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An Electronic Newsletter

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1 Editorial

Dear readers,

Welcome to Edition 136 of the ExoPlanet News!

In this October issue you will find abstracts of scientific papers, conference announcements/updates, Exoplanet Archive updates, job postings, a proposal call, and an overview of exoplanet-related articles on astro-ph.

We remind you of some guidelines for using our templates. If you follow these guidelines, you will make our job easier:

- Please rename the *.tex* file you send from *abstract_template* to something recognizable like e.g. *jobs_smith* or *announcement_miller*
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- Figure: attach it to the e-mail without large white margins. It should be one single pdf file per abstract.
- Prior to submission, please remember to comment the three lines which start the tex document and the last line which ends the document.
- Please remember to fill the brackets {} after the title with author names.

For the next month we look forward to your paper abstracts, job ads or meeting announcements. Also special announcements are welcome. As always, we would also be happy to receive feedback concerning the newsletter. The Latex template for submitting contributions, as well as all previous editions of ExoPlanet News, can be found on the ExoPlanet News webpage (http://nccr-planets.ch/exoplanetnews/).

The next issue will appear on 11 November 2020.

Thanks again for your support.
Best healthy wishes from the editorial team,

Daniel Angerhausen
Lokesh Mishra
Holly Capelo
Julia Venturini
Timm-Emanuel Riesen

2 Abstracts of refereed papers

The composition of hot Jupiter atmospheres assembled within chemically evolved protoplanetary discs

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Monthly Notices of the Royal Astronomical Society, in press (arXiv:2009.09444)

The radial-dependent positions of snowlines of abundant oxygen- and carbon-bearing molecules in protoplanetary discs will result in systematic radial variations in the C/O ratios in the gas and ice. This variation is proposed as a tracer of the formation location of gas-giant planets. However, disc chemistry can affect the C/O ratios in the gas and ice, thus potentially erasing the chemical fingerprint of snowlines in gas-giant atmospheres. We calculate the molecular composition of hot Jupiter atmospheres using elemental abundances extracted from a chemical kinetics model of a disc midplane where we have varied the initial abundances and ionization rates. The models predict a wider diversity of possible atmospheres than those predicted using elemental ratios from snowlines only. As found in previous work, as the C/O ratio exceeds the solar value, the mixing ratio of CH_4 increases in the lower atmosphere, and those of C_2H_2 and HCN increase mainly in the upper atmosphere. The mixing ratio of H_2O correspondingly decreases. We find that hot Jupiters with C/O>1 can only form between the CO_2 and CH_4 snowlines. Moreover, they can only form in a disc which has fully inherited interstellar abundances, and where negligible chemistry has occurred. Hence, carbon-rich planets are likely rare, unless efficient transport of hydrocarbon-rich ices via pebble drift to within the CH_4 snowline is a common phenomenon. We predict combinations of C/O ratios and elemental abundances that can constrain gas-giant planet formation locations relative to snowline positions, and that can provide insight into the disc chemical history.

Download/Website: `https://arxiv.org/abs/2009.09444`

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In Search for a Planet Better than Earth: Top Contenders for a Superhabitable World

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Astrobiology, published, DOI:10.1089/ast.2019.2161

The fact that Earth is teeming with life makes it appear odd to ask whether there could be other planets in our galaxy that may be even more suitable for life. Neglecting this possible class of "superhabitable" planets, however, could be considered anthropocentric and geocentric biases. Most important from the perspective of an observer searching for extrasolar life is that such a search might be executed most effectively with a focus on superhabitable planets instead of Earth-like planets. We argue that there could be regions of astrophysical parameter space of star-planet systems that could allow for planets to be even better for life than our Earth. We aim to identify those parameters and their optimal ranges, some of which are astrophysically motivated, whereas others are based on the varying habitability of the natural history of our planet. Some of these conditions are far from being observationally testable on planets outside the solar system. Still, we can distill a short list of 24 top contenders among the > 4000 exoplanets known today that could be candidates for a superhabitable planet. In fact, we argue that, with regard to the search for extrasolar life, potentially superhabitable planets may deserve higher priority for follow-up observations than most Earth-like planets.

Download/Website: `https://doi.org/10.1089/ast.2019.2161`

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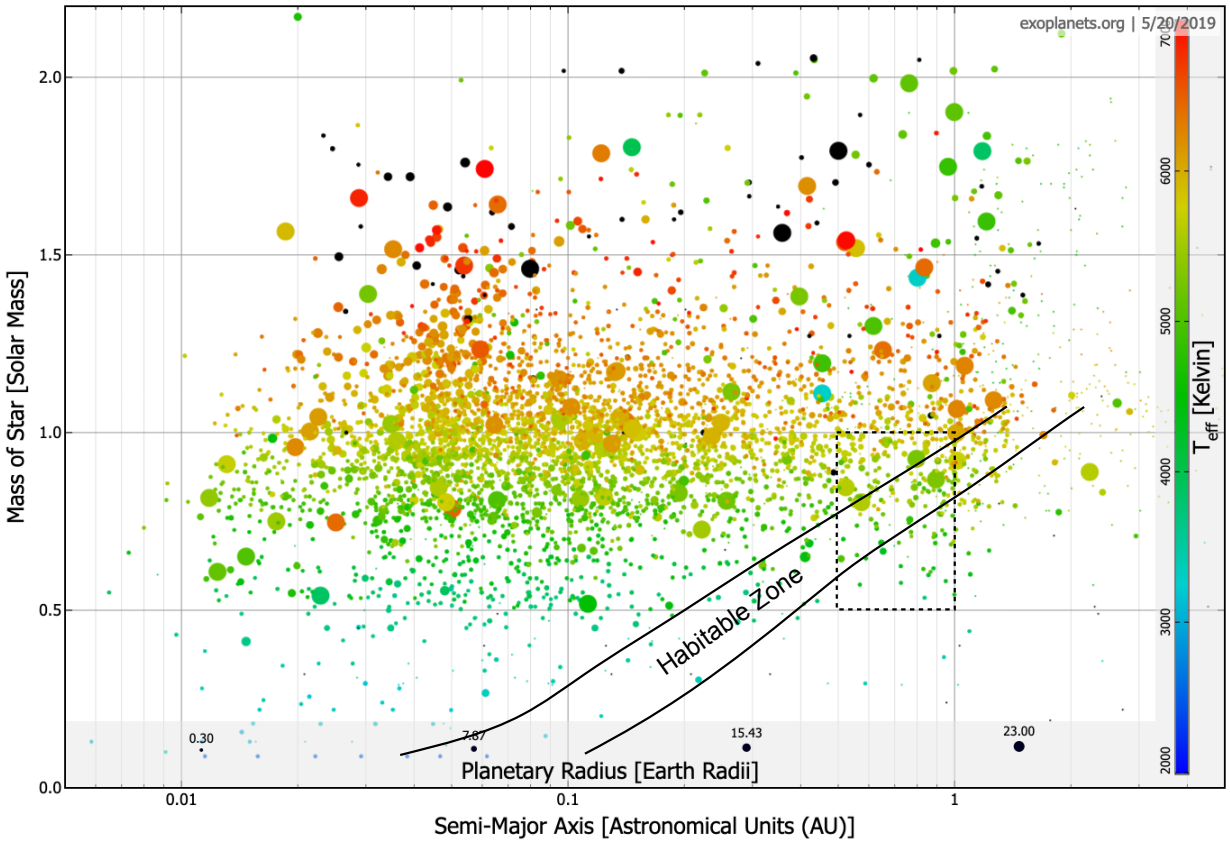

Figure 1: Star-planet distances (along the abscissa) and mass of the host star (along the ordinate) of roughly 4500 extrasolar planet and extrasolar planet candidates. The temperatures of the stars are indicated with symbol colors (see color bar). Planetary radii are encoded in the symbol sizes (see size scale at the bottom). The conservative habitable zone, defined by the moist-greenhouse and the maximum greenhouse limits (Kopparapu et al., 2013) is outlined with black solid lines. Stellar luminosities required for the parameterization of these limits were taken from Baraffe et al. (2015) as a function of mass as shown along the ordinate of the diagram. The dashed box refers to the region shown in Fig. 2. Data from exoplanets.org as of May 20, 2019.

