Exercise:

- Conduct a survey as comprehensive as possible of at least 10 journals that publish astronomy- or astrophysics-related research results. Which of them have associated publications, e.g., letters or supplements?
- Select a handful of '**core**' journals (definition?), and summarize how often each journal publishes, in what language, by what publisher.
- Compare the 'style' of the core journals. Note the layout of the title, abstract, references, etc. (ApJ vs A&A)
- Zoom in to one journal and browse through one recent paper of your choice. What is it about? By whom?
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- What is the ***Science Citation Index***? What is the ***Impact Factor***? What is the ***Open Access*** policy? *PLOS One*?

A sample paper in the Astrophysical Journal (ApJ)

The Astrophysical Journal, 730:139 (14pp), 2011 April 1 doi:10.1088/0004-637X/730/2/139

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GEOMETRIC AND DYNAMICAL MODELS OF REVERBERATION MAPPING DATA

Anna Pancoast, Brendon J. Brewer, and Tommaso Treu[1]
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Received 2010 December 13; accepted 2011 January 27; published 2011 March 15

ABSTRACT

We present a general method to analyze reverberation (or echo) mapping data that simultaneously provides estimates for the black hole mass and for the geometry and dynamics of the broad-line region (BLR) in active galactic nuclei (AGNs). While previous methods yield a typical scale size of the BLR or a reconstruction of the transfer function, our method directly infers the spatial and velocity distribution of the BLR from the data, from which a transfer function can be easily derived. Previous echo mapping analysis requires an independent estimate of a scaling factor known as the virial coefficient to infer the mass of the black hole, but this is not needed in our more direct approach. We use the formalism of Bayesian probability theory and implement a Markov Chain Monte Carlo algorithm to obtain estimates and uncertainties for the parameters of our BLR models. Fitting of models to the data requires knowledge of the continuum flux at all times, not just the measured times. We use Gaussian Processes to interpolate and extrapolate the continuum light curve data in a fully consistent probabilistic manner, taking the associated errors into account. We illustrate our method using simple models of BLR geometry and dynamics and show that we can recover the parameter values of our test systems with realistic uncertainties that depend upon the variability of the AGN and the quality of the reverberation mapping observing campaign. With a geometry model we can recover the mean radius of the BLR to within ~ 0.1 dex random uncertainty for simulated data with an integrated line flux uncertainty of 1.5%, while with a dynamical model we can recover the black hole mass and the mean radius to within ~ 0.05 dex random uncertainty, for simulated data with a line profile average signal-to-noise ratio of 4 per spectral pixel. These uncertainties do not include modeling errors, which are likely to be present in the analysis of real data, and should therefore be considered as lower limits to the accuracy of the method.

Key words: galaxies: active – methods: data analysis – methods: statistical

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Mon. Not. R. Astron. Soc. **412,** 13–25 (2011) doi:10.1111/j.1365-2966.2010.17818.x

Protoplanetary disc evolution and dispersal: the implications of X-ray photoevaporation

A sample paper in the Monthly Notices of the Royal Astronomical Society (MNRAS)

James E. Owen,[1★] Barbara Ercolano[2] and Cathie J. Clarke[1]

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[2] *School of Physics, University of Exeter, Stocker Road, Exeter EX4 4QL*

Accepted 2010 October 2. Received 2010 October 2; in original form 2010 August 6

ABSTRACT

We explore the role of X-ray photoevaporation in the evolution and dispersal of viscously evolving T Tauri discs. We show that the X-ray photoevaporation wind rates scale linearly with X-ray luminosity, such that the observed range of X-ray luminosities for solar-type T Tauri stars (10^{28}–10^{31} erg s^{-1}) gives rise to vigorous disc winds with rates of the order of 10^{-10} to 10^{-7} M$_{\odot}$ yr^{-1}. These mass-loss rates are comparable to typically observed T Tauri accretion rates, immediately demonstrating the relevance of X-ray photoevaporation to disc evolution. We use the wind solutions from radiation-hydrodynamic models, coupled to a viscous evolution model, to construct a population synthesis model so that we may study the physical properties of evolving discs and so-called 'transition discs'. Current observations of disc lifetimes and accretion rates can be matched by our model assuming a viscosity parameter $\alpha = 2.5 \times 10^{-3}$.

Our models confirm that X-rays play a dominant role in the evolution and dispersal of protoplanetary discs giving rise to the observed diverse population of inner-hole 'transition' sources which include those with massive outer discs, those with gas in their inner holes and those with detectable accretion signatures. To help understand the nature of observed transition discs we present a diagnostic diagram based on accretion rates versus inner-hole sizes that demonstrate that, contrary to recent claims, many of the observed accreting and non-accreting transition discs can easily be explained by X-ray photoevaporation. However, we draw attention to a smaller but still significant population of strongly accreting ($\sim 10^{-8}$ M$_{\odot}$ yr^{-1}) transition discs with large inner holes (>20 au) that lie outside the predicted X-ray photoevaporation region, suggesting a different origin for their inner holes.

Finally, we confirm the conjecture of Drake et al. that accretion is suppressed by the X-rays through 'photoevaporation-starved accretion' and predict that this effect can give rise to a negative correlation between X-ray luminosity and accretion rate, as reported in the Orion data. We also demonstrate that our model can replicate the observed difference in X-ray properties between accreting and non-accreting T Tauri stars.

Key words: accretion, accretion discs – protoplanetary discs – circumstellar matter – stars: pre-main-sequence – X-rays: stars.

ABSTRACT

Jump to…

We explore the role of X-ray photoevaporation in the evolution and dispersal of viscously evolving T Tauri discs. We show that the X-ray photoevaporation wind rates scale linearly with X-ray luminosity, such that the observed range of X-ray luminosities for solar-type T Tauri stars (10^{28}–10^{31} erg s^{-1}) gives rise to vigorous disc winds with rates of the order of 10^{-10} to 10^{-7} $M_{\odot}$ yr^{-1}. These mass-loss rates are comparable to typically observed T Tauri accretion rates, immediately demonstrating the relevance of X-ray photoevaporation to disc evolution. We use the wind solutions from radiation-hydrodynamic models, coupled to a viscous evolution model, to construct a population synthesis model so that we may study the physical properties of evolving discs and so-called 'transition discs'. Current observations of disc lifetimes and accretion rates can be matched by our model assuming a viscosity parameter $\alpha = 2.5 \times 10^{-3}$.

