惑星・衛星・小天体などの内部構成や大気や疑問点、さらにそれらと系外惑星科学との関係性についてまとめている。

[8] [arxiv:2012.12079](#)

Title: ”Cosmology, astrobiology, and the RNA world. Just add quintessential water”

Author: Keith Johnson

Comments: 25 pages; 9 figures

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

[理論/観測/実験 etc....]

実験室でのアモルファス氷と強いテラヘルツの放射によって、水のナノクラスターが生成できたことは、超新星爆発によって生成された豊富な宇宙塵のアモルファス氷から、星間空間に放出された水のナノクラスターが生成される可能性を示唆する。この論文では、ダークマター・ダークエネルギー・宇宙論・宇宙生物学・RNA ワールドなどの分野に対して、水のナノクラスターの存在が提供する仮説をまとめている。

[9] [arXiv:2012.12073](#)

Title: "Effect of acceleration and escape of energetic particles on spectral steepening at shocks"

Author: Federico Fraschetti

Comments: 19 pages, 6 figures, accepted for publication in The Astrophysical Journal

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

[理論/惑星間衝突 etc....]

Comment!!!!

[10] [arXiv:2012.11738](#)

Title: "Semi-Empirical Modeling of the Atmospheres of the M Dwarf Exoplanet Hosts GJ 832 and GJ 581"

Author: Dennis Tilipman, Mariela Vieytes, Jeffrey L. Linsky, Andrea P. Buccino, Kevin France

Comments: 20 pages, 16 figures; accepted for publication by ApJ

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

[EUV etc....]

星間吸収によってほとんど観測できない 100-912Å の波長帯の EUV 放射を再現するために、輻射輸送のモデルと、可視光・紫外線・X 線の観測結果を用いることで、系外惑星を持つ二つの M 型星に関して、準経験的なモデルを構築して人工スペクトルを作成した。その結果、EUV のフラックスは他の再現モデルの結果と一致したが SEDs に関しては大きく異なる結果が得られた。

12 月 24 日 (木曜日)

[1] [arXiv:2012.12781](#)

Title: "Monitoring polarization in comet 46P/Wirtanen"

Author: M. Zheltobryukhov, E. Zubko, E. Chornaya, I. Luk'yanyk, O. Ivanova, A. Kochergin, G. Kornienko, D. Mkrtichian, S. Poshyachinda, I.E. Molotov, S.S. Kim, G. Videen

Comments: 12 pages, 5 figures

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

[理論/観測/実験 etc....]

46P/Wirtanen の偏光観測。C/1975V1 によく似た性質を持っているそう。

[2] [arXiv:2012.12549](#)

Title: "Space Debris – Optical Measurements"

Author: Jiri Silha

Comments: 20 pages, 9 figures, Book chapter in "Reviews in Frontiers of Modern Astrophysics: From Space Debris to Cosmology" (eds Kabath, Jones and Skarka; publisher Springer Nature) funded by the European Union Erasmus+ Strategic Partnership grant "Per Aspera Ad Astra Simul" 2017-1-CZ01-KA203-035562

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

[理論/観測/実験 etc....]

スペースデブリの監視網について。

[3] [arXiv:2012.12511](#)

Title: "A "no-drift" runaway pile-up of pebbles in protoplanetary disks in which midplane turbulence increases with radius"

Author: Ryuki Hyodo, Shigeru Ida, Tristan Guillot

Comments: 7 pages, 3 Figures, 1 Figure in Appendix; Accepted for publication in Astronomy & Astrophysics Letters (A&A Letters)

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

[理論/観測/実験 etc....]

惑星形成での、ペブルの成長について。ストリーミング不安定や重力不安定とはちがう新しい"no-drift" runaway pile-up を提案。円盤外側からやってきたペブルがデッドゾーンに入ったときに、鉛直方向の乱流が減少することで発生する。ペブルのスケールハイトが減少して、ペブルとガスのフラックス比が高い場合にはペブルがガスの反作用を受けて減速して、アクリーションが進行する、と言うモデルらしい。ペブルとガスのフラックス比が大きくて、ケルビンヘルムホルツシア不安定が支配的である場合に起こりそう。

[4] [arXiv:2012.12296](#)

Title: "Semi-analytical model for planetary resonances: application to planets around single and binary stars"

Author: Tabaré Gallardo, Cristián Beaugé, Cristian A. Giuppone

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

[理論/観測/実験 etc....]

惑星の軌道共鳴について。単独星と連星周りで適応出来るフレームワークを提案。HD31527 系で適応してみて上手く行きそう。

[5] [arXiv:2012.12829](#)

Title: "Effects of latitude-dependent gravity wave source variations on the middle and upper atmosphere"

Author: Erdal Yiğit, Alexander S. Medvedev, Manfred Ern

Comments: Submitted to Frontiers in Astronomy and Space Sciences. Research Topic: "Coupling Processes in Terrestrial and Planetary Atmospheres"

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

[理論/観測/実験 etc....]

大気の重力波のはなし。数値計算と NASA の観測機 TIMED の SABER 装置との結果を比較したらしい。

[6] [arXiv:2012.12318](#)

Title: "The Keck Planet Imager and Characterizer: Phase I fiber injection unit early performance and commissioning"

Author: Evan C. Morris, Jason J. Wang, Jean-Baptiste Ruffio, Jacques-Robert Delorme, Jacklyn Pezzato, Charlotte Z. Bond, Dimitri Mawet, Andrew J. Skemer

Comments: SPIE Astronomical Telescopes & Instrumentation 2020 Proceedings (11447-40), 10 pages, 7 figures

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

[理論/観測/実験 etc....]