Makemake + Sedna: A Continuum Radiation Transport and Photoionization Framework for Astrophysical Newtonian Fluid Dynamics

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ApJS, published (ADS: 2020ApJS..250...13K)

Astrophysical fluid flow studies often encompass a wide range of physical processes to account for the complexity of the system under consideration. In addition to gravity, a proper treatment of thermodynamic processes via continuum radiation transport and/or photoionization is becoming the state of the art.
We present a major update of our continuum radiation transport module, MAKEMAKE, and a newly developed module for photoionization, SEDNA, coupled to the magnetohydrodynamics code PLUTO. These extensions are currently not publicly available; access can be granted on a case-by-case basis.
We explain the theoretical background of the equations solved, elaborate on the numerical layout, and present a comprehensive test suite for radiation–ionization hydrodynamics. The grid based radiation and ionization modules support static one-dimensional, two-dimensional, and three-dimensional grids in Cartesian, cylindrical, and spherical coordinates. Each module splits the radiation field into two components, one originating directly from a point source – solved using a ray-tracing scheme – and a diffuse component – solved with a three-dimensional flux-limited diffusion (FLD) solver. The FLD solver for the continuum radiation transport makes use of either the equilibrium one-temperature approach or the linearization two-temperature approach. The FLD solver for the photoionization module enables accounting for the temporal evolution of the radiation field from direct recombination of free electrons into the hydrogen ground state as an alternative to on-the-spot approximation.
A brief overview of completed and ongoing scientific studies is given to explicitly illustrate the multipurpose nature of the numerical framework presented.

Download/Website: `https://ui.adsabs.harvard.edu/abs/2020ApJS..250...13K`

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TESS Observations of the Hot Jupiter Exoplanet XO-6b: No Evidence of Transit Timing Variations

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AJ, in press (arXiv:2009.10781)

From previous ground-based observations, the hot Jupiter exoplanet XO-6b was reported to exhibit apparently periodic transit timing variations (TTVs), with a semi-amplitude of 14 minutes and a period of about 450 days. These variations were interpreted as being due to a resonant perturbation between XO-6b and a hitherto unknown low-mass planet orbiting the same star. To understand this enigmatic planetary system better, we analysed three sectors of data, spanning over seven months, from the Transiting Exoplanet Survey Satellite (TESS), which produces high-quality light curves that are well suited to characterizing exoplanets and searching for TTVs. Here we present an updated orbital period of 3.7649893 ± 0.0000037 days and a transit epoch of 2456652.7157 ± 0.0022 BJD_{TDB}. The planetary parameters we report, while consistent with their discovery values, have greatly improved precision. Notably, we find no evidence for TTVs: we can rule out TTVs > 2.5 minutes at the 3σ level. Therefore, the TESS data have sufficient precision and time baseline to reveal readily the previously reported TTVs of approximately 10 minutes. Our findings highlight TESS's capabilities for robust follow-up, and confirm that TTVs are rarely seen in hot Jupiters, unlike is the case with small planets.

Download/Website: `https://arxiv.org/pdf/2009.10781.pdf`

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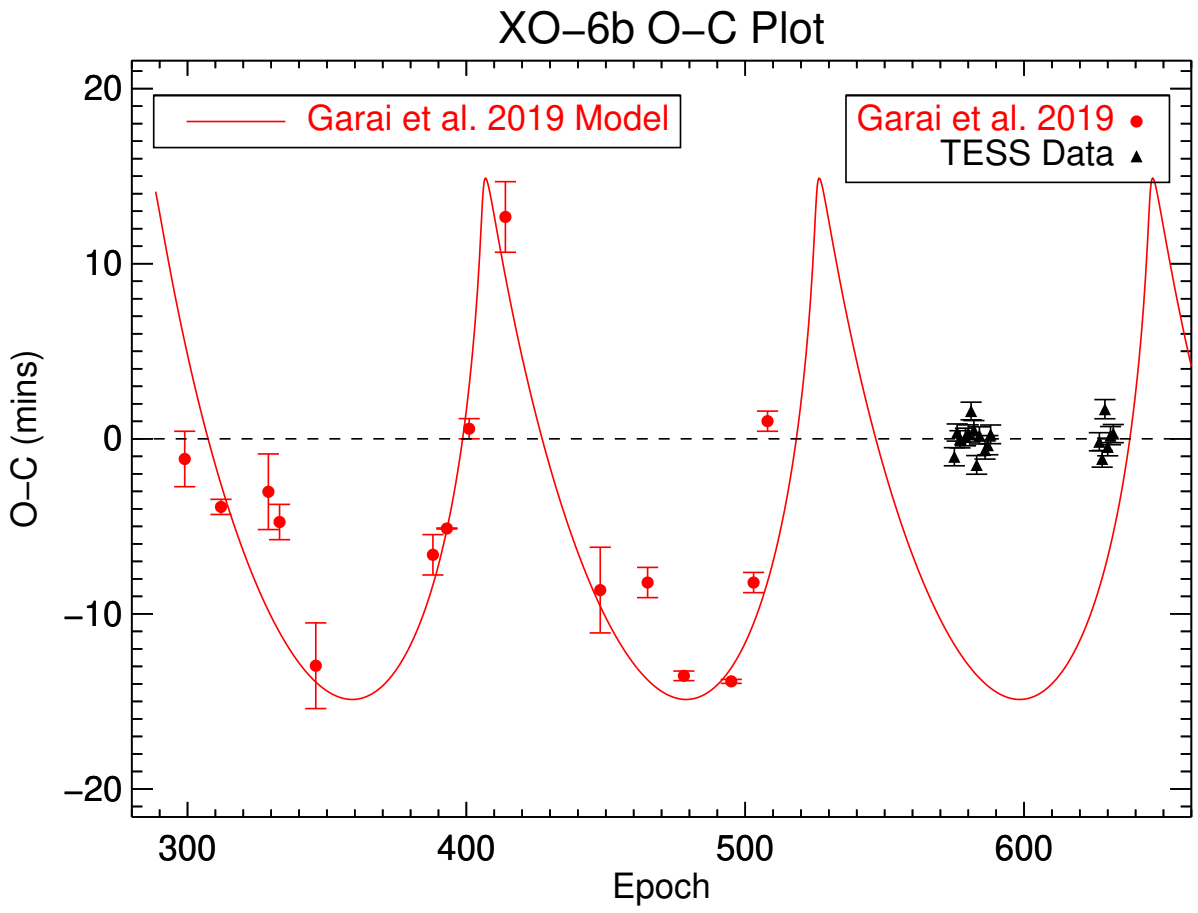

Figure 2: The observation minus calculation mid-transit time (O-C) diagram derived using the TESS data (black). Also shown are the values reported by Garai et al. (2020) (red) and their best-fit light-time effect (LiTE) model (red line)

Exoplanet detection yield of a space-based Bracewell interferometer from small to medium satellites

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Journal of Astronomical Telescopes, Instruments, and Systems, published (2020JATIS...6c5004D)

Space-based nulling interferometry is one of the most promising solutions to spectrally characterize the atmosphere of rocky exoplanets in the mid-infrared (3 to 20 μm). It provides both high angular resolution and starlight mitigation. This observing capability depends on several technologies. A CubeSat (up to 20 kg) or a medium satellite (up to a few hundreds of kg), using a Bracewell architecture on a single spacecraft could be an adequate technological precursor to a larger, flagship mission. Beyond technical challenges, the scientific return of such a small-scale mission needs to be assessed. We explore the exoplanet science cases for various missions (several satellite configurations and sizes). Based on physical parameters (diameter and wavelength) and thanks to a state-of-the-art planet population synthesis tool, the performance and the possible exoplanet detection yield of these configurations are presented. Without considering platform stability constraints, a CubeSat (baseline of b $\simeq$ 1m and pupils diameter of D $\simeq$ 0.1 m) could detect $\simeq$ 7 Jovian exoplanets, a small satellite (b $\simeq$ 5 m / D $\simeq$ 0.25 m) $\simeq$ 120 exoplanets, whereas a medium satellite (b $\simeq$ 12.5 m / D $\simeq$ 0.5 m) could detect $\simeq$ 250 exoplanets including 51 rocky planets within 20 pc. To complete our study, an analysis of the platform stability constraints (tip/tilt and optical path difference) is performed. Exoplanet studies impose very stringent requirements on both tip/tilt and OPD control.

