Publishing your great work

Chris Sneden: ApJ Scientific Editor (SE), 1996-2002
ApJ Letters Editor, 2002-2012
Publications Committee, 2016-present
[Co-Chair with Lisa Prato (Lowell Obs)]

Where to publish: arXiv versus refereed journals
which refereed journals

General suggestions: submission mechanics
paper content & style

Ethical questions: how to avoid them
what to do when you spot trouble

Concerns, frustrations: please feel free to contact me:
chris@verdi.as.utexas.edu

Why not simply use astro-ph? Forget journals?

Pro:
- fast (1 day usually)
- crowd-sourced comments
- increases citation rate
- free (at least now)
- open access
- avoids capricious refereeing

Con:
- static site (only pdfs, etc.)
- relatively unregulated
- no version control!!!!
- variability in comments
- zero archive guarantees
- no easily understood quality control
- no enforceable citations

Question: what is the acceptance rate for astronomy refereed journals?

Question: why do institutional administrators hate arXiv?

Question: what is the attitude of journal editors ?

Question: the magic of 1400 US Eastern time? Why should you care?

Question: why are conference proceedings paper posted to arXiv?

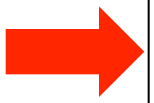
Question: is every arXiv submission automatically posted?

When to post to astroph: pre- or post-acceptance at a refereed journal?

this is a large thread:

http://www.astrobetter.com/to-post-or-not-to-post-publishing-to-the-arxiv-before-acceptance/

It starts this way and goes on for a long time



Pros to posting before acceptance:

- Problems and omissions get caught *before* publication.
- More people have a chance to "referee" and give feedback and the published paper might be better and richer as a result.
- Results get out to the community faster.

Cons to posting before acceptance:

- Wrong results get circulated and could possibly never be corrected or retracted.
- Could end up with several very different versions of same paper in circulation resulting in confusion.
- It's possible, but not confirmed, that NASA HQ will not issue a press release about a paper that has been put on arXiv and later accepted by the journal. The reasoning is that since the the paper is in the public domain, the story is already out there. This essentially results in an official policy that precludes one from posting before acceptance. (Can anyone confirm this?)
- Some people will not referee a paper if they see that it's already been posted to the arXiv.

(obviously a lot of good astronomy journals begin with the letter "A")

A [edit]

- *Acta Astronomica*
- *Advances in Space Research*
- *AIAA Journal*
- *AIP Conference Proceedings*
- *Annual Review of Astronomy and Astrophysics*
- *Annual Review of Earth and Planetary Sciences*
- *Astrobiology*
- *The Astronomical Journal*
- *Astronomische Nachrichten*
- *Astronomy and Astrophysics*
- *The Astronomy and Astrophysics Review*
- *Astronomy and Computing*
- *Astronomy & Geophysics*
- *Astronomy Letters*
- *Astronomy Reports*
- *Astroparticle Physics*
- *The Astrophysical Journal*
- *The Astrophysical Journal Letters*
- *The Astrophysical Journal Supplement Series*
- *Astrophysics*, a translation of the peer-reviewed Russian-language journal *Astrofizika*
- *Astrophysics and Space Science*

B [edit]

- *Baltic Astronomy*
- *Bulletin of the American Astronomical Society*
- *Bulletin of the Astronomical Society of India*

there are many journals in astronomy; most of them have limited audiences and impact

https://en.wikipedia.org/wiki/List_of_astronomy_journals

https://en.wikipedia.org/wiki/Journal_Citation_Reports

the "big" journals: which is the best?

they also rank:

cited half-life

eigenfactor score

article influence

my conclusion: all of them

decision on which to use only partly depends on perceived journal quality

Impact Factor

	2014	2015	2016	2017	2018	2019	2020	Trend
AJ	4.024	4.617	3.773	4.15	5.497	5.838	6.263	
ApJ	5.993	5.909	5.533	5.551	5.580	5.745	5.874	
ApJL	5.339	5.487	5.522	6.634	8.374	8.198	7.413	
ApJS	11.215	11.257	8.955	8.561	8.311	7.95	8.017	
MNRAS	5.107	4.952	4.961	5.194	5.231	5.356	5.287	
A&A	4.378	5.185	5.014	5.565	6.209	5.636	5.802	
Nature Astro					10.5	11.518	14.437	
Icarus	3.038	3.383	3.131	2.981	3.565	3.513	3.508	

Total Citations

	2014	2015	2016	2017	2018	2019	2020	Trend
AJ	32,068	34,055	28,260	34,707	38,706	39,317	40,358	
ApJ	195,795	202,826	202,826	213,132	261,830	269,369	275,758	
ApJL	44,743	46,151	47,025	29,851	34,259	35,956	39,695	
ApJS	23,963	24,953	24,547	26,654	28,834	29,045	31,285	
MNRAS	109,141	120,400	128,369	148,250	166,152	179,960	191,201	
A&A	101,265	107,162	111,243	121,208	131,500	135,619	140,072	
Nature Astro				322	1,493	3,020	5,524	
Icarus	18,248	20,194	19,559	21,156	24,271	24,469	26,342	