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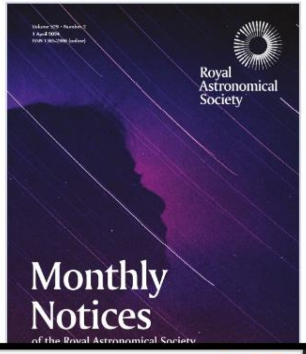

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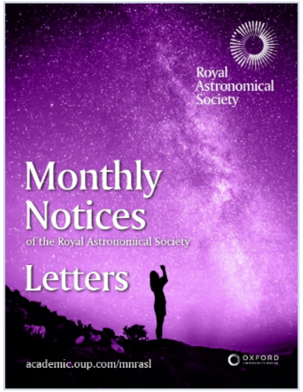

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Astronomy & Astrophysics

A parsec-scale outflow from the luminous YSO IRAS 17527-2439

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Received 15 October 2010 / Accepted 17 December 2010

ABSTRACT

Aims. We seek to understand the way massive stars form. The case of a luminous YSO IRAS 17527-2439 is studied in the infrared.
Methods. Imaging observations of IRAS 17527-2439 are obtained in the near-IR JHK photometric bands and in a narrow-band filter centred at the wavelength of the H_2 1-0S(1) line. The continuum-subtracted H_2 image is used to identify outflows. The data obtained in this study are used in conjunction with *Spitzer*, AKARI, and IRAS data. The YSO driving the outflow is identified in the *Spitzer* images. The spectral energy distribution (SED) of the YSO is studied using available radiative transfer models.
Results. A parsec-scale bipolar outflow is discovered in our H_2 line image, which is supported by the detection in the archival *Spitzer* images. The H_2 image exhibits signs of precession of the main jet and shows tentative evidence for a second outflow. These suggest the possibility of a companion to the outflow source. There is a strong component of continuum emission in the direction of the outflow, which supports the idea that the outflow cavity provides a path for radiation to escape, thereby reducing the radiation pressure on the accreted matter. The bulk of the emission observed close to the outflow in the WFCAM and *Spitzer* bands is rotated counter clockwise with respect to the outflow traced in H_2, which may be due to precession. A model fit to the SED of the central source tells us that the YSO has a mass of 12.23 $M_\odot$ and that it is in an early stage of evolution.

Key words. stars: formation – stars: pre-main sequence – ISM: jets and outflows – stars: protostars – circumstellar matter

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A&A 527, A97 (2011)
DOI: 10.1051/0004-6361/201015935

Astronomy & Astrophysics

A parsec-scale outflow from the luminous YSO IRAS 17527-2439

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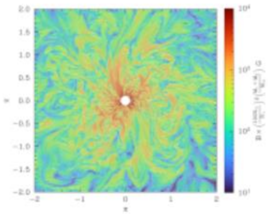

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Astron. Astrophys. Suppl. Ser. **76,** 411-425 (1988)

Tables of evolutionary star models from 0.85 to 120 $M_\odot$ with overshooting and mass loss

A. Maeder and G. Meynet

Geneva Observatory, CH-1290 Sauverny, Switzerland

Received June 16, accepted July 19, 1988

Summary. — The tables of evolutionary star models for Pop I composition in the 0.85 to 120 $M_\odot$ range with overshooting and mass loss are presented. Most of the tracks are described by about 40 points, at well chosen corresponding evolutionary stages in order to allow the computations of accurate isochrones.

Key words: stars : evolution of — stars : Hertzsprung — Russell diagram — stars : structure of.

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Research in Astronomy and Astrophysics

Triple Range Imager and POLarimeter (TRIPOL) — a compact and economical optical imaging polarimeter for small telescopes

Shuji Sato[1], Po Chieh Huang[2], Wen Ping Chen[2], Takahiro Zenno[1], Chakali Eswaraiah[2⋆], Bo He Su[2], Shinsuke Abe[2⋆⋆], Daisuke Kinoshita[2] and Jia Wei Wang[3]

[1] Astrophysics Department, Nagoya University, Nagoya, 464–8602, Japan

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[3] Department of Physics and Institute of Astronomy, NTHU, Hsinchu 30013

Received 2019 March 13; accepted 2019 April 23

Abstract We report the design concept and performance of a compact, lightweight and economical imaging polarimeter, the Triple Range Imager and POLarimeter (TRIPOL), capable of simultaneous optical imagery and polarimetry. TRIPOL splits the beam in wavelengths from 400 to 830 nm into g'-, r'- and i'-bands with two dichroic mirrors, and measures polarization with an achromatic half-waveplate and a wire grid polarizer. The simultaneity makes TRIPOL a useful tool for small telescopes for the photometry and polarimetry of time variable and wavelength dependent phenomena. TRIPOL is designed for a Cassegrain telescope with an aperture of ∼1 m. This paper presents the engineering considerations of TRIPOL and compares the expected with observed performance. Using the Lulin 1-m telescope and 100 seconds of integration, the limiting magnitudes are $g' \sim 19.0$ mag, $r' \sim 18.5$ mag and $i' \sim 18.0$ mag with a signal-to-noise ratio of 10, in agreement with design expectation. The instrumental polarization is measured to be $\sim 0.3\%$ in the three bands. Two applications, one to the star-forming cloud IC 5146 and the other to the young variable GM Cep, are presented as demonstrations.