Download/Website: `http://hdl.handle.net/2268/251075`

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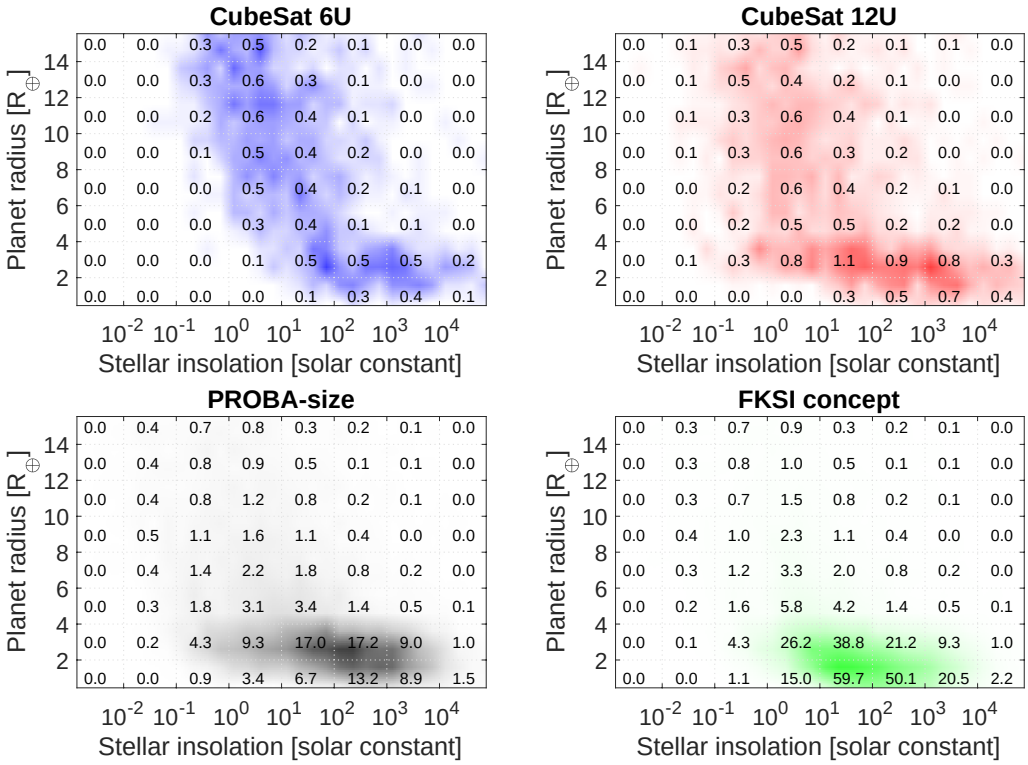

Figure 3: Mean exoplanets detection for each configuration at their optimum wavelength: CubeSat 6U (B = 0.5 m, D = 0.08 m, T = 150 K, λ = 0.5 μm), CubeSat 12U (B = 1.0 m, D = 0.08 m, T = 150 K, λ = 1.5 μm), PROBA-size (B = 5 m, D = 0.25 m, T = 100K, λ = 2.5 μm), FKSI-concept (B = 12.5 m, D = 0.50 m, T = 60 K, λ = 4.5 μm). 100 trials around 326 real stars. No platform stability constraints (tip/tilt and OPD) are considered at this stage.

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

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Monthly Notices of the Royal Astronomical Society, in press (arXiv:2010.01993)

This paper reports on the detailed characterisation of the K2-111 planetary system with *K2*, WASP, and ASAS-SN photometry as well as high-resolution spectroscopic data from HARPS-N and ESPRESSO. The host, K2-111, is confirmed to be a mildly evolved ($\log g = 4.17$), iron-poor ([Fe/H]$= -0.46$), but alpha-enhanced ([α/Fe]$= 0.27$), chromospherically quiet, very old thick disc G2 star. A global fit, performed by using `PyORBIT` shows that the transiting planet, K2-111b, orbits with a period $P_b = 5.3518 \pm 0.0004$ d, and has a planet radius of $1.82^{+0.11}_{-0.09}$ $R_\oplus$ and a mass of $5.29^{+0.76}_{-0.77}$ $M_\oplus$, resulting in a bulk density slightly lower than that of the Earth. The stellar chemical composition and the planet properties are consistent with K2-111b being a terrestrial planet with an iron core mass fraction lower than the Earth. We announce the existence of a second signal in the radial velocity data that we attribute to a non-transiting planet, K2-111c, with an orbital period of 15.6785 ± 0.0064 days, orbiting in near-3:1 mean-motion resonance with the transiting planet, and a minimum planet mass of 11.3 ± 1.1 $M_\oplus$. Both planet signals are independently detected in the HARPS-N and ESPRESSO data when fitted separately. There are potentially more planets in this resonant system, but more well-sampled data are required to confirm their presence and physical parameters.

Download/Website: `https://arxiv.org/pdf/2010.01993.pdf`

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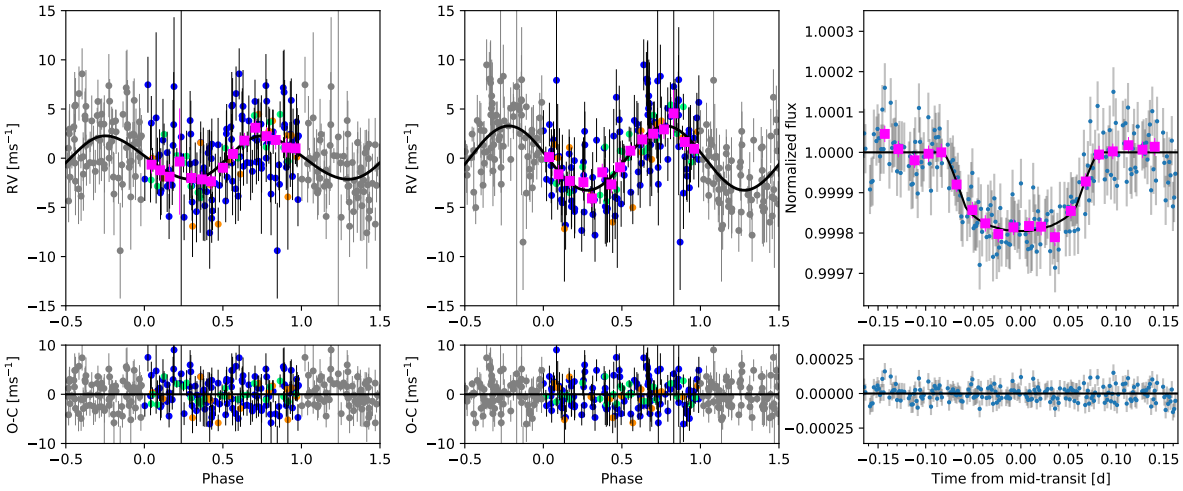

Figure 4: Solution from the global fit two-Keplerian eccentric model. *Left panel*: RV versus phase for K2-111b (5.3518 days). Blue markers represent HARPS-N measurements, orange and green markers represent ESPRESSO 1 and 2 measurements, respectively, and magenta squares are the phase-binned data. The black curve represents the best model. White noise has been added to the errors. *Middle panel*: Same as the left panel, but for the second Keplerian at 15.678 d. *Right panel*: transit of K2-111b with blue points the *K2* data, magenta squares the phase-binned data, and the black line its best model. Bottom panels represent the residuals of each corresponding model.

Most super-Earths formed by dry pebble accretion are less massive than 5 Earth masses

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Astronomy & Astrophysics, in press (eprint arXiv:2008.05497)

The goal of this work is to study the formation of rocky planets by dry pebble accretion from self-consistent dust-growth models. In particular, we aim at computing the maximum core mass of a rocky planet that can sustain a thin H-He atmosphere to account for the second peak of the Kepler's size distribution. We simulate planetary growth by pebble accretion inside the ice line. The pebble flux is computed self-consistently from dust growth by solving the advection-diffusion equation for a representative dust size. Dust coagulation, drift, fragmentation and sublimation at the water ice line are included. The disc evolution is computed solving the vertical and radial structure for standard α-discs with photoevaporation from the central star. The planets grow from a moon-mass embryo by silicate pebble accretion and gas accretion. We perform a parameter study to analyse the effect of a different initial disc mass, α-viscosity, disc metallicity and embryo location. We also test the effect of considering migration vs. an in-situ scenario. Finally, we compute atmospheric mass-loss due to evaporation during 5 Gyr of evolution. We find that inside the ice line, the fragmentation barrier determines the size of pebbles, which leads to different planetary growth patterns for different disc viscosities. We also find that in this inner disc region, the pebble isolation mass typically decays to values below 5 $M_\oplus$, within the first million years of disc evolution, limiting the core masses to that value. After computing atmospheric-mass loss, we find that planets with cores below $\sim$ 4 $M_\oplus$, get their atmospheres completely stripped, and a few 4-5 $M_\oplus$, cores retain a thin atmosphere that places them in the gap/second peak of the Kepler size distribution. In addition, a few rare objects that form in extremely low viscosity discs accrete a core of 7 $M_\oplus$, and equal envelope mass, which is reduced to 3-5 $M_\oplus$, after evaporation. These objects end up with radii of $\sim$6-7 $R_\oplus$. Overall, we find that rocky planets form only in low-viscosity discs ($\alpha \leq 10^{-4}$). When $\alpha \geq 10^{-3}$, rocky objects do not grow beyond Mars-mass. For the successful low viscosity cases, the most typical outcome of dry pebble accretion is terrestrial planets with masses spanning from Mars to $\sim 4 M_\oplus$.