Keck Planet Imager and Characterizer (KPIC) の紹介。ピラミッド波面センサと高分散分光器などが新しい。

12月25日(金曜日)

[1] [arXiv:2012.13238](#)

Title: "New constraints on the planetary system around the young active star AU Mic. Two transiting warm Neptunes near mean-motion resonance"

Author: E. Martioli, G. Hébrard, A. C. M. Correia, J. Laskar, A. Lecavelier des Etangs

Comments: Draft submitted for publication to the Astronomy & Astrophysics on Dec 24, 2020

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

[理論/観測/実験 etc....]

若い恒星 AU Mic の周りに検出されたトランジット惑星の TESS ライトカーブを解析した。以前の TESS のデータでは単独惑星だと報告されたが、今回の観測・解析で warm Neptune が 2 つ存在することがわかった。これらの惑星は 9:4 の平均軌道共鳴に近いらしい。

[2] [arXiv:2012.13208](#)

Title: "Imaging polarimetry and photometry of comet 21P/Giacobini-Zinner"

Author: E. Chornaya, E. Zubko, I. Luk'yanyk, A. Kochergin, M. Zheltobryukhov, O.V. Ivanova, G. Kornienko, A. Matkin, A. Baransky, I.E. Molotov, V.S. Sharoshchenko, G. Videen

Comments: 11 pages, 6 figures

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

[理論/観測/実験 etc....]

彗星 21P/Giacobini-Zinner を位相角 76-78 度で偏光観測した。偏光成分の変化から、コマ中の粒子は約 1 日で再充填されることがわかった。Mg リッチなシリケート粒子よりも炭素質粒子の方がこの周期が短いらしく、この組成比の違いがコマの偏光成分の変化の原因になってるらしい。

[3] [arXiv:2012.12992](#)

Title: "Three-dimensional continuum radiative transfer of polarized radiation in exoplanetary atmospheres"

Author: Moritz Lietzow, Sebastian Wolf, Robert Brunngräber

Comments: Accepted for publication in A&A, 12 pages, 10 figures

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

[理論/観測/実験 etc....]

系外惑星の大気やその周囲の惑星環境 (リングとか衛星とか) での偏光を含む輻射輸送モデルを構築した。

[4] [arXiv:2012.12957](#)

Title: "GD424 – a helium-atmosphere white dwarf with a large amount of trace hydrogen in the process of digesting a rocky planetesimal"

Author: Paula Izquierdo, Odette Toloza, Boris T. Gänsicke, Pablo Rodríguez-Gil, Jay Farihi, Detlev Koester, Jincheng Guo, Seth Redfield

Comments: 14 pages, 9 figures

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

[理論/観測/実験 etc....]

白色矮星の金属汚染は惑星の降着の証拠と考えられているが、白色矮星のヘリウム大気に検出される水素の期限はよくわかっていない。ヘリウム大気を持ち、金属汚染と大量の水素が確認されている白色矮星 GD424 の大気成分を解析したところ、11 種類の金属が確認され、降着したデブリの組成は CI コンドライトか地球のバルク組成と同じことがわかった。大量の水素は水リッチなデブリの降着に由来することが示唆された。

[5] [arXiv:2012.12930](#)

Title: "Migration of Jupiter mass planets in low viscosity discs"

Author: E. Lega, R.P. Nelson, A. Morbidelli, W. Kley, W. Béthune, A. Crida, D. Kloster, H. Méheut, T. Rometsch, A. Ziampras

Comments: 18 pages, 13 figures

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

[理論/観測/実験 etc....]

Type II migration の速度は粘性 $\alpha > 10^{-4}$ の円盤中では粘性アルファに比例するが、粘性が小さい円盤では、惑星が開けたギャップの縁でロスビー波不安定性が生じて migration が早くなることが 2 次元シミュレーションから知られている。今回は 3 次元の低粘性円盤における migration について調べた。 $\alpha \lesssim 10^{-5}$ の場合に Type II migration とは異なる (速度が粘性に比例しない) 2 種類の migration mode が存在することを発見した。1 つは "vortex-driven migration" と呼ばれる、惑星によるギャップが浅い場合の migration で、速度は遅く、渦の消失に伴って止まる。2 つ目は、惑星の離心率が 0.2 くらいでギャップが深い場合に起こる migration で、こちらは速度が速く、温度摂動による抑制が小さい 2 次元モデルでよく見られるものと同じものだと考えられる。

[6] [arxiv:2012.12900](#)

Title: "Lithium pollution of a white dwarf records the accretion of an extrasolar planetesimal"

Author: Benjamin C. Kaiser, J. Christopher Clemens, Simon Blouin, Patrick Dufour, Ryan J. Hegedus, Joshua S. Reding, Antoine Bédard

Comments: Sub 30Jun2020; acc 4Dec; pub 17Dec2020; This manuscript has been accepted for publication in Science.

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

[理論/観測/実験 etc....]

白色矮星 Gaia DR2 4353607450860305024 の大気に Li, Na, K, Ca の汚染を検出した。大気モデルから元々の惑星系におけるこれらの元素の組成比を計算したところ、Li 以外は太陽系の組成比と整合した。

[7] [arxiv:2012.13324](#)

Title: "Semi-annual, annual and Universal Time variations in the magnetosphere and in geomagnetic activity: 4. Polar Cap motions and origins of the Universal Time effect"

Author: Mike Lockwood, Carl Haines, Luke A. Barnard, Mathew J. Owens, Chris J. Scott, Aude Chambodut, Kathryn A. McWilliams

Comments: Accepted for publication in J. Space Weather Space Clim., contains 23 Figures plus has an Appendix containing 4 Figures

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

[理論/観測/実験 etc....]

Comment!!!!

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