Key words: instrumentation: photometers — instrumentation: polarimeters — techniques: photometric — techniques: polarimetric — methods: observational — ISM: magnetic fields

Serb. Astron. J. № 199 (2019), 39 - 53 UDC 524.338.5 : 524.527.3 NGC 7129
DOI: https://doi.org/10.2298/SAJ1999039S Original scientific paper

PHOTOMETRIC AND SPECTROSCOPIC STUDY OF FIVE PRE-MAIN SEQUENCE STARS IN THE VICINITY OF NGC 7129

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E–mail: *sibryamov@shu.bg*

(Received: September 24, 2019; Accepted: November 12, 2019)

SUMMARY: We present results from long-term optical photometric and spectroscopic observations of five pre-main sequence stars, located in the vicinity of the bright nebula NGC 7129. We obtained *UBVRI* photometric observations in the field centered on the star V391 Cep, north-west of the bright nebula NGC 7129. Our multicolor CCD observations spanned the period from February 1998 to November 2016. At the time of our photometric monitoring, a total of thirteen medium-resolution optical spectra of the stars were obtained. The results from our photometric study show that all stars exhibit strong variability in all optical passbands. Long-term light curves of the five stars indicate the typical classical T Tauri star variations in brightness with large amplitudes. We did not find any reliable periodicity in the brightness variations of all five stars. The results from spectral observations showed that all studied stars can be classified as classical T Tauri stars with rich emission line spectra and strong variability in profiles and intensity of emission lines.

Key words. stars: pre-main sequence – stars: variables: T Tauri, Herbig Ae/Be, UX Orionis – stars: individual: V391 Cep, 2MASS J21401174+6630198, 2MASS J21402277+6636312, 2MASS J21403852+6635017, 2MASS J21403576+6635000

Chinese Journal of Physics 63 (2020) 248–257

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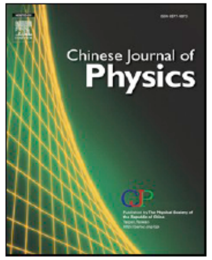

Luminosity-environment relation in the redshift region of $0.60 \leq z \leq 0.75$

Xin-Fa Deng

School of Science, Nanchang University, Jiangxi 330031, China

A R T I C L E I N F O

Keywords:
Galaxy: fundamental parameters
galaxies: statistics

A B S T R A C T

In this work, I construct a LRG sample with the redshift of $0.6 \leq z \leq 0.75$ from the Sloan Digital Sky Survey Data Release 15 (SDSS DR15), which contains 184172 CMASS LRGs and 27158 eBOSS LRGs and examine the environmental dependence of the u-, g-, r-, i- and z-band luminosities in this galaxy sample. I divide this LRG sample into subsamples with a redshift binning size of $\Delta z = 0.01$, and analyze the environmental dependence of all five band luminosities for these subsamples in each redshift bin. Overall, u-band luminosity is nearly independent of the local environment in all redshift bins. Though the environmental dependence of g-band luminosity is weak, a substantial luminosity-density correlation can be observed in some high redshift bins. The environmental dependence of r-, i- and z-band luminosities still is minimal in low redshift bins, like u- and g-band luminosities do. It is noteworthy that in high redshift bins, r-, i- and z-band luminosities have a strongly abnormal correlation with environments: luminous galaxies tend to reside in low density regions, while faint galaxies tend to reside in dense environments, like *u*-band luminosity in the apparent-magnitude limited Main galaxy sample does.

The Astrophysical Journal, 909:92 (9pp), 2021 March 1 https://doi.org/10.3847/1538-4357/abd84e

Lyman Continuum Emission Escaping from Luminous Green Pea Galaxies at $z = 0.5$

Matthew A. Malkan[1] and Brian K. Malkan[2]
[1] Department of Physics and Astronomy, UCLA, Los Angeles, CA 90095-1547, USA; malkan@astro.ucla.edu
[2] Crespi Carmelite High School, 5031 Alonzo Ave., Encino, CA 91316-3611, USA
Received 2019 December 9; revised 2020 December 28; accepted 2020 December 29; published 2021 March 9

Abstract

Compact starburst galaxies are thought to include many or most of the galaxies from which substantial Lyman continuum emission can escape into the intergalactic medium. Li & Malkan used Sloan Digital Sky Survey photometry to find a population of such starburst galaxies at $z \sim 0.5$. They were discovered by their extremely strong [O III] $\lambda\lambda4959+5007$ emission lines, which produce a clearly detectable excess brightness in the i bandpass, compared with surrounding filters. We therefore used the Hubble Space Telescope (HST)/COS spectrograph to observe two of the newly discovered i-band excess galaxies around their Lyman limits. One has strongly detected continuum below its Lyman limit, corresponding to a relative escape fraction of ionizing photons of 20% ± 2%. The other, which is less compact in UV imaging, has a 2σ upper limit to its Lyman escape fraction of <5%. Before the UV spectroscopy, the existing data could not distinguish these two galaxies. Although a sample of two is hardly sufficient for statistical analysis, it shows the possibility that some fraction of these strong [O III] emitters as a class have ionizing photons escaping. The differences might be determined by the luck of our particular viewing geometry. Obtaining the HST spectroscopy revealed that the Lyman-continuum-emitting galaxy differs in having no central absorption in its prominent Lyα emission-line profile. The other target, with no escaping Lyman continuum, shows the more common double-peaked Lyα emission.

Unified Astronomy Thesaurus concepts: Compact dwarf galaxies (281); Reionization (1383); Near ultraviolet astronomy (1094); Ultraviolet astronomy (1736); Emission line galaxies (459); Star formation (1569); Starburst galaxies (1570); O stars (1137); H II regions (694); Lyman-alpha galaxies (978); Primordial galaxies (1293); Galaxy evolution (594)

1. Introduction—Finding the Population of Starburst Galaxies That Reionized the Universe

One of the most important events in the history of the universe was the cosmic reionization. But our understanding of it remains limited, because we do not know where and when

higher redshifts (de Barros et al. 2016; Bian et al. 2017; Vanzella et al. 2018; Rivera-Thorsen et al. 2019). A recent spectroscopic survey of 124 $z \sim 3$ galaxies has detected 15 of them (weakly) below the Lyman limit, specifically those with the strongest Lyα emission lines (Steidel et al. 2018).

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The main impetus behind the creation of a single thesaurus has been the wish to support semantic enrichment of the literature, but we expect that use of the UAT (along with other vocabularies and ontologies currently being developed in our community) will be much broader and will have a positive impact on the discovery of a wide range of astronomy resources, including data products and services.