Download/Website: `https://arxiv.org/abs/2008.05497`

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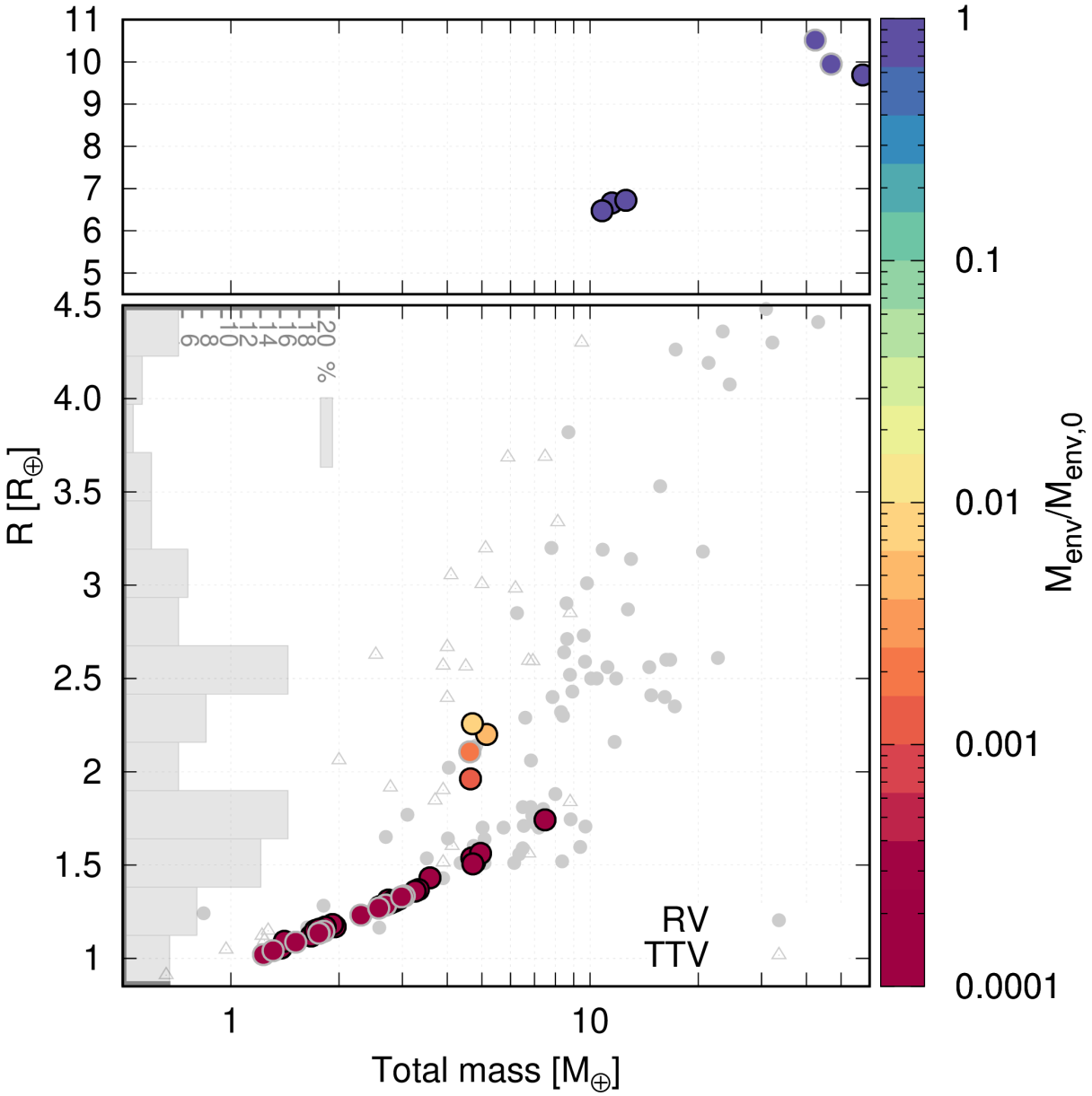

Figure 5: Final mass-radius for all the planets with P $\leq$ 100 days and $M_{core} \geq 1\ M_{\oplus}$, represented by black-bordered (high-dust opacity) and grey-bordered (low-dust opacity) color circles. The colors show the final envelope mass relative to the initial one. The grey small dots (triangles) represent the RV (TTV) planets used by Zeng et al. (2019) and were used to construct the grey histogram on the left, which depicts the percentage of planets as a function of their radius. Most super-Earths formed by dry pebble accretion contribute to the first peak of the Kepler size distribution.

The nature of the Radius Valley: hints from formation and evolution models

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Astronomy & Astrophysics Letters, in press (eprint arXiv:2008.05513)

The existence of a Radius Valley in the Kepler size distribution stands as one of the most important observational constraints to understand the origin and composition of exoplanets with radii between that of Earth and Neptune. In this work, we provide insights into the existence of the Radius Valley from, first, a pure formation point of view, and second, a combined formation-evolution model. We run global planet formation simulations including the evolution of dust by coagulation, drift and fragmentation; and the evolution of the gaseous disc by viscous accretion and photoevaporation. A planet grows from a moon-mass embryo by either silicate or icy pebble accretion, depending on its position with respect to the water ice line. We include gas accretion, type-I/II migration and photoevaporation driven mass-loss after formation. We perform an extensive parameter study evaluating a wide range in disc properties and embryo's initial location. We find that due to the change in dust properties at the water ice line, rocky cores form typically with $\sim$3 $M_\oplus$, and have a maximum mass of $\sim$5 $M_\oplus$, while icy cores peak at $\sim$10 $M_\oplus$, with masses lower than 5 $M_\oplus$, being scarce. When neglecting the gaseous envelope, the formed rocky and icy cores account naturally for the two peaks of the Kepler size distribution. The presence of massive envelopes yields planets more massive than $\sim$10 $M_\oplus$, with radii above 4 $R_\oplus$. While the first peak of the Kepler size distribution is undoubtedly populated by bare rocky cores, as shown extensively in the past, the second peak can host half-rock/half-water planets with thin or non-existent H-He atmospheres, as suggested by a few previous studies. Some additional mechanism inhibiting gas accretion or promoting envelope-mass loss should operate at short orbital periods to explain the presence of $\sim$10-40 $M_\oplus$, planets falling in the second peak of the size distribution.

Download/Website: `https://arxiv.org/abs/2008.05513`

Contact: `julia.venturini@issibern.ch`

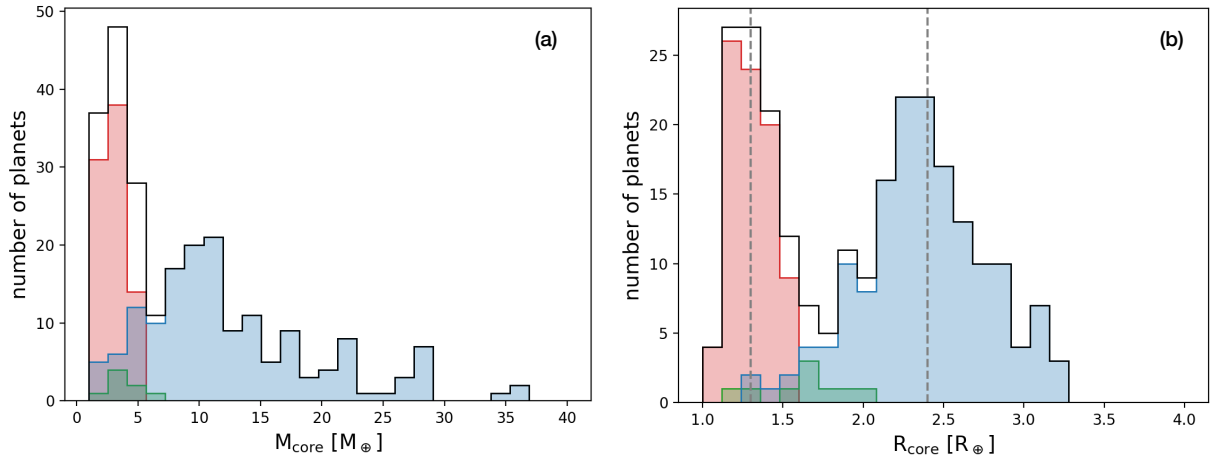

Figure 6: Histogram of core masses (left) and core radii (right) of the full population with P$\leq$ 100 days, just after formation. Red: $f_{\rm ice} < 5\%$, green: $5\% \leq f_{\rm ice} < 45\%$, blue: $f_{\rm ice} \geq 45\%$. Black: all together. The vertical lines indicate the position of the peaks as reported by (Fulton et al. 2017). The difference in the distribution of core masses from formation between rocky and icy cores leads naturally to the existence of the radius valley when the presence of the atmospheres is neglected.