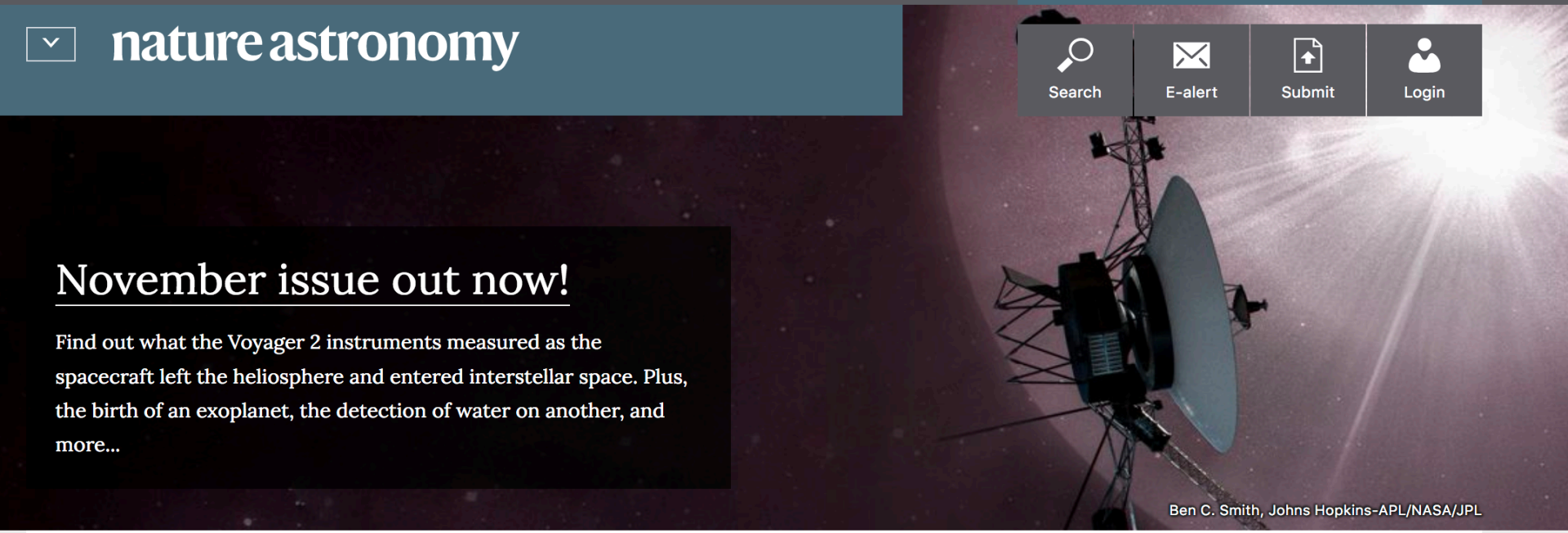
Immediacy Index

	2014	2015	2016	2017	2018	2019	2020	Trend
AJ	1.152	1.101	0.529	1.371	1.654	1.486	1.766	
ApJ	1.741	1.626	1.393	1.501	1.627	1.706	1.629	
ApJL	1.584	1.56	2.164	2.077	2.301	2.405	2.792	
ApJS	3.277	2.559	1.837	1.665	2.343	1.995	4.771	
MNRAS	1.657	1.782	1.704	1.916	2.068	2.044	1.911	
A&A	2.041	1.508	2.046	1.407	1.922	1.699	2.108	
Nature Astro				3.398	4.121	4.839	6.613	
Icarus	1.242	1.404	1.09	1.277	1.506	1.61	1.448	

Articles

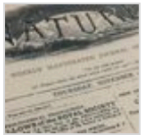
	2014	2015	2016	2017	2018	2019	2020	Trend
AJ	296	397	363	542	566	498	569	
ApJ	2785	2974	2805	3059	2969	3157	3033	
ApJL	669	629	555	543	574	583	772	
ApJS	159	211	178	167	251	209	279	
MNRAS	2790	3080	3209	3443	3850	4001	3948	
A&A	1735	1777	1810	1781	1902	2019	1343	
Nature Astro				93	107	124	152	
Icarus	429	470	432	386	393	426	366	

Three new kids – take them seriously



Announcement

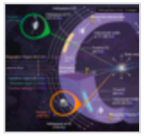
Nature at 150



As Nature turns 150, we look back on some of the most epoch defining papers in astronomy.

Announcement

Voyager 2



The first data from Voyager 2 as it crossed into interstellar space are reported in five papers. They confirm... show more

Announcement

Nobel Prize in Physics 2019

We present this Collection of research, review and comment from Nature Research to celebrate the award of the... show more

Announcement

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Current Issue | November 2019

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- **Society owned:** The PSJ is owned by the American Astronomical Society, a non-profit professional society for astronomers. The journal is run by scientists, for scientists.
- **Fast publication:** We are committed to providing you with a fast, professional service to ensure rapid peer review and publication.
- **Scope:** The PSJ is dedicated to publishing articles that constitute significant new research that is directly relevant to planetary science, including observational results, theoretical insights, modeling, laboratory studies, instrumentation, or field studies.

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Bihan Shen *et al.* 2019 *Res. Notes AAS* **3** 170

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Differences in Halo Mass Accretion Rate Definitions between SPARTA and Consistent Trees

Enia Xhakaj *et al.* 2019 *Res. Notes AAS* **3** 169

View article

journal submission process: AAS journals example

https://journals.aas.org/manuscript-preparation/

All electronic now:

- ❑ at least normal papers!
- ❑ maybe paper ones could be scanned, but $$ to authors

Editor-in-Chief Ethan Vishniac assigns to “portals” or “streams”

Stream leaders assign to individual scientific editors

- ❑ manuscript usually in scientific field of SE
- ❑ one referee ***usually***
- ❑ what are arguments pro/con here?
- ❑ Nature, Science vs. MNRAS, A&Ap, ApJ, AJ
- ❑ why sometimes two referees at once?

Referee requested to review within 4 weeks

What is total timescale for the review process?

authors versus editors and referees: initial submission

Can you avoid certain scientific editors?

- yes, with an explanation to the editor-in-chief
- must be a reasonable request

Can you ask to *avoid* certain referees?

- competition with another group?
- competition on same data set (!)?
- showing that a past result of possible referee is wrong?
- personal conflict (many types of this)?
- belief that entire country/institution/race(!)/gender(!) is biased?

Can you specifically *request* certain referees?

- usually no: editors suspect self-interest
- think: basketball, where coaches verbally "work the referees"
- sometimes yes

Can you write a cover letter in which you describe why your work should be published?

Can you write a cover letter asking the referee specific questions?

how potential referees are chosen

(This is how I did it for ApJ Letters)

"read" the paper

especially title, abstract, introduction, conclusions, figures

"imagine" other experts in the field

what is "field"? Example from me:

"Improved Co I log(gf) Values and Abundance Determinations in the Photospheres of the Sun and Metal-poor Star HD 84937", by J. E. Lawler, C. Sneden, J. J. Cowan, 2015, ApJS, 220, 13

referees from (a) atomic physics; (b) stellar chemical composition; (c) solar spectroscopy; (d) metal-poor stars; (e) Galactic chemical evolution, ...

how potential referees are chosen

(This is how I did it for ApJ Letters)

look for potential problems in the paper:

conflict with previous results

consult with databases:

ADS abstract service

SIMBAD, NED, ...

In any way possible, try to:

- determine whether the potential referee is an expert here
- determine whether that referee has been used too often
- guess whether there are negative conflicts of interest
- guess whether there are positive conflicts of interest

should a potential referee always accept an invitation to review a paper

Usually yes ... HEY!!! This is really part of your career as a professional astronomer!!!!

sometimes no:

- ❑ (legitimately) too busy ... not just a selfish excuse
- ❑ heavy travel ... teaching ... personal time conflict
- ❑ negative or positive conflict of interest with paper
- ❑ unhappy previous interactions with authors
- ❑ competing journal submission
- ❑ collaboration with
- ❑ (believable) lack of familiarity with the subject
- ❑ other condition in which you feel that you could not be neutral & fair

If no, editors always appreciate suggestions of alternate referees

Editors always appreciate suggestions of young referee names

authors versus editors and referees: receipt of review

Do editors always transmit the exact report of referee to authors?

Should referees' names be given to authors?

Do editors tell referees and authors the same information?

- what if editor does not really like the paper at the beginning?
- what if referee demands changes?
- what if referee reveals too much about himself/herself
- what power does the editor have?
- OK, technically a difference between SEs and the Editor-in-Chief

What if editor does not like review?

Why do editors like plain-text reviews?

authors versus editors and referees: editor's cover letter on review

What typically is the attitude of an editor? two styles:

- passive
- interactive

Yes, I used templates for my letters:

- hey, give me a break! On average, I got 5 new papers/day
- to authors: very positive, positive, neutral, negative, very negative templates
- But I would modify these templates in lots of ways
- to referees: I will send revision back to you; I'll accept revision; I'll get a second opinion; or other templates
- these templates also often altered
- longest review? shortest?

authors versus editors and referees: actions of the author

First rule: the referee is always right!
Second rule: if the referee is wrong, the referee is still right!

Authors MUST ***respond*** to all aspects of the review

- what action by editor if the authors do not respond adequately?
- what does "respond" mean?
- what can editors do with author responses?