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- High energy astrophysics
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Science Citation Index

From Wikipedia, the free encyclopedia

The **Science Citation Index** (**SCI**) is a citation index originally produced by the Institute for Scientific Information (ISI) and created by Eugene Garfield. It was officially launched in 1964. It is now owned by Clarivate Analytics (previously the Intellectual Property and Science business of Thomson Reuters).[1][2][3][4] The larger version (**Science Citation Index Expanded**) covers more than 8,500 notable and significant journals, across 150 disciplines, from 1900 to the present. These are alternatively described as the world's leading journals of science and technology, because of a rigorous selection process.[5][6][7]

The index is made available online through different platforms, such as the Web of Science[8][9] and SciSearch.[10] (There are also CD and printed editions, covering a smaller number of journals). This database allows a researcher to identify which later articles have cited any particular earlier article, or have cited the articles of any particular author, or have been cited most frequently. Thomson Reuters also markets several subsets of this database, termed "Specialty Citation Indexes",[11] such as the **Neuroscience Citation Index**[12] and the **Chemistry Citation Index**.[13]

Science Citation Index

Producer	Clarivate Analytics (Canada and Hong Kong)
History	2000-present
Coverage	
Disciplines	Science, medicine, and technology
Print edition	
ISSN	0036-827X
Links	
• Website	

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Chemistry Citation Index [edit]

The Chemistry Citation Index was first introduced by Eugene Garfield, a chemist by training. His original "search examples were based on [his] experience as a chemist".[14] In 1992 an electronic and print form of the index was derived from a core of 330 chemistry journals, within which all areas were covered. Additional information was provided from articles selected from 4,000 other journals. All chemistry subdisciplines were covered: organic, inorganic, analytical, physical chemistry, polymer, computational, organometallic, materials chemistry, and electrochemistry.[14]

By 2002 the core journal coverage increased to 500 and related article coverage increased to 8,000 other journals.[15]

One 1980 study reported the overall citation indexing benefits for chemistry, examining the use of citations as a tool for the study of the sociology of chemistry and illustrating the use of citation data to "observe" chemistry subfields over time.[16]

See also [edit]

- Arts and Humanities Citation Index, which covers 1130 journals, beginning with 1975.

Impact factor

From Wikipedia, the free encyclopedia

This article is about a measure of journal influence. For other similar metrics, see Citation impact.

The **impact factor** (**IF**) or **journal impact factor** (**JIF**) of an academic journal is a scientometric index that reflects the yearly average number of citations that articles published in the last two years in a given journal received. It is frequently used as a proxy for the relative importance of a journal within its field; journals with higher impact factors are often deemed to be more important than those with lower ones.

Contents [hide]

History [edit]

The impact factor was devised by Eugene Garfield, the founder of the Institute for Scientific Information (ISI). Impact factors are calculated yearly starting from 1975 for journals listed in the *Journal Citation Reports* (JCR). ISI was acquired by Thomson Scientific & Healthcare in 1992,[1] and became known as Thomson ISI. In 2018, Thomson ISI was sold to *Onex Corporation* and *Baring P*...[2] They founded a new corporation, Clarivate, which is now the publisher of the JCR.[3]

Journal	Impact Factor (2018)	Scimago (SJR) (2018)
Nature	43.070	16.345
Science	41.063	13.251
ARA&A	37.8 (2016)	17.101
A&A Review	11.611	5.247
A&A	6.209	2.527
ApJ	5.580	2.741
ApJL	8.374	3.864
ApJS	8.311	4.545
AJ	5.497	2.770
MNRAS	5.231	2.422
Nature Astronomy	10.500	2.862
Icarus	3.565	2.241

The Astrophysical Journal is devoted to recent developments, discoveries, and theories in astronomy and astrophysics. Publications in *ApJ* constitute significant new research that is directly relevant to astrophysical applications, whether based on observational results or on theoretical insights or modeling.

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THE

ASTROPHYSICAL JOURNAL

AN INTERNATIONAL REVIEW OF SPECTROSCOPY AND ASTRONOMICAL PHYSICS

VOLUME I JANUARY 1895 NUMBER 1

ON THE CONDITIONS WHICH AFFECT THE SPECTRO-PHOTOGRAPHY OF THE SUN.

By ALBERT A. MICHELSON.

THE recent developments in solar spectro-photography are in great measure due to the device originally suggested by Janssen and perfected by Hale and Deslandres, by means of which a photograph of the Sun's prominences may be obtained at any time as readily as it is during an eclipse. The essential features of this device are the simultaneous movements of the collimator-slit across the Sun's image, with that of a second slit (at the focus of the photographic lens) over a photographic plate. If these relative motions are so adjusted that the same spectral line always falls on the second slit, then a photographic image of the Sun will be reproduced by light of this particular wave-length.

Evidently the process is not limited to the photography of the prominences, but extends to all other peculiarities of structure which emit radiations of approximately constant wave-length; and the efficiency of the method depends very largely upon the *contrast* which can be obtained by the greater enfeeble-

THE ASTROPHYSICAL JOURNAL

AMERICAN ASTRONOMICAL SOCIETY CENTENNIAL ISSUE

Selected Fundamental Papers Published This Century in The Astronomical Journal and The Astrophysical Journal

Edited by Helmut A. Abt

Volume 525, Number 1C, Part 3
PUBLISHED BY THE UNIVERSITY OF CHICAGO PRESS FOR
THE AMERICAN ASTRONOMICAL SOCIETY

Draft version March 17, 2021
Typeset using LaTeX **RNAAS** style in AASTeX63

A Brief Survey and Introduction of Some Astronomy- or Astrophysics-related Journals

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1. ASTRONOMY- OR ASTROPHYSICS-RELATED JOURNALS

There are many journals that publish astronomy- or astrophysics-related research results. Some of the journals have associated publications that publish research instantly, such as Letters or Supplements. Table.1 lists some of the journals that allow scientists to publish papers related to astronomy or astrophysics.