Hot Exoplanet Atmospheres Resolved with Transit Spectroscopy (HEARTS) - VI. Non-detection of sodium with HARPS on the bloated super-Neptune WASP-127b

J. V. Seidel[1] *, M. Lendl*[1]*, V. Bourrier*[1]*, D. Ehrenreich*[1] *, R. Allart*[1]*, S. G. Sousa*[2]*, H. M. Cegla*[1,3]*, X. Bonfils* [4] *, U. Conod* [5] *, A. Grandjean* [4] *, A. Wyttenbach*[4]*, N. Astudillo-Defru*[6] *, D. Bayliss*[3] *, Kevin Heng*[7]*, B. Lavie*[1]*, C. Lovis*[1]*, C. Melo*[8] *, F. Pepe*[1]*, D. Ségransan* [1]*, S. Udry*[1]

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[2] Instituto de Astrofísica e Ciências do Espaço, Universidade do Porto, CAUP, Rua das Estrelas, 4150-762 Porto, Portugal
[3] Department of Physics, University of Warwick, CV4 7AL Coventry, UK
[4] Université Grenoble Alpes, CNRS, IPAG, 38000 Grenoble, France
[5] Department of Physics and Astronomy, University of British Columbia, 6224 Agricultural Road, Vancouver, BC, Canada
[6] Departamento de Matemática y Física Aplicadas, Universidad Católica de la Santísima Concepción, Alonso de Rivera 2850, Concepción, Chile
[7] University of Bern, Center for Space and Habitability, Gesellschaftsstrasse 6, CH-3012, Bern, Switzerland
[8] European Southern Observatory, Alonso de Córdova 3107, Vitacura, Región Metropolitana, Chile

Astronomy & Astrophysics, in press (arXiv:2009.13386)

WASP-127b is one of the puffiest exoplanets found to date, with a mass of only 3.4 Neptune masses, but a radius larger than that of Jupiter. It is located at the border of the Neptune desert, which describes the lack of highly irradiated Neptune-sized planets, and which remains poorly understood. Its large scale height and bright host star make the transiting WASP-127b a valuable target to characterise in transmission spectroscopy. We used combined EulerCam and TESS light curves to recalculate the system parameters. Additionally, we present an in-depth search for sodium in four transit observations of WASP-127b, obtained as part of the Hot Exoplanet Atmosphere Resolved with Transit Spectroscopy (HEARTS) survey with the High Accuracy Radial velocity Planet Searcher (HARPS) spectrograph. Two nights from this dataset were analysed independently by another team. The team claimed a detection of sodium that is incompatible with previous studies of data from both ground and space. We show that this strong sodium detection is due to contamination from telluric sodium emissions and the low signal-to-noise ratio in the core of the deep stellar sodium lines. When these effects are properly accounted for, the previous sodium signal is reduced to an absorption of $0.46 \pm 0.20\%$ (2.3σ), which is compatible with analyses of WASP-127b transits carried out with other instruments. We can fit a Gaussian to the D2 line, but the D1 line was not detected. This indicates an unusual line ratio if sodium exists in the atmosphere. Follow-up of WASP-127 at high resolution and with high sensitivity is required to firmly establish the presence of sodium and analyse its line shape.

Download/Website: `https://arxiv.org/pdf/2009.13386.pdf`

Contact: `julia.seidel@unige.ch`

3 Jobs and Positions

Research Fellowships in Space Sciences & Exploration

J. Ness, A.M. Heras
European Space Agency (ESA)

Various ESA sites, 2021

ESA‘s postdoctoral Research Fellowship programme offers young scientists and engineers the possibility to carry out research in a variety of disciplines related to space science, space applications or space technology. Research Fellowships in Space Science & Exploration specifically offer the opportunity to contribute to ESA‘s endeavour to explore our Solar System and the Universe in the fields of human and robotic exploration, heliophysics, planetary science, astrophysics and fundamental physics.

Research Fellows also help foster a lively scientific environment in the directorates, inspiring ESA scientists to get involved in new scientific activities. The Research Fellowship programme nurtures and strengthens the links between ESA and the scientific communities in the Member States.

Approximately 9 ESA Fellowships in Space Science and 9 in Human and Robotic Exploration will be offered this year, to join the pool of about 30 Research Fellows in the two Directorates (Science and Human and Robotic Exploration).

This year, the Directorate for Human and Robotic Exploration is interested in Research Fellows working on various specific projects with brief descriptions under: https://www.cosmos.esa.int/web/science-faculty/hre. These Fellowships are offered at ESTEC, EAC, or ECSAT.

Within the Directorate of Science, we are welcoming all proposals for innovative research associated with one or more of our missions. These Fellowships can be taken at any of the three sites: ESAC, ESTEC, or STScI. To learn more about the research conducted by the Directorate’s scientists, please visit the Science Faculty site at https://www.cosmos.esa.int/web/science-faculty/home.

Duration: Appointments are initially for two years, with a third year extension frequently granted.

Eligibility: Only citizens of ESA Member States or countries associated with ESA are eligible.

Deadline for applications is **29 October 2020**.

Download/Website: `https://www.cosmos.esa.int/web/science-faculty/research-fellowship`

Postdoctoral Position in Exoplanet Research

Prof. Ray Jayawardhana

Department of Astronomy, Cornell University, Itaca, NY, U.S.A.

Ithaca, NY, Start date: flexible

Applications are invited for a postdoctoral position at Cornell University. The successful candidate will work with Professor Ray Jayawardhana and his collaborators on observational and analytical studies of extra-solar planets and related topics such as sub-stellar objects and planet formation. Spectroscopic and photometric characterization of exoplanets is of particular interest. Prof. Jayawardhana's research group currently includes two postdocs and two graduate students.

Group members lead a recently accepted Large Program at the Gemini Observatory focused on high-resolution spectroscopy of exoplanet atmospheres. The program plans to observe 50+ targets, spanning a range of properties, over the next three years. Prof. Jayawardhana is also on the JWST/NIRISS science team, with $\sim$200 hours of GTO dedicated to exoplanet characterization. In addition, team members use data from TESS, Kepler, CHEOPS, Subaru, Keck, VLT, CFHT, and other major observatories.

The position is for two years, with extension to a third year possible, and comes with a competitive salary and funds for research expenses. Start date is flexible, ideally between January-September 2021.

Applicants should send their curriculum vitae, a description of research interests and plans and a list of publications, and should arrange for three letters of recommendation to be sent directly to Lynda Sovocool (lmk3@cornell.edu). All materials should be submitted electronically to her e-mail address. Applications are accepted until the position is filled, and those received before December 1, 2020 will receive full consideration. Early expressions of interest and inquiries are encouraged, and should be made to rayjay@cornell.edu Candidates interested in applying for a Klarman Fellowship (https://as.cornell.edu/klarman-postdoctoral-fellowships) at Cornell, or bringing other independent fellowships to Cornell, are also encouraged to contact Prof. Jayawardhana.

Download/Website: `https://astro.cornell.edu/ray-jayawardhana`

Contact: `lmk3@cornell.edu`

Call for Applications for the 2021 NASA Hubble Fellowship Program

Dr. Andrew Fruchter, Space Telescope Science Institute,
Dr. Dawn M. Gelino, NASA Exoplanet Science Institute,
Dr. Paul Green, Smithsonian Astrophysical Observatory

Applications Due: November 5, 2020 at 7:00 PM EST (4:00 PM PST 24:00 UTC),

On behalf of the NASA Astrophysics Division, the Space Telescope Science Institute (STScI) announces the call for applications for postdoctoral fellowships under the NASA Hubble Fellowship Program (NHFP) beginning in the fall of 2021.