Authors must respond in a timely manner

- different timescales for Part 1 and Letters

Authors must respond clearly!

- what if they agree with referee?
- what if they disagree partly? completely?
- don't make the editor/referee work to find your paper changes!
    - often I would simply send the revision back to the author

authors versus editors and referees: review cycle iterations

perhaps many cycles

- are papers always sent back to referee?
  (I knew what I would do but often didn't tell author/ref)
- can authors request that editor make judgment in a dispute?
  (not usually a good idea!)

can authors change scientific editors?

very rare; "special" circumstances

cross-talk between ApJ Part 1 and Letters?

bringing in a second referee

- mandatory?
- "rules of the game?"

some refereeing advice

THE ASTRONOMICAL JOURNAL

Availability

Please respond promptly to the Editor's message asking whether you are willing to referee an article. If you have other commitments and cannot referee it in the time requested (usually about a month in the case of the AJ), let him or her know immediately so that another referee can be chosen.

Questions to keep in mind as you read the article

- Does the paper present original research at a level appropriate for an AJ paper?
- Is the abstract informative?
- Does the article represent a significant contribution to the astronomical literature?
- Are the results adequately documented (e.g., are relevant data included)?
- Could any of the figures or tables be more effectively presented as online-only material in the electronic version of the journal?
- Are errors and uncertainties given and explained?
- Is there sufficient reference to previous work?
- Is the material clearly presented?

Timeliness

Remember that it will take just as long to referee the article several weeks from now as it will today.

some refereeing advice

THE ASTRONOMICAL JOURNAL

Conflicts of interest

Let the Editor know immediately if you may have a conflict of interest. For example, is one of the authors

- At your institution?
- One of your students?
- A close collaborator?
- Your nemesis?
- Your spouse?

Anonymity

You will be an anonymous referee unless you specify otherwise. It is acceptable to make your identity known to the authors by sending them a copy of your report, provided that you also send a copy to the Editor. If there is further correspondence between you and the authors, be sure to copy all messages to the Editor.

Grammar and English usage

If the manuscript needs a lot of copyediting, please note that fact in your report. It is not necessary for you to do that task yourself, however. Spelling, punctuation, grammar, and format will be corrected when the article passes to IOP Publishing for production and publication.

Tone

If the manuscript makes you angry, keep in mind that insulting or offending the authors may only make them feel you are biased against them. They may pay less attention to your otherwise useful review. A calm and persuasive report that makes exactly the same recommendations will be much more effective in guiding errant authors. Note that the Editor will remove unprofessional comments from referee reports.

manuscript styles & details

figure formats are sometimes a problem
- at ApJ these are worked out before refereeing
- sometimes significant delays in submission process

journal style overrides author wishes
- citations, spelling (!), table formats

tabular material on-line different for each journal
- often I like A&Ap, sometimes ApJ style
- ApJ/AJ has people (Greg Schwartz, August Munch) for this

ApJ/ApJL/ApJS/AJ/PSJ author charges:
- yes, relevant for you!
- I have zero apology for journal author charges
  - the $$ must come from some place!

AAS Journals Will Switch to Open Access

Research results in astronomy, solar physics, and planetary science are about to become more widely accessible to scientists and the public alike. The American Astronomical Society (AAS), a leading nonprofit professional association for astronomers, today announced the switch of its prestigious journals to fully open access (OA) as of 1 January 2022.

Under this change, all articles in the AAS journal portfolio will be immediately open for anyone to freely read. The transition will affect the ***Astronomical Journal (AJ)***, the ***Astrophysical Journal (ApJ)***, ***Astrophysical Journal Letters (ApJL)***, and the ***Astrophysical Journal Supplement Series (ApJS)***; the ***Planetary Science Journal***, the AAS's newest journal published in partnership with its Division for Planetary Sciences, is already fully open access.

Journals of the American Astronomical Society.

what did I learn from reading ~11,000 ApJ Letters submissions?

The very best extensive summary of the art of making scientific papers: Christiaan Sterken

18	2011EAS....50..173S	1.000	07/2011	A	E	F	T	R
	Sterken, C.	Writing a Scientific Paper III. Ethical Aspects						
19	2011EAS....50...65S	1.000	07/2011	A	E	F	T	R
	Sterken, C.	Writing a Scientific Paper II. Communication by Graphics						
20	2011EAS....50....1S	1.000	07/2011	A	E	F	T	R
	Sterken, C.	Writing a Scientific Paper I. The writing process						

Direct quotes from his papers will be in blue

WRITING A PAPER THAT ANYONE WANTS TO READ
Before writing: fundamental questions about WHY

To be of true service to humanity, science must be an exquisite blend of data, theory, and narrative. … I do far more than summarize conclusions already neatly stored in my mind. Rather, the writing process is where I carry out the final comprehension, analysis, and synthesis of my results. … we write to be read – and not to be cited as a first purpose.

Why do some young and old astronomers have so much trouble writing papers? I have seen multiple real examples of these problems, as told to me by very slow authors:

- It takes a lot of (sometimes boring) work!
- If the research isn't perfect, it should not be published
- The paper must be written in English
- Once a paper is published, it can be criticized
- Problems with collaborators/coauthors
- No funds to pay for the publication
- Desire not to publicly critize someone else's work

Motivations to publish: good and bad

- **Because I want to report new scientific results and get the credit**
  - Probably the best reason
  - Credit is sometimes hard to get immediately
    - this is a very good part of astro-ph
  - Over many years, credit builds slowly but steadily for good people
- **Because I need a job, a promotion, or a grant**
  - Economic necessity is powerful
  - Can someone keep this motivation active for many years?
  - Often leads to small and uninteresting "serial" papers
- **Because I want to achieve [astrophysical] social climbing by being visible in ADS**
  - This is a terrible reason; see comments on astro-ph
  - It can easily lead to ethical problems
  - Visible short-term or long-term?
  - It is very easy to write many papers that few other people will read
- **Because I am traveling, and papering is the only way to cover my travel costs**
  - This should be irrelevant to refereed-journal publications
  - Extremely important to some people attending conferences
    - Especially those in third-world countries

Paper structure

Most scientific papers have a very similar structure in a well-tried format suitable to efficiently transfer facts and interpretations of facts. Papers are mostly organized in Sections according to the so-called IMRaD model, where the acronym stands for Introduction, Methods (observations, computation, theory), Results and Discussion (and Conclusions). … The goal of a scientific paper is not to impress the readers by poetic language but to transfer facts and new insights are lucidly as possible.

- Yes, we do write papers "by formula"
- It is less work for the reader
- It is less confusing to write a paper in a "linear" style
- A very difficult part is to make a paper similar in style to your other papers but not to simply copy large parts of previous papers
- The opening (title, authors, abstract) are critical
  - Most people do not "browse" a whole journal issue any more
  - The favorite

The title: more important than you think

- ❑ be specific, brief, and interesting to potential readers
- ❑ don't attack anyone else; never, never, never
- ❑ don't be funny (jokes will only be understood by a few readers)
- ❑ try to avoid questions in the title
- ❑ **ADS readers should able to figure out if they want to click**
- ❑ big claims will bring attention to you; that is not always good
- ❑ only put things in titles that the paper actually addresses!