Table 1. Journals Comparison

Journal	Abbreviation	Associated Publications	Impact Factor in 2019
Nature	Nat	Letters and Supplements	42.778
Science	Sci	Letters	41.845
Astronomical Journal	AJ	Letters and Supplements	5.838
Astrophysical Journal	ApJ	Letters and Supplements	5.745
Astronomy & Astrophysics	A&A	Letters and Supplements	5.636
Monthly Notices of the Royal Astronomical Society	MNRAS	Letters	5.356
Publications of the Astronomical Society of the Pacific	PASP	···	3.985
Publications of the Astronomical Society of Japan	PASJ	···	3.877
Acta Astronomica	Acta Astron.	···	2.063
Astrophysics & Space Science	Ap&SS	···	1.430
Astronomy & Geophysics	A&G	···	0.500

Note—Note that the A&A Supplement Series has merged with the main title Astronomy & Astrophysics from 2001 January 1.

2. THE "CORE" JOURNALS

Among so many astronomy-related journals, there are some journals that have more significant to the academia. These journals usually have higher impact factor. Of all the journals listed in Table.1, here selects the top three highest impact factor journals that only publish research related to astronomy or astrophysics as the "core" journals. These are the Astronomical Journal (AJ) and the Astrophysical Journal (ApJ). The following paragraph summarizes some information about these three core journals.

- The Astronomical Journal (AJ)

  The AJ is a monthly scientific journal.

  The AJ is published in English.

  The AJ was was published by the University of Chicago Press before 2009, and the publisher is Institute of Physics (IOP) Publishing now.

- The Astrophysical Journal (ApJ)

  The ApJ publishes three times a month.

  The ApJ is published in English.

The ApJ was was published by the University of Chicago Press before 2009, and the publisher is Institute of Physics (IOP) Publishing now.

- Astronomy & Astrophysics (A&A)

  A&A is a monthly scientific journal.

  A&A is published in English.

  A&A is published by Édition Diffusion Presse (EDP) Sciences.

3. COMPARISON BETWEEN THE "CORE" JOURNALS

The publishing format of the AJ and the ApJ are the same since these two journals are both the American Astronomical Society (AAS) Journals. In contrast to the AAS Journals, A&A is published by EDP Sciences. Therefore, the layout of A&A is different from the AAS Journals. The following paragraph makes some comparisons between these two different journals' patterns in terms of the title, abstract, and references. Figure 1 are the first page of the paper from the AJ ,the ApJ, and A&A, respectively.

COLOR–MASS-TO-LIGHT-RATIO RELATIONS FOR DISK GALAXIES

THE KINEMATIC STRUCTURE OF MERGER REMNANTS

Formation and evolution of dwarf early-type galaxies in the Virgo cluster

I. Internal kinematics

(a) (b) (c)

Figure 1. (a) McGaugh & Schombert (2014) from the AJ, (b) Cox et al. (2006) from the ApJ, and (c) Toloba, E. et al. (2011) from A&A.

The most different of the title of these two kinds of journals is the capitalization. The title's letters of the AAS Journals are all in capital, but A&A's titles are like the regular sentences which means that only the first word of the title is in capital. In addition, the existence of acronyms in A&A's titles is forbidden; however, the AAS Journals do not have this restriction.

The abstract of all these journals should be short but informative. Authors are allowed to summarize clearly the contents and conclusions in only one paragraph. In fact, abstracts of the AAS Journals should not be more than 250 words, and the abstract length of A&A is 300 words. For more detail information, please refer to the author guide of these journals.

The references, both for the AAS Journals and the A&A, should be cited in the text with the form of the last name of the author(s) and the published year. All the references should also be listed in the REFERENCES section for all these journals. If the reference is finished by more than five authors, the last name of the first three authors should be listed in the REFERENCES for both the AAS Journals and A&A. The order of the references of the AAS journals and A&A is the same, that is in the order of the last name of the first author alphabetically. For more detail instructions, please refer to the author guide of these journals.

4. OVERVIEW OF ONE JOURNAL FROM THE ASTROPHYSICAL JOURNAL

The paper selected from the Astrophysical Journal is Chen & Hwang (2020), which is published on 2020 November 1. The two authors are from Graduate Institute of Astronomy, National Central University in Taiwan. They investigated the dark matter distributions of the Early-type galaxies (ETGs) and the spiral galaxies in the local universe (less than 50 Mpc) by analyzing the dynamics of the satellite galaxies. The data they selected comes from the Extragalactic Distance Database with the K_S band absolute magnitudes of the host galaxies between -22 mag and -25 mag.

They simulated the dynamics of the host galaxy from the satellite galaxies at different elliptical orbits in random line-of-sight. By comparing the observational data and the statistical results of their simulations, they suggested that the orbits of the satellite galaxies of the ETGs might be more elongated than them of the spiral galaxies. This indicates that the dark matter fraction in the ETGs is higher comparing to the spiral galaxies. Their results are worth comparing with some previous studies (Sanders 2014; Romanowsky et al. 2003; van de Ven et al. 2010; Ruff et al. 2011; Lane et al. 2015; Nigoche-Netro et al. 2014; Boardman et al. 2016; Jin et al. 2019; Wojtak & Mamon 2013). Please refer to Chen & Hwang (2020) to see more exhaustive information of their research.

5. THE "OFF-CORE" JOURNAL

In contrast to the "core" journals, the impact factor of Astronomy & Geophysics (A&G) is relatively low. Although the impact factor of A&G is the lowest in Table.1, National Central University Library had subscribed to it from 2009 to 2012. In fact, only Publications of the Astronomical Society of Japan (PASJ) and Acta Astronomica (Acta Astron.) never have been subscribed by National Central University Library among all the journals listed in Table.1.

6. SOME TERMINOLOGIES ABOUT JOURNALS

- Science Citation Index (CSI)

  CSI is an online citation index created by Institute for Scientific Information (ISI) in 1960. It widely covers journals of science and technology and gives some quantity numbers to rank out the journals, such as the impact factor and the total cites.

- Impact Factor (IF)

  The IF represents the citations of a journal in a certain year. It is one of the important index that reflects the significance of the journals. IF is the ratio of the total citations of the last two years' articles of a given journal and the total numbers of the articles published in that journal in the last two years. For example, the IF in 2019 of a given journal is the citations in 2019 of the articles published in 2017 and 2018 divides by the total numbers of articles published in 2017 and 2018.