The NHFP supports postdoctoral scientists performing independent research that contributes to NASA Astrophysics (see https://science.nasa.gov/astrophysics/ for more information). The research may be theoretical, observational, and/or instrumental. If your application is successful and you accept our offer, you will become an Einstein, Hubble, or Sagan fellow depending on the research area. We are continuing the legacy of those three earlier programs in this way, and through joint management of the program by STScI, in collaboration with the Chandra X-ray Center and the NASA Exoplanet Science Institute.

The NHFP is open to applicants of any nationality who have earned (or will have earned) their doctoral degree on or after January 1, 2018 in astronomy, physics or related disciplines. The duration of the Fellowship is up to three years: an initial one-year appointment, and two annual renewals contingent on satisfactory performance and availability of NASA funds. Eligibility may extend to those who received their PhD as early as January 1, 2017, if professional work was necessarily delayed by personal considerations. Extended eligibility must be justified in an email to nhfp@stsci.edu at least 2 weeks in advance of the application deadline.

We anticipate offering up to 24 NHFP Fellowships this year. The Fellowships are tenable at a U.S. host institution of the fellow's choice, subject to a maximum of two new fellows per host institution per year, and no more than five fellows at any single host institution, except for short periods of overlap.

The Announcement of Opportunity, which includes detailed program policies and application instructions, is available at the website: http://nhfp.stsci.edu.http://nhfp.stsci.edu The application submission page will be open from September 8 until November 5, 2020. Applicants should follow the instructions given in the Announcement and also read the Frequently Asked Questions. Please send any further inquiries about the NHFP to nhfp@stsci.edu.

Important Dates

- November 5, 2020, 7:00 PM EST (4:00 PM PST 24:00 UTC): Applications due
- November 12, 2020: Letters of reference due (applications are due one week before the letters)

Offers will be made in early February 2021 and new appointments should begin on or about September 1, 2021. NHFP Fellowships are open to English-speaking citizens of all nations. All applicants will receive consideration without regard to race, creed, color, age, gender, gender identity or expression, sexual orientation or national origin. Women and members of minority groups are strongly encouraged to apply.

Download/Website: `http://nhfp.stsci.edu`

Contact: `nhfp@stsci.edu`

Trottier Postdoctoral Fellow

Prof. René Doyon

Université de Montréal, Montréal, QC, Canada

Montréal, Canada, Starting date: May to September 2021

The Institute for Research on Exoplanets (iREx), affiliated with the physics department of the University of Montreal (UdeM), invites applications for a postdoctoral fellowship in experimental, observational or theoretical astrophysics applied to the study of exoplanets. A number of iREx projects are described below for reference.

Applicants should submit a curriculum vitae, a list of publications, and a statement of research interests (max 2 pages), and should arrange to have three referees send a letter of reference. All application materials including letters of reference must be received electronically at the following address: **irex@astro.umontreal.ca**, by **December 15th, 2020 for full consideration**. This position will, however, remain open until filled.

A PhD in physics, astronomy or related discipline is required at the time when the position starts. Preference will be given to applicants within 3 years of obtaining their PhD.

The iREx consists of a growing team of over 45 people (professors, postdocs, research assistants and students) mostly from UdeM and McGill University all working on various research programs focused on the study of exoplanets and related fields of stellar astrophysics. Members of iREx are actively involved in large international projects related to the detection and characterisation of exoplanets, notably the future James Webb Space Telescope (JWST), SPIRou, NIRPS and high-dispersion spectroscopy for 8-10m and giant telescopes. In addition, iREx researchers will have access to guaranteed observing time with JWST, SPIRou and NIRPS. More information on iREx research programs can be found here: http://www.exoplanetes.umontreal.ca/research/?lang=en.

The successful applicant is expected to start between **May and September 2021**. The position is for two years, renewable for a third year subject to performance and availability of funds.

The Université de Montréal promotes diversity in its workforce through its equal access to employment program. It encourages members of visible and ethnic minorities as well as women, Indigenous people, persons with disabilities and people of all sexual orientations and gender identities to apply.

Download/Website: `http://www.exoplanetes.umontreal.ca/trottier-postdoctoral-fellowship-2021`

Contact: `nathalie@astro.umontreal.ca`

JWST Postdoctoral Fellow

Prof. David Lafreniere

Université de Montréal, Montréal, QC, Canada

Montréal, Canada, Starting date: May to September 2021

The Institute for Research on Exoplanets (iREx), affiliated with the Department of Physics at the Université de Montréal, is seeking applications for a postdoctoral position to join the NIRISS instrument team for the James Webb Space Telescope in order to contribute to the analysis and publication of NEAT observations (NIRISS Exploration of the Atmospheric diversity of Transiting exoplanets). NEAT is a large 200-hour JWST GTO program led by the NIRISS team and dedicated to the study of the atmosphere of 14 exoplanets using transit, eclipse and phase spectroscopy.

Candidates should send a CV, a list of publications and a statement of main achievements and research interests (maximum 3 pages) to **irex@astro.umontreal.ca**. Three letters of recommendation should also be sent to the same address. All documents must be sent by **December 15, 2019** for full consideration to be given to the application. However, the position will remain open until a candidate is selected.

A PhD in physics, astronomy or related discipline is required. Preference will be given to candidates who have completed their PhD within the last 3 years. The position has an expected start date in the Spring or Fall of 2021. The position is for a two-year term, renewable for a third year depending on performance and availability of funds.

The iREx consists of a growing team of over 45 people (professors, postdocs, research assistants and students) mostly from UdeM and McGill University all working on various research programs focused on the study of exoplanets and related fields of stellar astrophysics. Members of iREx are actively involved in large international projects related to the detection and characterisation of exoplanets, notably the future James Webb Space Telescope (JWST), SPIRou, NIRPS and high-dispersion spectroscopy for 8-10m and giant telescopes. In addition, iREx researchers will have access to guaranteed observing time with JWST, SPIRou and NIRPS.

The Université de Montréal promotes diversity in its workforce through its equal access to employment program. It encourages members of visible and ethnic minorities as well as women, Indigenous people, persons with disabilities and people of all sexual orientations and gender identities to apply.

Download/Website: `http://www.exoplanetes.umontreal.ca/jwst-postdoctoral-fellowship-2021`

Contact: `nathalie@astro.umontreal.ca`

APEx Prize Postdoctoral Fellowship

Attention: Dr. Laura Kreidberg

Applications due: December 1, 2020,

We invite applications for the inaugural APEx Prize Postdoctoral Fellowship at the Max Planck Institute for Astronomy in Heidelberg, Germany (www.mpia.de). The prize fellow will be hosted by the APEx Department (http://www.mpia.de/en/apex), which was newly founded in 2020 to characterize the atmospheric physics and chemistry of extrasolar planets. The department's research interests include: formation and evolution of planetary systems, present-day climate and weather of exoplanets, planet detection, the development of purpose-built instruments for planet characterization, and the search for and origins of life in the universe.

We seek candidates with exceptional promise in the area of exoplanet atmosphere studies, including observation, theory, and instrumentation. The successful applicant will have the opportunity to lead an independent research program in an intellectually vibrant, supportive, and collaborative environment. We anticipate a starting date of 2021.

The APEx Prize Fellow will have access to funds for publications, computing, and travel. Resources are also available for career development, networking and mentoring. All MPIA researchers have institutional access to state-of-the-art observing facilities, as well as a wide range of supercomputing resources.

Applicants should have a PhD in astronomy or a closely related field. The appointment duration is 3 + 1 years, with the final year awarded on successful performance. Candidates should provide a cover letter, CV, publication list, statement of previous and current research (up to three pages), and proposed research plan (up to five pages). Please concatenate all documents in the order listed above in a single pdf file. Please also arrange for three letters of reference to be provided separately. All application materials are due by December 1, 2020 and must be submitted using the online application system:

`https://s-lotus.gwdg.de/mpg/mhas/apex_postdoc_312.nsf/portal`

For inquiries, please contact the chair of the search committee, Dr. Laura Kreidberg (kreidberg@mpia.de). For assistance submitting the application, contact the director's assistant, Carola Jordan (jordan@mpia.de).

Included Benefits:
Remuneration will be on the German public sector scale (expected to be TVOeD level E14), and depends on qualification and experience. Extensive social benefits are granted according to the regulations for public service. The Max Planck Society is an equal opportunity employer, and we particularly welcome applicants from groups who have been traditionally underrepresented in astronomy. The MPIA supports its employees in their search for suitable childcare.