Your name in the author list: don't confuse

- ❑ pick a clear, consistent way to identify yourself in your papers
- ❑ used ORCID (Open Researcher and Contributor ID)
- ❑ double last names and hyphenated names: write always the same way
- ❑ authors in major journals can write names in their own character sets
- ❑ gender rules should never be set by the journal; you pick how you wish to be identified; keep that way for maximum identity in the literature
- ❑ notify ADS if you change your name so that both names can be linked

Multiple authorships: who should be in the list

The guideline is that authorship should be based solely on substantial contributions to:

(1) Conception and design, or acquisition of data, or analysis and interpretation of data

(2) Drafting the article or revising it critically for important intellectual content

(2) final approval of the version to be published

I believe that all three conditions must be met to be an author.

Any part of an article critical to its main conclusions must be the responsibility of at least one author

Who should maybe **not** be an author?

(1) a "service" observer at VLT, Keck, …

(2) the author of a code that is freely available

e.g. http://www.as.utexas.edu/~chris/moog

(3) honorary authors (good friends, very senior authors, leaders of institutes, people who inspired you to study this area, …

In other words, each author should be a real contributor to the paper

Should you be an author, and author order

Avoiding inclusion of gratuitous coauthors, evidently, also applies to yourself on other people's papers: exclude yourself if you have not contributed to a paper for which you invited to sign as coauthor – although it must be recognized that the rising trend of papers with dozens of authors does not make such decision easy. Small teams do sometimes work with a kind of reciprocity, *i.e.*, mutual exchange of participation in each other's papers. This is a habit to avoid because you may end up disappointed (reciprocity is not always guaranteed and is often forgotten), and you may even be blamed for grave errors.

- I hate alphabetical author lists! (example: Alcock et al.)
- All authors should talk about author order and agree in a friendly way
- The corresponding author should really be in charge of the paper
  (corresponding author is not necessarily first author)
- I normally put the graduate (or undergraduate!) student as first author if he/she has made major contributions to the paper
  (even if I closely guided the work of a very new student)
- Senior authors with permanent positions should put themselves at the end of author lists (just my opinion!)

Mega-author papers: what does author mean?
Abdo et al. (454 authors): *ApJ*, 2011, **727**, 129

The Astrophysical Journal, 727:129 (26pp), 2011 February 1 doi:10.1088/0004-637X/727/2/129

INSIGHTS INTO THE HIGH-ENERGY γ-RAY EMISSION OF MARKARIAN 501 FROM EXTENSIVE MULTIFREQUENCY OBSERVATIONS IN THE *FERMI* ERA

A. A. Abdo[1,2], M. Ackermann[3], M. Ajello[3], A. Allafort[3], L. Baldini[4], J. Ballet[5], G. Barbiellini[6,7], M. G. Baring[8], D. Bastieri[9,10], K. Bechtol[3], R. Bellazzini[4], B. Berenji[3], R. D. Blandford[3], E. D. Bloom[3], E. Bonamente[11,12], A. W. Borgland[3], A. Bouvier[3], T. J. Brandt[13,14], J. Bregeon[4], A. Brez[4], M. Brigida[15,16], P. Bruel[17], R. Buehler[3], S. Buson[9,10], G. A. Caliandro[18], R. A. Cameron[3], A. Cannon[19,20], P. A. Caraveo[21], S. Carrigan[10], J. M. Casandjian[5], E. Cavazzuti[22], C. Cecchi[11,12], Ö. Çelik[19,23,24], E. Charles[3], A. Chekhtman[1,25], C. C. Cheung[1,2], J. Chiang[3], S. Ciprini[12], R. Claus[3], J. Cohen-Tanugi[26], J. Conrad[27,28,133], S. Cutini[22], C. D. Dermer[1], F. de Palma[15,16], E. do Couto e Silva[3], P. S. Drell[3], R. Dubois[3], D. Dumora[29], C. Favuzzi[15,16], S. J. Fegan[17], E. C. Ferrara[19], W. B. Focke[3], P. Fortin[17], M. Frailis[30,31], L. Fuhrmann[32], Y. Fukazawa[33], S. Funk[3], P. Fusco[15,16], F. Gargano[16], D. Gasparrini[22], N. Gehrels[19], S. Germani[11,12], N. Giglietto[15,16], F. Giordano[15,16], M. Giroletti[34], T. Glanzman[3], G. Godfrey[3], I. A. Grenier[5], L. Guillemot[29,32], S. Guiriec[35], M. Hayashida[3], E. Hays[19], D. Horan[17], R. E. Hughes[14], G. Jóhannesson[3], A. S. Johnson[3], W. N. Johnson[1], M. Kadler[23,36,37,38], T. Kamae[3], H. Katagiri[33], J. Kataoka[39], J. Knödlseder[13], M. Kuss[4], J. Lande[3], L. Latronico[4], S.-H. Lee[3], M. Lemoine-Goumard[29], F. Longo[6,7], F. Loparco[15,16], B. Lott[29], M. N. Lovellette[1], P. Lubrano[11,12], G. M. Madejski[3], A. Makeev[1,25], W. Max-Moerbeck[40], M. N. Mazziotta[16], J. E. McEnery[19,41], J. Mehault[26], P. F. Michelson[3], W. Mitthumsiri[3], T. Mizuno[33], A. A. Moiseev[23,41], C. Monte[15,16], M. E. Monzani[3], A. Morselli[42], I. V. Moskalenko[3], S. Murgia[3], M. Naumann-Godo[5], S. Nishino[33], P. L. Nolan[3], J. P. Norris[43], E. Nuss[26], T. Ohsugi[44], A. Okumura[45], N. Omodei[3], E. Orlando[46], J. F. Ormes[43], D. Paneque[3,47,134], J. H. Panetta[3], D. Parent[1,25], V. Pavlidou[40], T. J. Pearson[40], V. Pelassa[26], M. Pepe[11,12], M. Pesce-Rollins[4], F. Piron[26], T. A. Porter[3], S. Rainò[15,16], R. Rando[9,10], M. Razzano[4], A. Readhead[40], A. Reimer[3,48], O. Reimer[3,48], J. L. Richards[40], J. Ripken[27,28], S. Ritz[49], M. Roth[50], H. F.-W. Sadrozinski[49], D. Sanchez[17], A. Sander[14], J. D. Scargle[51], C. Sgrò[4], E. J. Siskind[52], P. D. Smith[14], G. Spandre[4], P. Spinelli[15,16], Ł. Stawarz[45,53,134], M. Stevenson[40], M. S. Strickman[1], K. V. Sokolovsky[32,54], D. J. Suson[55], H. Takahashi[44], T. Takahashi[45], T. Tanaka[3], J. B. Thayer[3], J. G. Thayer[3], D. J. Thompson[19], L. Tibaldo[5,9,10,135], D. F. Torres[18,56], G. Tosti[11,12], A. Tramacere[3,57,58], Y. Uchiyama[3], T. L. Usher[3], J. Vandenbroucke[3], V. Vasileiou[23,24], N. Vilchez[13], V. Vitale[42,59], A. P. Waite[3], P. Wang[3], A. E. Wehrle[60], B. L. Winer[14], K. S. Wood[1], Z. Yang[27,28], T. Ylinen[28,61,62], J. A. Zensus[32], M. Ziegler[49]