- Open Access (OA)

  The open access is a set of principles that allows the research results to be put on the Internet. The main features of the open access journals include:

  1. They are digital academic journals in free.
  2. The authors of the open access journals are allowed to retain the copyright.
  3. The open access journals have the right to use Creative Commons (CC).

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Astronomical Journal Writing HW2

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1. ASTRONOMY- OR ASTROPHYSICS-RELATED RESEARCH JOURNAL

Table 1 is the table of ten astronomy related journals. The table include journal name, associated publication, letter or supplement, and impact factor. Only three journals has letter or supplement or both, The Astronomical Journal and The Astrophysical Journal have both, and Monthly Notices of the Royal Astronomical Society (MNRAS) has letter. Impact factor are all in 2019.

Table 1. 10 Astronomy- or Astrophysics-related Research Journal

Journal Name	Associated Publications	Letter or Supplement	Impact factor
The Astronomical Journal	Yes	Letter and Supplement	5.838
The Astrophysical Journal	Yes	Letter and Supplement	5.745
Astronomy and Astrophysics (A&A)	No	X	5.395
Nature Astronomy	No	X	11.518
Monthly Notices of the Royal Astronomical Society (MNRAS)	Yes	Letter	5.356
Astrophysics and Space Science (Ap&SS)	No	X	1.430
Science	No	X	41.845
Annual Review of Astronomy and Astrophysics	No	X	32.963
Meteoritics & Planetary Science	No	X	2.863
The Astronomy and Astrophysics Review	No	X	16.000

2. CORE JOURNALS

I define the criteria of core journal as the impact factor greater than 5. Thus, in table 1, there are eight journals which can be regraded as core journals, including The Astronomical Journal (AJ), The Astrophysical Journal, Astronomy and Astrophysics (A&A), Monthly Notices of the Royal Astronomical Society (MNRAS), Nature Astronomy, Science, Annual Review of Astronomy and Astrophysics, and The Astronomy and Astrophysics Review. Table 2 shows the information of those eight journals, publish language, publish frequency, and publisher are included.

3. COMPARE THE STYLE OF CORE JOURNALS

1. Astronomical Journal and Astrophysical Journal have the same layouts, including title, abstract, text(figure and table), acknowledgements, appendices, and reference
2. layout of MNRAS is different with the one of A&A and Science, tile, author, and abstract of MNRAS must align in the left, on the other hand, Science and A&A must be in the cenetr.
3. Acknowledgments, data availability, reference are no required to number.
4. Every vocabulary in title of Science, Astronomical Journal, and Astrophysical Journal must be capital, while only the first letter of first vocabulary in title of Astronomy & Astrophysics must be capital.

4. IDENTIFY ONE OFF-CORE JOURNAL. DOES OUR LIBRARY SUBSCRIBE TO IT.

The off-core journal in table 1 includes Astrophysics and Space Science (ApSS), and Meteoritics & Planetary Science. Our library subscribes both of these two journals.

Table 2. Information of Core Research Journal

Journal Name	Language	Frequency	publisher
The Astronomical Journal	English	Monthly	IOP Publishing for the AAS
The Astrophysical Journal	English	3 months	IOP Publishing for the AAS
Astronomy and Astrophysics (A&A)	English	Monthly	EDP Sciences for ESO
Nature Astronomy	English	Monthly	Nature Publishing Group (U.K.)
Monthly Notices of the Royal Astronomical Society (MNRAS)	English	Three per month	Oxford University Press
Science	English	Weekly	American Association for the Advancement of Science
Annual Review of Astronomy and Astrophysics	English	Annually	Annual Reviews (U.S.)
The Astronomy and Astrophysics Review	English	Quarterly	Springer-Verlag GmbH Germany

5. SELECT A PAPER.

Paper title: OPTICAL LINEAR POLARIZATION OF LATE M AND L TYPE DWARFS.

Journal: The Astrophysical Journal, 621:445–460, 2005 March 1.

Author: M. R. Zapatero Osorio, J. A. Caballero, and V. J. S. Be´jar.

This paper report a linear observations in the Johnson I-band filter of 44 ultracool dwarfs. 11 dwarfs (10 L type and 1 M type) has significant linear polarization, which polarization degrees ranging from 0.2%–2.5%. The authors also found that found the evidence for a larger frequency of high I-band polarization in the coolest objects, meaning that there are significant amounts of dust in L-type atmospheres .

6. WHAT IS THE SCIENCE CITATION INDEX? WHAT IS THE IMPACT FACTOR? WHAT IS THE OPEN ACCESS POLICY? PLOS ONE?

Science citation index (SCI): this index described the world's leading journals of science and technology, because this index covers more than 9,200 journals, across 178 disciplines, from 1900 to present.

Impact factor (IF): this factor shows the yearly average number of citations of articles published in the last two years in a given journal.

Open access policy: public have the right to access the published results, papers, and so on freely, which is funded by academic and scientific research.

PLOS one: PLOS is the aberration of Public Library of Science, PLOS one is a peer-reviewed open access scientific journal published by the Public Library of Science (PLOS). PLOS one publish any research in the field of science and medicine.