Download/Website: `https://s-lotus.gwdg.de/mpg/mhas/apex_postdoc_312.nsf/portal`

Contact: `kreidberg@mpia.de`

Staff Scientist Positions

Attention: Dr. Laura Kreidberg

Applications due: December 1, 2020,

We invite applications for multiple tenure-track staff scientist positions in the APEx Department at the Max Planck Institute for Astronomy (www.mpia.de). APEx is a new department, founded in 2020 to characterize the atmospheric physics and chemistry of extrasolar planets. The department's research interests include: formation and evolution of planetary systems, present-day exoplanet climate and weather, planet detection, the development of purpose-built instruments for planet characterization, and the origins of and search for life in the universe. For more information on research in the department see http://www.mpia.de/en/apex.

We are interested in applicants with a wide range of expertise, including observation of exoplanet atmospheres, theoretical modeling, and instrumentation development. The successful candidate will carry out an independent research program and build up a group at MPIA. New staff scientists will have the opportunity to help shape a vibrant, supportive, and collaborative working culture from the ground up as the APEx Department grows.

All MPIA researchers have institutional access to state-of-the-art observing facilities and supercomputing resources. Staff members have the opportunity (but no obligation) to teach classes at Heidelberg University. The positions include long-term funding for computing, publications, and travel.

Applicants must have a PhD in astronomy, astrophysics, or a closely related field. Remuneration will follow the guidelines set for staff members by the Max Planck Society. The tenure-track appointment will be for an initial period of five years, with tenuring based on a successful performance review. We anticipate a starting date in 2021.

Candidates should provide a cover letter, CV, publication list, and a research statement (including past, current and future research, maximum of 5 pages). Please concatenate all documents in the order listed above in a single pdf file. Please also arrange for three letters of reference to be provided separately. All application materials are due by December 1, 2020 and must be submitted using the online application system: `https://s-lotus.gwdg.de/mpg/mhas/apex_staff_310.nsf/portal`

For inquiries, please contact the chair of the search committee, Dr. Laura Kreidberg (kreidberg@mpia.de). For assistance submitting the application, contact the director's assistant, Carola Jordan (jordan@mpia.de).

Included Benefits:
The MPIA provides funds for publications, computing, and travel. Remuneration will be on the German public sector scale, and depends on qualification and experience. Social benefits are granted according to the regulations for public service.

The Max Planck Society is an equal opportunity employer, and we particularly welcome applicants from groups who have been traditionally underrepresented in astronomy. The MPIA supports its employees in their search for suitable childcare.

Download/Website: `https://s-lotus.gwdg.de/mpg/mhas/apex_staff_310.nsf/portal`

Contact: `kreidberg@mpia.de`

Two Postdoctoral Positions on Exoplanets at University of Namur (Belgium)

Pr. Anne-Sophie Libert

naXys, University of Namur, Belgium, January 2021

The exoplanet research group of the University of Namur (Belgium) is looking for 2 postdoctoral researchers for 2 years, to study the transit-detected extrasolar systems, in particular their dynamics, stability, and formation. Candidates with expertise in planetary system dynamics, planetary formation or exoplanet detection techniques are particularly welcome. Strong interest in exoplanets, knowledge of the literature on the field, and good skills in theoretical or numerical modeling are expected. Motivation, autonomy, scientific writing and speaking skills are essential.

The candidates will benefit from their affiliation to the naXys research institute, consisting of a group of more than 60 researchers, with interdisciplinary projects, covering numerical and theoretical approaches in dynamical and complex systems. In particular, SPACE is one of the five high-level research directions of naXys.

Starting date is January 2021 (with some flexibility). By the starting date, candidates should have obtained a PhD degree for less than 6 years. Salary conditions are attractive. Applications consisting of a CV, a publication list, a cover letter (max. 2 pages, including a description of research interests, past achievements and future research plans), and the contact details of three reference names, should be sent to Pr. Anne-Sophie Libert (in a single pdf file) by October 20th 2020.

More information: https://www.unamur.be/en/sci/extra/Jobs

Contact: `anne-sophie.libert@unamur.be`

4 Exoplanet Archive Updates

September Updates at the NASA Exoplanet Archive

The NASA Exoplanet Archive team

Caltech/IPAC-NASA Exoplanet Science Institute, MC 100-22 Pasadena CA 91125

Pasadena CA USA, October 13, 2020

Note: Unless otherwise noted, all planetary and stellar data mentioned in the news are in the Planetary Systems Table (beta) (`http://bit.ly/2Pt0tM1`), which provides a single location for all self-consistent planetary solutions, and its companion table the Planetary Systems Composite Parameters (alpha) (`https://bit.ly/2Fer9NU`), which offers a more complete table of parameters combined from multiple references and calculations. Data can also be found in the Microlensing Data Table (`http://bit.ly/2JQr180`) or Direct Imaging Table (`http://bit.ly/3ayD185`).

September 24, 2020

KELT Archival Data Now Covers Almost 40% of the Sky

The Kilodegree Extremely Little Telescope (KELT) has released a new data set consisting of 6 million new time series from 22 new southern fields. Combined with previous KELT releases for a total coverage of 15,700 square degrees, this amounts to roughly 38% of the sky.

See our updated KELT documentation (`https://bit.ly/2SA7QCa`) for more information, or use the KELT time series search tool (`https://bit.ly/3nrN7ia`). You may also download the entire KELT time series data set from our Bulk Download page (`https://bit.ly/3jLkz10`).

Seven Planets Added, Including Ultra-hot Neptune LTT 9779 b

We've got seven new planets this week, among them an ultra-hot, ultra-short-period Neptune called LTT 9779 b discovered by NASA's TESS mission. The other planets are HATS-71 b, HD 63433 b & c, TOI-763 b & c, and TOI-824 b. There are also seven new sets of companion star parameters.

September 16, 2020

We've added data for WD 1856+534 b, an object considered to be the first intact planet found closely orbiting a white dwarf, as published in Nature today by Vanderberg et al. (2020). This particular discovery was made possible

using data from NASA's Transiting Exoplanet Survey Satellite (TESS) and NASA's Spitzer Space Telescope. Read the NASA news release for more details (https://go.nasa.gov/3nuyKtw).

Check out the WD 1856+534 Overview page (https://bit.ly/3nz1phc) for a compilation of data on the new planet, its host star, and nearby systems G229-20 A and B that are also named in the discovery paper.

September 3, 2020

75 Planets Added, Including 50 Found in Kepler Data by Artificial Intelligence

This week's update contains 75 confirmed planets, bringing the archive's total planet count to 4,276. The new planets are:

- 50 planets found in Kepler data by an artificial intelligence algorithm and published in Armstrong, Gamper & Damoulas (2020),
- 12 K2 planets discovered by the transit method by Castro González et al. (2020),
- 10 planets discovered by the radial velocity method by Feng et al. (2020),
- 2 microlensing planets, and
- 1 direct imaging planet.

The complete list of this week's new planets and their data, as well as newly added parameter sets for known planets, can be accessed in a pre-filtered interactive table at https://bit.ly/3jHpUG3.

Download/Website: https://exoplanetarchive.ipac.caltech.edu

Contact: mharbut@caltech.edu

5 Announcements

Fizeau exchange visitors program in optical interferometry - call for applications

European Interferometry Initiative

www.european-interferometry.eu, application deadline: Nov. 15

The Fizeau exchange visitors program in optical interferometry funds (travel and accommodation) visits of researchers to an institute of his/her choice (within the European Community) to perform collaborative work and training on one of the active topics of the European Interferometry Initiative. The visits will typically last for one month, and strengthen the network of astronomers engaged in technical, scientific and training work on optical/infrared interferometry. The program is open for all levels of astronomers (Ph.D. students to tenured staff), with priority given to PhD students and young postdocs. Non-EU based missions will only be funded if considered essential by the Fizeau Committee. From January 2021 onwards, applications to travel to VLTI Expertise Centres are priority, given the new financial rules applying to the programme. Applicants are strongly encouraged to seek also partial support from their home or host institutions.

The deadline for applications is November 15. Fellowships can be awarded for missions to be carried out between mid January 2021 and July 2021!

Further informations and application forms can be found at: www.european-interferometry.eu

The program is funded by OPTICON/H2020.

Please distribute this message also to potentially interested colleagues outside of your community!