(The *Fermi*-LAT collaboration)

J. Aleksić[63], L. A. Antonelli[64], P. Antoranz[65], M. Backes[66], J. A. Barrio[67], J. Becerra González[68,69], W. Bednarek[70], A. Berdyugin[71], K. Berger[69], E. Bernardini[72], A. Biland[73], O. Blanch[63], R. K. Bock[47], A. Boller[73], G. Bonnoli[64], P. Bordas[74], D. Borla Tridon[47], V. Bosch-Ramon[74], D. Bose[67], I. Braun[73], T. Bretz[75], M. Camara[67], E. Carmona[47], A. Carosi[64], P. Colin[47], E. Colombo[68], J. L. Contreras[67], J. Cortina[63], S. Covino[64], F. Dazzi[30,136], A. de Angelis[30], E. De Cea del Pozo[18], B. De Lotto[76], M. De Maria[76], F. De Sabata[76], C. Delgado Mendez[68,77], A. Diago Ortega[68,69], M. Doert[66], A. Domínguez[78], D. Dominis Prester[79], D. Dorner[73], M. Doro[9,10], D. Elsaesser[75], D. Ferenc[79], M. V. Fonseca[67], L. Font[80], R. J. García López[68,69], M. Garczarczyk[68], M. Gaug[68], G. Giavitto[63], N. Godinovi[79], D. Hadasch[18], A. Herrero[68,69], D. Hildebrand[73], D. Höhne-Mönch[75], J. Hose[47], D. Hrupec[79], T. Jogler[47], S. Klepser[63], T. Krähenbühl[73], D. Kranich[73], J. Krause[47], A. La Barbera[64], E. Leonardo[65], E. Lindfors[71], S. Lombardi[9,10], M. López[9,10], E. Lorenz[73,47], P. Majumdar[72], E. Makariev[81], G. Maneva[81], N. Mankuzhiyil[30], K. Mannheim[75], L. Maraschi[82], M. Mariotti[9,10], M. Martínez[63], D. Mazin[63], M. Meucci[65], J. M. Miranda[65], R. Mirzoyan[47], H. Miyamoto[47], J. Moldón[74], A. Moralejo[63], D. Nieto[67], K. Nilsson[71], R. Orito[47], I. Oya[67], R. Paoletti[65], J. M. Paredes[74], S. Partini[65], M. Pasanen[71], F. Pauss[73], R. G. Pegna[65], M. A. Perez-Torres[78], M. Persic[30,83], J. Peruzzo[9,10], J. Pochon[68], P. G. Prada Moroni[65], F. Prada[78], E. Prandini[9,10], N. Puchades[63], I. Puljak[79], T. Reichardt[63], R. Reinthal[71], W. Rhode[66], M. Ribó[74], J. Rico[56,63], M. Rissi[73], S. Rügamer[75], A. Saggion[9,10], K. Saito[47], T. Y. Saito[47], M. Salvati[64], M. Sánchez-Conde[68,69], K. Satalecka[72], V. Scalzotto[9,10], V. Scapin[30], C. Schultz[9,10], T. Schweizer[47], M. Shayduk[47], S. N. Shore[4,84], A. Sierpowska-Bartosik[70], A. Sillanpää[71], J. Sitarek[70,47], D. Sobczynska[70], F. Spanier[75], S. Spiro[64], A. Stamerra[65], B. Steinke[47], J. Storz[75], N. Strah[66], J. C. Struebig[75], T. Suric[79], L. O. Takalo[71], F. Tavecchio[82], P. Temnikov[81], T. Terzić[79], D. Tescaro[63], M. Teshima[47], H. Vankov[81], R. M. Wagner[47], Q. Weitzel[73], V. Zabalza[74], F. Zandanel[78], R. Zanin[63]

(The MAGIC collaboration)

V. A. Acciari[85], T. Arlen[86], T. Aune[49], W. Benbow[85], D. Boltuch[87], S. M. Bradbury[88], J. H. Buckley[89], V. Bugaev[89], A. Cannon[20], A. Cesarini[90], L. Ciupik[91], W. Cui[92], R. Dickherber[89], M. Errando[93], A. Falcone[94], J. P. Finley[92], G. Finnegan[95], L. Fortson[91], A. Furniss[49], N. Galante[85], D. Gall[92], G. H. Gillanders[90], S. Godambe[95], J. Grube[91], R. Guenette[96], G. Gyuk[91], D. Hanna[96], J. Holder[87], D. Huang[97], C. M. Hui[95], T. B. Humensky[98], P. Kaaret[99], N. Karlsson[91], M. Kertzman[100], D. Kieda[95], A. Konopelko[97], H. Krawczynski[89], F. Krennrich[101], M. J. Lang[90], G. Maier[72,96], S. McArthur[89], A. McCann[96], M. McCutcheon[96], P. Moriarty[102], R. Mukherjee[93], R. Ong[86], A. N. Otte[49], D. Pandel[99], J. S. Perkins[85], A. Pichel[103], M. Pohl[72,104], J. Quinn[20], K. Ragan[96], L. C. Reyes[105], P. T. Reynolds[106], E. Roache[85], H. J. Rose[88], A. C. Rovero[103], M. Schroedter[101], G. H. Sembroski[92], G. D. Senturk[107], D. Steele[91,108], S. P. Swordy[98,137], G. Tešić[96], M. Theiling[85], S. Thibadeau[89], A. Varlotta[92], S. Vincent[95], S. P. Wakely[98], J. E. Ward[20],

T. C. Weekes[85], A. Weinstein[86], T. Weisgarber[98], D. A. Williams[49], M. Wood[86], B. Zitzer[92]

(The VERITAS collaboration)

M. Villata[109], C. M. Raiteri[109], H. D. Aller[110], M. F. Aller[110], A. A. Arkharov[111], D. A. Blinov[111], P. Calcidese[112], W. P. Chen[113], N. V. Efimova[111,114], G. Kimeridze[115], T. S. Konstantinova[114], E. N. Kopatskaya[114], E. Koptelova[113], O. M. Kurtanidze[115], S. O. Kurtanidze[115], A. Lähteenmäki[116], V. M. Larionov[111,114,117], E. G. Larionova[114], L. V. Larionova[114], R. Ligustri[118], D. A. Morozova[114], M. G. Nikolashvili[114], L. A. Sigua[115], I. S. Troitsky[114], E. Angelakis[32], M. Capalbi[22], A. Carramiñana[119], L. Carrasco[119], P. Cassaro[120], E. de la Fuente[121], M. A. Gurwell[122], Y. Y. Kovalev[32,54], Yu. A. Kovalev[54], T. P. Krichbaum[32], H. A. Krimm[23,38], P. Leto[123], M. L. Lister[92], G. Maccaferri[124], J. W. Moody[125], Y. Mori[126], I. Nestoras[32], A. Orlati[124], C. Pagani[127], C. Pace[125], R. Pearson III[125], M. Perri[22], B. G. Piner[128], A. B. Pushkarev[32,111,129], E. Ros[32,130], A. C. Sadun[131], T. Sakamoto[19], M. Tornikoski[116], Y. Yatsu[126], and A. Zook[132]