REFERENCES

Assignment#3

Chen-Yen Hsu

Spring 2021

1 Astro. Journals

- The Astronomical Journal(AJ)
- The Astrophysical Journal (ApJ)
  - The Astrophysical Journal Letters (ApJL)
  - The Astrophysical Journal Supplement Series (ApJS)
- Astronomy & Astrophysics (A&A)
- Monthly Notices of the Royal Astronomical Society (MNRAS)
- Icarus
- Acta Astronomica
- Astronomy Reports
- AIAA Journal
- Bulletin of the American Astronomical Society (BAAS)
- Meteoritics & Planetary Science
- Nature Astronomy
- Planetary and Space Science (P&SS)
- Research in Astronomy and Astrophysics

2 Core Journals

("Core": The journals we have learned that are "important" in Seminar I and "common" ones we can see on our website –professors' profiles –)

Journal	**Language**	**Frequency**	**Publisher**
AJ	English	monthly	IOP Publishing for the AAS
ApJ	English	3 per month	IOP Publishing for the AAS
A&A	English	monthly	EDP Sciences for ESO
MNRAS	English	3 per month	Oxford University Press for RAS
Icarus	English	monthly	Elsevier

3 Comparisons between the Core Journals

1. The AJ and ApJ have the same layouts (by the same publisher).
2. Three among the core journals, AJ, ApJ and MNRAS, have the same layout in title with capitalized first letters of every single word (except for non-heading articles and prepositions).
   Ex: *On the Zero Point Constant of the Bolometric Correction Scale*
3. On the other hand, A&A and Icarus only capitalize the first letter of the first word.
   Ex: *Distance to three molecular clouds in the central molecular zone*
4. All the abstracts are centered and without divided into columns.
5. Abstract, References, Appendix, etc. are not numbered. Only the contents of the paper (introduction, method, conclusions, and so forth) are numbered.

4 A Recent Paper

Title: *The Source Locations of Major Flares and CMEs in Emerging Active Regions*
Journal: ApJ
Author: Lijuan Liu, Yuming Wang, Zhenjun Zhou and Jun Cui (China)

They tracked several ARs of the Sun and identify the patterns of the PILs, aiming to figure out the relations between the solar activities (Flares and CMEs) and ARs.

5 An Off-Core Journal

Journal: Planetary and Space Science (P&SS)
Subscribe: Yes (see Figure 1)

6 Others

- **Science Citation Index**: A database includes several kinds of scientific publication for bibliography index
- **Impact Factor**: An index for evaluating the importance of an academic journal
- **Open Access**: To free (for users) peer-reviewed, academic research outputs. People can access the resources online and free.
- **PLOS One**: Public Library of Science. A journal of scientific, peer-reviewed open access, research

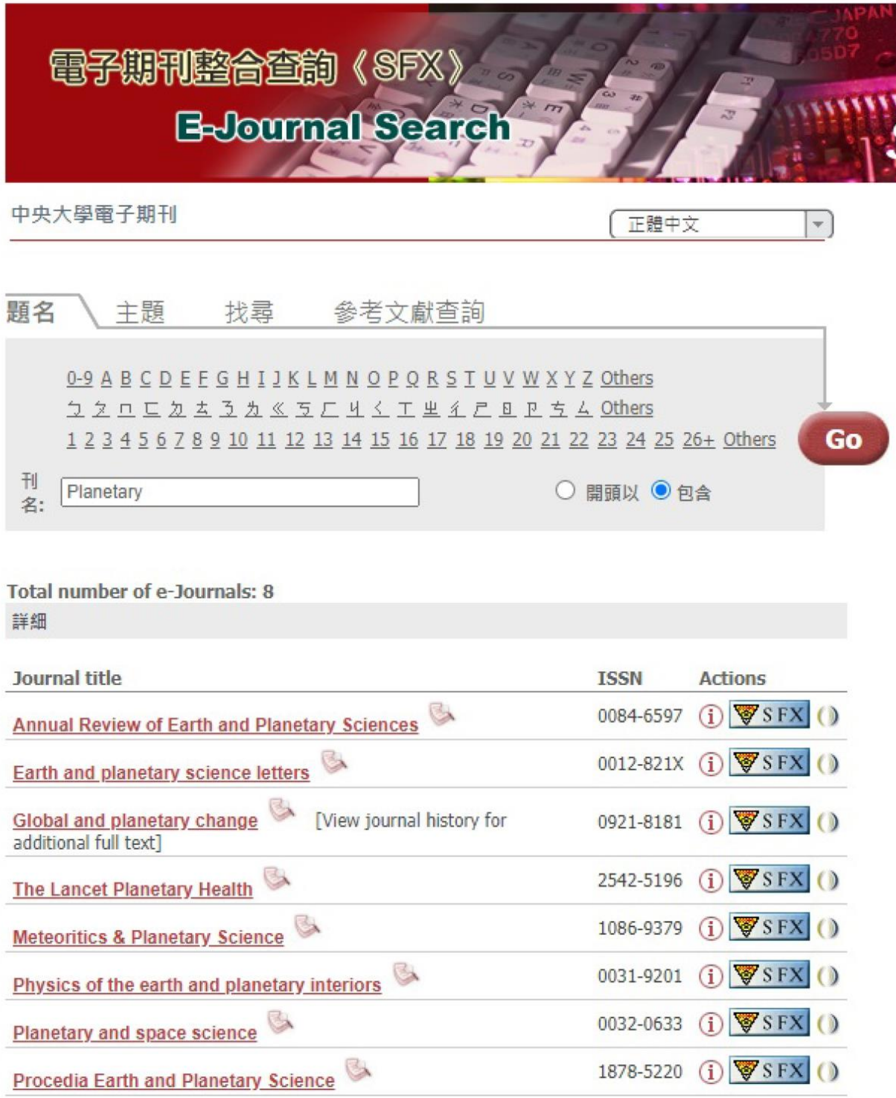

Figure 1: NCU Library Collections (screenshot)

Differences between Astronomical Journals

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(Dated: March 14, 2021; UTC: 21:30)

Keywords: Journal — Impact factor — Science Citation index (SCI) — Open access

1. BASIC INTRODUCTION ABOUT JOURNALS

(a) What is Science Citation Index(SCI)?
It is a citation index produced by Institute for Scientific Information. Based on the theory of citation analysis by S. C. Bradford, SCI compares the citation count rate, impact factor of journals, people, institutes, etc., and then record the most world-leading articles that improve the science and technology. Now, there is a larger version called Science Citation Index Expanded(SCIE), which includes more than 8500 journals that are the most influential among all the disciplines.

(b) What is Impact Factor?
Impact factor(IF) is an important factor that people can determine whether a journal is influential in the world or not. It is usually calculated by two parameters.

$$IF = \frac{CC}{Ar}$$

where CC is the citation counts of one journal, usually, in the past two year; Ar is the number of articles released by one journal, also, in the past two year. The actual meaning of IF is that the citation counts per article from one journal.