Looking forward to your applications,
Josef Hron & Péter Ábrahám
(for the European Interferometry Initiative)

Download/Website: `http://www.european-interferometry.eu`

Contact: `fizeau@european-interferometry.eu`

Call for Contributions to Research Topic "Big Data and Machine Learning in the Exoplanet Sciences"

D. Angerhausen[1]*, I. Waldmann*[2]*, A. Berea*[3]*, K. Knuth* [4]

[1] ETH Zürich

[2] UCL, London

[3] BMSIS, Seattle

[4] SUNY, Albany

Frontiers in Astronomy and Space Sciences, Exoplanets,

Exoplanet science has slowly, but surely, entered an age of Big Data. The size of observational data from surveys as well as computer-generated model grids has increased in size by orders of magnitude. In addition, modern machine learning methods are entering the field at an accelerating pace. In this Research Topic, we provide the opportunity to showcase these data sets and state-of-the-art methods to work with them. After promising early results in the areas of transit detection and atmospheric retrieval, machine learning is now entering every aspect of exoplanet science from optimizing imaging observations to modeling exoplanetary interiors. This Research Topic will provide a platform for these exciting new data and software products, as well as a state of the art of machine learning algorithms applicable to exoplanetary science.

In this call for contribution to the article collection "Big Data and Machine Learning in the Exoplanet Sciences" to be published in *Frontiers in Astronomy and Space Sciences*, section *Exoplanets* We want to give the community the opportunity to have their multidisciplinary work reviewed by experts in the domain science as well as in the computer science, which is a crucial hurdle for work on the interface of these two fields. In this Research Topic, we want to provide a venue for exoplanetary researchers to showcase their work and at the same time offer experts from computer science an opportunity to read into the topic and the various applications of Big Data and machine learning methods in exoplanet science. Additionally, machine learning experts will get the opportunity to understand in more depth how algorithms and methods can be applied to exoplanetary data, and to improve their approach to machine learning based on new insights from this field.

Besides Review and Original Research articles which address all different aspects of Big Data, Artificial Intelligence, and Machine Learning in exoplanet science, this Research Topic particularly invites special formats of articles such as:

- Mini Reviews on the state-of-the-art in your respective subfield of exoplanet science
- Data Reports on publicly shared data sets that can be useful for training and benchmarking
- Brief Research Reports on preliminary studies, unsuccessful experiments and alike.

Download/Website: `https://www.frontiersin.org/research-topics/15408/big-data-and-machine-learning-in-the-exoplanet-sciences`

Contact: `dangerhau@phys.ethz.ch`

Call for Participation: Sign up for LIFE Space Mission Teams and Working Groups

S.Quanz[1]*, D. Angerhausen*[1] *and the LIFE intiative*[2]

[1] ETH Zürich

[2] www.life-space-mission.com

Zürich, 10.10.2020

Dear colleagues,

as some of you might already know, our team is leading the effort to develop the science, technology and a roadmap for an ambitious space mission that will allow humankind for the first time to detect and characterize the atmospheres of dozens of warm, terrestrial extrasolar planets. The goal of the spaced-based MIR nulling interferometric observatory *LIFE (Large Interferometer For Exoplanets)* concept is to obtain thermal emission spectra of a statistically significant number of warm terrestrial exoplanets (more info: - *https://www.life-space-mission.com/*).

With this announcement we asking for your contribution to this large team effort and sign up for the newly formed LIFE teams and working groups.

Since our LIFE community mini-workshop in May, we in the core team have been working hard on pushing the project to the next stages using the fantastic feedback we got from you at the start of summer.

The top level working teams are Team 1 Project Office, Team 2 Science, Team 3 Simulator, and Team 4 Technology with second level working groups (WGs) for all teams (e.g., WG 2.1 Exoplanet Science, WG 2.2 Target Database, WG 2.3 Other Science).

Please let us also know in the linked form if you are interested to serve as lead or deputy lead of a team or one of the WGs. Looking at the long-term timeline for LIFE we are in particularly interested to see early career colleagues stepping forward in these roles.

Furthermore we are looking for suggestions/nominations for the advisory board.

For the advisory board as well as for the teams we are strongly committed to diversity, equity and inclusion.

Please respond by filling out the form until, Friday, October 23, end of day.

Our goal is to set up a first round of virtual meetings in these teams/WGs in early November, so that we can have a kick-off with concrete discussions and coordination about action items and timelines at the next general (virtual) LIFE workshop end of November/early December (dates are currently being fixed and will be communicated asap).

On behalf of the hopefully soon growing LIFE team,

Sascha Quanz, Daniel Angerhausen

LIFE Project Office

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Contact: `dangerhau@phys.ethz.ch`

6 As seen on astro-ph

List of exoplanet related entries seen on astro-ph during September 2020.

September 2020

astro-ph/2009.00009: **The Influence of Stellar Phosphorus On Our Understanding of Exoplanets and Astrobiology** by *Natalie R. Hinkel, Hilairy E. Hartnett, Patrick A. Young*
astro-ph/2009.00144: **Habitable Zones in Binary Star Systems: A Zoology** by *Siegfried Eggl, Nikolaos Georgakarakos, Elke Pilat-Lohinger*
astro-ph/2009.00153: **The Separation and H-alpha Contrasts of Massive Accreting Planets in the Gaps of Transitional Disks: Predicted H-alpha Protoplanet Yields for Adaptive Optics Surveys** by *Laird M. Close*
astro-ph/2009.00204: **On the evolution of global ocean tides** by *Xing Wei*
astro-ph/2009.00290: **Global 3D hydrodynamic modeling of absorption in Ly and He 10830 A lines at transits of GJ3470b** by *I. F. Shaikhislamov et al.*
astro-ph/2009.00358: **The Equatorial Jet Speed on Tidally Locked Planets: I – Terrestrial Planets** by *Mark Hammond, Shang-Min Tsai, Raymond T. Pierrehumbert*
astro-ph/2009.00392: **Evolution of an asteroid family under YORP, Yarkovsky and collisions** by *Francesco Marzari et al.*
astro-ph/2009.00687: **The ExoMolOP Database: Cross-sections and k-tables for Molecules of Interest in High-Temperature Exoplanet Atmospheres** by *Katy L. Chubb et al.*
astro-ph/2009.00957: **The boulder population of asteroid 4 Vesta: Size-frequency distribution and survival time** by *Stefan E. Schröder et al.*
astro-ph/2009.01259: **The High-Energy Radiation Environment Around a 10 Gyr M Dwarf: Habitable at Last?** by *Kevin France et al.*
astro-ph/2009.01308: **What Does It Mean to be a "Depleted" Comet? High Spectral Resolution Observations of the Prototypical Depleted Comet 21P/Giacobini-Zinner from McDonald Observatory** by *Anita L. Cochran, Tyler Nelson, Adam J. McKay*
astro-ph/2009.01330: **Utilizing a Database of Simulated Geometric Albedo Spectra for Photometric Characterization of Rocky Exoplanet Atmospheres** by *Adam J. R. W. Smith et al.*
astro-ph/2009.01372: **High precision meteor observations with the Canadian Automated Meteor Observatory – Data reduction pipeline and application to meteoroid mechanical strength measurements** by *Denis Vida et al.*
astro-ph/2009.01881: **Astrophysical Simulations and Data Analyses on the Formation, Detection, and Habitability of Moons Around Extrasolar Planets** by *René Heller*
astro-ph/2009.02071: **The upper atmospheres of Uranus and Neptune** by *Henrik Melin*
astro-ph/2009.02245: **On the origin of the eccentricity dichotomy displayed by compact super-Earths: dynamical heating by cold giants** by *Sanson T. S. Poon, Richard P. Nelson*
astro-ph/2009.02277: **On the Origin and Thermal Stability of Arrokoths and Plutos Ices** by *C.M. Lisse et al.*
astro-ph/2009.02321: **A Tale of Planet Formation: From Dust to Planets** by *Beibei Liu, Jianghui Ji*
astro-ph/2009.02329: **MOA-2007-BLG-400 A Super-Jupiter Mass Planet Orbiting a Galactic BulgeK-dwarf Revealed by Keck Adaptive Optics Imaging** by *Aparna Bhattacharya et al.*
astro-ph/2009.02332: **An unusually low density ultra-short period super-Earth and three mini-Neptunes around the old star TOI-561** by *G. Lacedelli et al.*
astro-ph/2009.02334: **First L band detection of hot exozodiacal dust with VLTI/MATISSE** by *Florian Kirchschlager et al.*

astro-ph/2009.02357: **Nature vs. nurture: a Bayesian framework for assessing apparent correlations between planetary orbital properties and stellar ages** by *Emily D. Safsten, Rebekah I. Dawson, Angie Wolfgang*
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