[1] Space Science Division, Naval Research Laboratory, Washington, DC 20375, USA
[2] National Research Council Research Associate, National Academy of Sciences, Washington, DC 20001, USA
[3] W. W. Hansen Experimental Physics Laboratory, Kavli Institute for Particle Astrophysics and Cosmology, Department of Physics and SLAC National Accelerator Laboratory, Stanford University, Stanford, CA 94305, USA; dpaneque@mppmu.mpg.de
[4] Istituto Nazionale di Fisica Nucleare, Sezione di Pisa, I-56127 Pisa, Italy
[5] Laboratoire AIM, CEA-IRFU/CNRS/Université Paris Diderot, Service d'Astrophysique, CEA Saclay, 91191 Gif sur Yvette, France
[6] Istituto Nazionale di Fisica Nucleare, Sezione di Trieste, I-34127 Trieste, Italy
[7] Dipartimento di Fisica, Università di Trieste, I-34127 Trieste, Italy
[8] Rice University, Department of Physics and Astronomy, MS-108, P. O. Box 1892, Houston, TX 77251, USA
[9] Istituto Nazionale di Fisica Nucleare, Sezione di Padova, I-35131 Padova, Italy
[10] Dipartimento di Fisica "G. Galilei," Università di Padova, I-35131 Padova, Italy
[11] Istituto Nazionale di Fisica Nucleare, Sezione di Perugia, I-06123 Perugia, Italy
[12] Dipartimento di Fisica, Università degli Studi di Perugia, I-06123 Perugia, Italy
[13] Centre d'Étude Spatiale des Rayonnements, CNRS/UPS, BP 44346, F-30128 Toulouse Cedex 4, France
[14] Department of Physics, Center for Cosmology and Astro-Particle Physics, The Ohio State University, Columbus, OH 43210, USA
[15] Dipartimento di Fisica "M. Merlin" dell'Università e del Politecnico di Bari, I-70126 Bari, Italy
[16] Istituto Nazionale di Fisica Nucleare, Sezione di Bari, 70126 Bari, Italy
[17] Laboratoire Leprince-Ringuet, École polytechnique, CNRS/IN2P3, Palaiseau, France
[18] Institut de Ciencies de l'Espai (IEEC-CSIC), Campus UAB, 08193 Barcelona, Spain
[19] NASA Goddard Space Flight Center, Greenbelt, MD 20771, USA
[20] University College Dublin, Belfield, Dublin 4, Ireland
[21] INAF-Istituto di Astrofisica Spaziale e Fisica Cosmica, I-20133 Milano, Italy
[22] Agenzia Spaziale Italiana (ASI) Science Data Center, I-00044 Frascati (Roma), Italy
[23] Center for Research and Exploration in Space Science and Technology (CRESST) and NASA Goddard Space Flight Center, Greenbelt, MD 20771, USA
[24] Department of Physics and Center for Space Sciences and Technology, University of Maryland Baltimore County, Baltimore, MD 21250, USA
[25] George Mason University, Fairfax, VA 22030, USA
[26] Laboratoire de Physique Théorique et Astroparticules, Université Montpellier 2, CNRS/IN2P3, Montpellier, France
[27] Department of Physics, Stockholm University, AlbaNova, SE-106 91 Stockholm, Sweden
[28] The Oskar Klein Centre for Cosmoparticle Physics, AlbaNova, SE-106 91 Stockholm, Sweden
[29] Université Bordeaux 1, CNRS/IN2p3, Centre d'Études Nucléaires de Bordeaux Gradignan, 33175 Gradignan, France
[30] Dipartimento di Fisica, Università di Udine and Istituto Nazionale di Fisica Nucleare, Sezione di Trieste, Gruppo Collegato di Udine, I-33100 Udine, Italy
[31] Osservatorio Astronomico di Trieste, Istituto Nazionale di Astrofisica, I-34143 Trieste, Italy
[32] Max-Planck-Institut für Radioastronomie, Auf dem Hügel 69, 53121 Bonn, Germany
[33] Department of Physical Sciences, Hiroshima University, Higashi-Hiroshima, Hiroshima 739-8526, Japan
[34] INAF Istituto di Radioastronomia, 40129 Bologna, Italy
[35] Center for Space Plasma and Aeronomic Research (CSPAR), University of Alabama in Huntsville, Huntsville, AL 35899, USA
[36] Dr. Remeis-Sternwarte Bamberg, Sternwartstrasse 7, D-96049 Bamberg, Germany
[37] Erlangen Centre for Astroparticle Physics, D-91058 Erlangen, Germany
[38] Universities Space Research Association (USRA), Columbia, MD 21044, USA
[39] Research Institute for Science and Engineering, Waseda University, 3-4-1, Okubo, Shinjuku, Tokyo 169-8555, Japan
[40] Cahill Center for Astronomy and Astrophysics, California Institute of Technology, Pasadena, CA 91125, USA
[41] Department of Physics and Department of Astronomy, University of Maryland, College Park, MD 20742, USA
[42] Istituto Nazionale di Fisica Nucleare, Sezione di Roma "Tor Vergata," I-00133 Roma, Italy
[43] Department of Physics and Astronomy, University of Denver, Denver, CO 80208, USA
[44] Hiroshima Astrophysical Science Center, Hiroshima University, Higashi-Hiroshima, Hiroshima 739-8526, Japan
[45] Institute of Space and Astronautical Science, JAXA, 3-1-1 Yoshinodai, Sagamihara, Kanagawa 229-8510, Japan; stawarz@astro.isas.jaxa.jp
[46] Max-Planck Institut für extraterrestrische Physik, 85748 Garching, Germany
[47] Max-Planck-Institut für Physik, D-80805 München, Germany
[48] Institut für Astro- und Teilchenphysik and Institut für Theoretische Physik, Leopold-Franzens-Universität Innsbruck, A-6020 Innsbruck, Austria
[49] Santa Cruz Institute for Particle Physics, Department of Physics and Department of Astronomy and Astrophysics, University of California at Santa Cruz, Santa Cruz, CA 95064, USA
[50] Department of Physics, University of Washington, Seattle, WA 98195-1560, USA
[51] Space Sciences Division, NASA Ames Research Center, Moffett Field, CA 94035-1000, USA
[52] NYCB Real-Time Computing Inc., Lattingtown, NY 11560-1025, USA
[53] Astronomical Observatory, Jagiellonian University, 30-244 Kraków, Poland
[54] Astro Space Center of the Lebedev Physical Institute, 117810 Moscow, Russia
[55] Department of Chemistry and Physics, Purdue University Calumet, Hammond, IN 46323-2094, USA
[56] Institució Catalana de Recerca i Estudis Avançats (ICREA), Barcelona, Spain
[57] Consorzio Interuniversitario per la Fisica Spaziale (CIFS), I-10133 Torino, Italy
[58] INTEGRAL Science Data Centre, CH-1290 Versoix, Switzerland
[59] Dipartimento di Fisica, Università di Roma "Tor Vergata," I-00133 Roma, Italy
[60] Space Science Institute, Boulder, CO 80301, USA

Table 1. Groups of words that look like synonyms, but are often incorrectly used.