(c) What is open-access policy?
Open-access policy is a policy that all the scientific articles, like peer-reviewed articles, conference paper, are recommended to be shared, downloaded, and read by researcher.

(d) What is PLOS one?
The full name of PLOS one is *Public Library of Science one*. It is a peer-review, open-access journal, which have published the most amount of articles, including all kinds of disciplines. The impact factor of PLOS one is 2.806.

2. SURVEY OF JOURNALS

I look for ten journals, which are ***(1) The Astronomical Journal(AJ), (2) The Astrophysical Journal(ApJ), (3) nature, (4) Monthly Notices of the Royal Astronomical Society(MNRAS), (5) Publications of the Astronomical Society of Australia(PASA), (6) Astronomy & Astrophysics(A&A), (7) New Astronomy, (8) Cosmic Research, (9) Astronomy Letters, (10) Earth, Moon, and Planets***, to see if there are associated publications of them. I find that ***The Astronomical Journal*** is associated with the ***The Astronomical Journal Letters*** and ***The Astronomical Journal Supplement Series***; ***MNRAS*** has ***MNRAS Letters***; ***nature*** can be associated with ***nature astronomy*** in the field of astronomy and, also, ***nature review***.

3. CORE JOURNALS

Defining a core journal is such a difficult and complex work. According to *The Serials Librarian, Journals in the Core Collection*(Thomas E. Nisonger et al., 2007)[1], there are lots of methods to identify a core journal, like subjective judgement by experts; coverage by abstracting and indexing services; overlapping library holdings/subscriptions; citation data including total citation counts, coverage in the journal citation reports, discipline impact factor; Bradford's Law, and so on. I cannot use all the method to find out the core journals, so I decide to use the relation between Bradford's law and impact factor to distinguish the core journals and off-core journals.

The Bradford's law tells us how to identify a core journal through the citation counts. If we arrange all the journals from the highest citation counts to the lowest citation counts, and then divide all the citation counts from all the journals into n parts, i.e., for each part, we have the number of journals. Bradford found that the ratio of number of journals between different parts would be like,

$$n_i : n_2 : n_3 = 1 : a : a^2 \approx 1 : 5 : 25$$

where n_1 is the number of journals in i^{th} part; a is a constant which is about 5 suggested by Bradford. For this case, I only focus on the first two part, which is $n_1 : n_2 = 1 : 5$, n_1 is so called the number of core journals, and n_2 is the number of off-core journals, i.e., core journal has citation counts 5 times more than off-core journals.

Impact factor(IF) means the average citation counts per article, so I can compare the value of impact factor through the Bradford's Law between different journals to see which journal is core journal or off-core journal. Assume that the number of articles from each journal every year is the same, then IF will become the meaning of average citation counts per journal. From the definition of Bradford's Law, I can said that the core journal has IF 5 times higher than the off-core journal.

The journal from the first section with the highest IF is *nature astronomy*(IF=11.518)[2], so I define that if the journal which IF lower than 2.304 (11.518/5), then the journal is so called off-core journal.

The core journals and off-core journals are listed below.

(a) core journal(two year IF):

AJ(5.497)[3], *ApJ*(5.745)[4], *nature astronomy*(11.518), *MNRAS*(5.356)[5], *PASA*(5.067)[6], *A&A*(5.636)[7],

(b) off-core journal(two year IF):

New Astronomy(1.058)[8], *Cosmic Research*(0.480)[9], *Astronomy Letters*(1.489)[10],

Earth, Moon, and Planets(0.609)[11]

4. DIFFERENCES BETWEEN CORE JOURNALS

I choose one recent paper for each core journal listed in *Section* 4(*a*) to compare the style of first page with each other. The format of AJ and ApJ papers are almost the same, having the small full journal name on the upper-left corner, and article website on the upper-right corner, so are A&A, MNRAS, PASA papers. Exception is that *nature* papers have the larger journal name on the upper-left corner, and it is so clean that no redundant information other than the journal name, article/letter mark. There is even no the published date, and statement about right. Other differences are that, MNRAS papers have the largest front size of author name; *nature* papers have the largest front size of the title; PASA papers use demarcation(above and below the title) to make the region of the title and other object be separated; MNRAS papers have the special style that the title and author list are aligned on the left, but the abstract below is aligned on the right. They all have the same format that the content (the part after introduction) is in the form of two-column.

5. AN INTRODUCTION OF ONE PAPER

I choose a paper from *nature LETTER*, which the title is *A galaxy lacking dark matter*(van Dokkum, P, 2018)[12]. They found that the mass of dark matter halo does not always increase when the mass of observed objects increases through analyzing the radial velocity of lots of the targets on the NGC1052-DF2. The velocity dispersion is less than 10.5 kilometers per second, and the total mass of the galaxy within the radius of 7.6 kiloparsecs is less than 3.4×10^8 $M_\odot$, which means that the mass of dark halo is 400 times less than the previous model, and the galaxy is so called the ultra-diffuse galaxy.

6. OFF-CORE JOURNAL

The off-core journals are listed in 3(b). I chose a latest paper from *Cosmic Research* to see if the journal has been subscribed by National Central University. I found that we have no access of the journal because I could not download the PDF file from the official website of the *Cosmic Research* journal.

7. REFERENCE

1. Nisonger, Thomas E. 2007. "Journals in the Core Collection." The Serials Librarian 51 (3-4):51–73. doi: 10.1300/J123v51n03_05.
2. Website of nature astronomy; https://www.nature.com/natastron/
3. Website of IOP science; https://iopscience.iop.org/journal/1538-3881
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7. Website of A&A; https://www.aanda.org/
8. Website of *NewAstronomy*; https://www.sciencedirect.com/journal/new-astronomy
9. Website of *CosmicResearch*; https://www.springer.com/journal/10604
10. Website of *AstronomyLetter*; https://www.springer.com/journal/11443
11. Website of *Earth, Moon, andPlanets*; https://www.springer.com/journal/11038
12. van Dokkum, P., Danieli, S., Cohen, Y. et al. A galaxy lacking dark matter. Nature 555, 629–632 (2018).