error, uncertainty, mistake, defect, flaw, blunder	scatter, noise
dimension, size, extent, extension	trend, pattern
regression, correlation, fit	chance, probability
confidence, significance	amplitude, range, power
standard star, comparison star	flux, intensity, luminosity
seeing, scintillation, scattering	precision, accuracy
color index, filter, passband, color	robust, stable
standard, classic, normal, default	parameter, variable, estimate
misbehavior, misconduct, misdemeanor	symmetry, isotropy
define, postulate, speculate	bias, residual
parameter, observable, factor	minimum, lower bound
colloquium, symposium, conference	maximum, upper bound
presentation, talk, lecture, seminar, class	typeface, font, type
supervisor, mentor, coach, patron, boss, sponsor	retention, secretiveness
do, perform, conduct, carry out	great, large, big
period, frequency, mode, harmonic	simple, elegant, elementary
fact, observation, measurement	randomness, entropy, chaos
model, doctrine, theory, hypothesis, mechanism	duplication, redundancy
supposition, proposition, assumption, premiss	mean, average
example, metaphor, conjecture	consideration, thought
prove, claim, maintain, demonstrate, verify, contend	invention, discovery, insight
assert, avow, support, advise, suggest, establish	significant, relevant
predict, anticipate, forecast, foresee	whole, complete, entire
instructions, guidelines, requirements, rules	mention, cite, quote, refer
calculate, compute, reckon, count	emulate, simulate
authenticity, integrity, honesty	code, algorithm, program
expect, believe, suppose, estimate, guess, think	intercept, zero point
excellent, good, satisfactory, acceptable, sound	pleasing, dependable
tutorial, guide, manual, treatise, memoir	manuscript, paper, text
absolute, relative, differential	ask, suggest, recommend
explain, understand, apprehend, comprehend	inconceivable, impossible
confirm, affirm, corroborate, validate	induce, conclude
entail, implicate, impose, imply	luck, chance, serendipity
enormous, immense, indefinite, infinite, innumerable	refute, overthrow
copyright infringement, (self-)plagiarism, paraphrase	repeat, replicate
jargon, terminology, nomenclature	construe, interpret
capture, acquire, sample	analyze, reduce, process
discern, distinguish, recognize, scrutinize	utilize, use, apply
invent, contrive, formulate, imagine, devise	revise, review, referee

English is a very confusing language!

Be very careful with translation, and never write your paper first in your native language for translation afterwards (by yourself, or by a friend): **there is a real danger that the translation process changes your message**.

- No excuse for spelling mistakes
- **No excuse for bad English if a co-author is a native English speaker**
- Use a dictionary
- Don't be afraid to ask for help!

"The difference between the almost right word & the right word is really a large matter--it's the difference between the lightning bug and the lightning." – Mark Twain

Sterken 2011, paper 1

Paper Abstract

1. *WHY* was this research undertaken, and what is the objective of this study;
2. *HOW* did you do the research (observations, theory, calculations)
3. 3. *WHAT* are the new results, and what do these new results mean,

- ❑ be simple (ApJ has 250-word limit)
- ❑ "one sentence" on why the problem is interesting
- ❑ just tell what you did
- ❑ "one sentence" on the implications
- ❑ A&Ap recommends "structured" abstracts:

(see the editorial published by Bertout & Schneider 2005). Just like a traditional abstract, a structured abstract summarizes the content of the paper, but it does make the structure of the article explicit and visible. For doing so, the structured abstract uses headings that de- fine several short paragraphs. Three paragraphs, entitled *Aims, Methods* and *Results*, are mandatory. When appropriate, the structured abstract may use an introductory paragraph entitled *Context*, and a final paragraph entitled *Conclusions*.

Paper introduction

- **introduce, don't argue**
- **Introduce, don't conclude**
- Remember, you are trying to get the reader interested in your paper
- first paragraph: talk about "the universe"
- discuss briefly the background
    - just enough that the non-specialist can understand the subject
- too many citations are as bad as too few citations
- give a simple reason why you did this study
- what good will come by attacking other people here?
    - or in any other part of your paper?
- don't kill the interest with acronyms
- no, not everyone knows COROT from Kepler from …
- last paragraph: OK to say what is in each section, but not necessary
- make sure that the introduction is not a very large part of the paper!
- everyone's writing style is different, but take great care here

what have I learned, continued:

EITHER: observations/reductions section

- give all relevant observational parameters
  - many people forget that there are lots of photometric systems
  - field sizes of images, spectral resolving power (OFTEN these simple things are missing)
  - don't spend a lot of text on reductions unless there is critical information (I do understand that IRAF made you suffer …)

OR: theoretical methods section

- your own methodology?
  - why was it necessary (did you reinvent the wheel?)
  - REALLY what are its assumptions
  - no free parameters? Sure, sure, I'll just trust you on this …
- modification of someone else's methodology?
  - this is a BIG problem; have you done anything new?
  - how did you really check your methodology?
  - can someone else figure out your method, and reproduce it

what have I learned, continued:

Results section

- just give the results!
  - don't confuse this with "discussion" or "implications"
  - many people will skip from the introduction to this section; work hard on clarity here
  - this is usually where the most useful tabular information is put
  - numbers here must be trace-able back to previous material

Discussion

- yes, you can speculate
  - don't make the fun ideas obscure your results
  - here is where you can put the rest of the needed citations
  - keep the speculation "in bounds", anchored to your work
  - don't ramble on indefinitely

Figures, etc.

Figures

- ❑ these tell your story
  - ❑ problems: tiny fonts, thin lines, too many lines, confusing axes
  - ❑ color? very cool, but 7% of men are color-blind; be clear
  - ❑ silly color (one straight line in red …)
  - ❑ color in print? I would not worry about this at all
  - ❑ too many panels in multi-panel figures (even in electronic era)
  - ❑ why do we need to see every spectrum or every simulation?

Layout

- ❑ obscure or non-existent sectioning
- ❑ too many tiny sections
- ❑ improper citation/bibliography format
- ❑ bad spelling (no excuse here)
- ❑ confusing grammar
  - ❑ no, scientific editors NEVER fix this
  - ❑ mostly this is ***not*** a native-language problem; *you are confused scientifically*

A helpful warning list from Sterken

- using software that you have not mastered, and letting its wizard take over
- referring to Figures and Tables that are not included in the text;
- including Figures and Tables to which you do not refer in the text;
- placing Figures and Tables out of order, or too far away from the discussion;
- **thin lines;**
- **unlabeled axes;**
- **too small text labels;**
- using a medley of fonts;
- errors in textual elements, to be avoided by copy & paste instead of retyping;
- wasting valuable space, especially white space around Figures;
- **poor contrast with background, resulting in invisible labels;**
- mixing 1- and 2-column graphics on the same page;
- destroying artwork by sloppy digitization;
- undocumented image enhancement that manipulates the image towards an aesthetically pleasing result at the cost of data fidelity;
- bad multipliers on axes;

The “don’ts” of graphics from Sterken (cont)

- **inconsistent design of graphics in a multi-authored paper;**
- using all capitals in axis titles and legends;
- **omission of units of measure;**
- ticks interfering with the data;
- mixing decimal dots and commas in graph labels and in tabular entries;
- fake perspectives;
- omission of axes;
- using color only for data separation (a fatal error in research-grant applications);
- too dense axis labels;
- varying zoom percentages;
- needless resampling of images to fit the size planned for print;
- image rotations that involve resampling;
- 3-D graphics where the extra dimension is not needed, and
- **bending the rules of statistics to prove your point.**

how about using material that others have written?

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how about reusing other published stuff?

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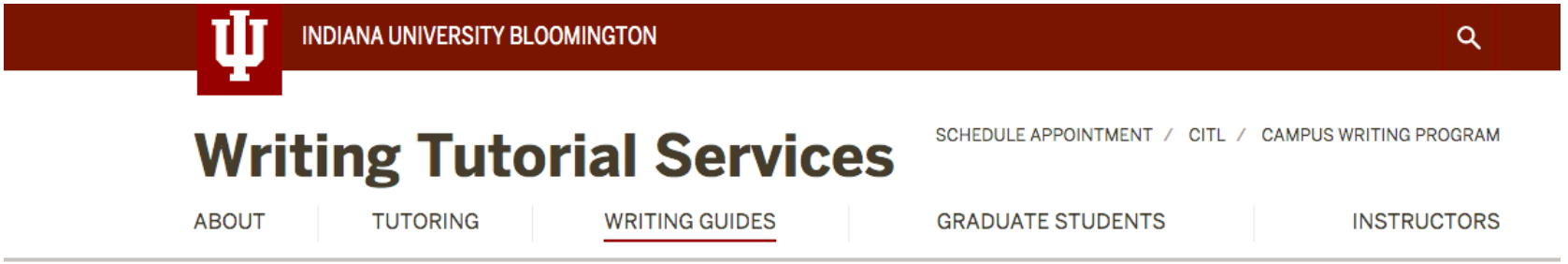
I have a simpler question: why do you want to do this?

The typical attempt will involve copying a figure from another paper

The procedure is complicated

What is it that you are trying to show? Your work is supposed to be new.

Plagiarism (site for students but generally good



Home / Writing Guides

PLAGIARISM

Plagiarism: What It is and How to Recognize and Avoid It

What is Plagiarism and Why is it Important?

In college courses, we are continually engaged with other people's ideas: we read them in texts, hear them in lecture, discuss them in class, and incorporate them into our own writing. As a result, it is very important that we give credit where it is due. Plagiarism is using others' ideas and words without clearly acknowledging the source of that information.

How Can Students Avoid Plagiarism?

To avoid plagiarism, you must give credit whenever you use

- another person's idea, opinion, or theory;
- any facts, statistics, graphs, drawings—any pieces of information—that are not common knowledge;
- quotations of another person's actual spoken or written words; or
- paraphrase of another person's spoken or written words.

https://wts.indiana.edu/writing-guides/plagiarism.html

Ethical Issues: misconduct

'Figures often beguile me, particularly when I have the arranging of them myself; in which case the remark attributed to Disraeli would often apply with justice and force: "There are three kinds of lies: lies, damned lies and statistics."' – Mark Twain

RESEARCHER MISCONDUCT

- Amplification of work
- *Secrecy and secretiveness*
- Forging
- Trimming
- *Cooking*
- Data Manipulation
- Image Manipulation

AUTHOR MISCONDUCT

- *Lying about publication status*
- *Cascade submissions*
- Omitting author names
- Incorrect authorship order
- Adding noncontributing authors
- *Refusal to accept responsibility*
- Abusing the refereer
- Misqoutation, mis-citation
- Hoaxes
- Copyright infringement
- *Plagarism*
- *Dual and redundant publications*

Sterken (2011) paper 3: types of "misconduct"

“Crackpot” (= crazy = unscientific = …) papers: how to identify them

First: what fraction (or %) are written by women, and what is your explanation?

An example of “unusual” theories that are in this category:

NuclearPlanet.com

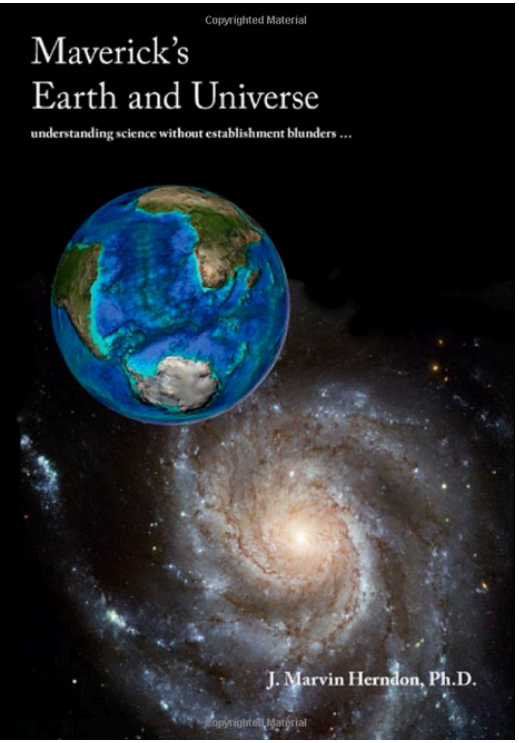
Science About the True Nature of Earth and Universe

"The purpose of science is to discover the true nature of Earth and Universe and to share that knowledge with people everywhere. That's what I do." **-- J. Marvin Herndon, Ph.D.**

Humans tend to be creatures of habit, plodding along through time, eagerly looking toward the future, but rarely looking with question at circumstances from the past which have set them on their present course. Much of astrophysics and geophysics has been built upon flawed ideas that are 40 or more years old. J. Marvin Herndon, pictured at left, has discovered and corrected past flaws. The consequence is a whole different way of understanding Earth and Universe that is securely anchored to the properties of matter. Sharing that understanding is what this website is all about.

http://www.nuclearplanet.com/

Herndon is persistent and likes to fight



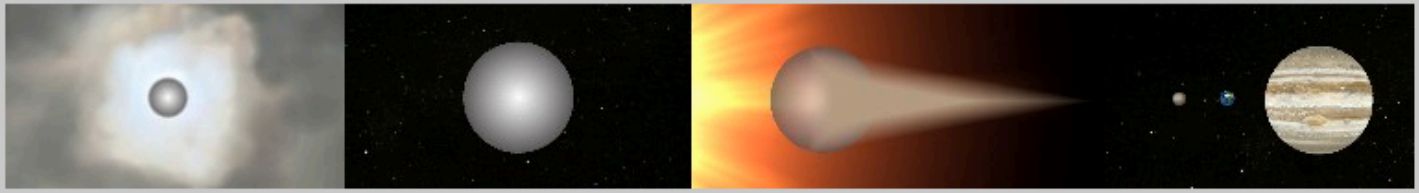
https://books.google.it/books?id=-77Nwoh9GCoC&pg=PT136&dq=amazon+mavericks++herndon&hl=it&sa=X&ved=0ahUKEwjet4Obiv_NAhUEUBQKHQ5CCh4Q6AEIJzAA#v=onepage&q=amazon%20mavericks%20%20herndon&f=false

On May 8, 2006, I received notification that publication was being denied. The Editor of *Astrophysical Journal Letters*, in rejecting the manuscript, wrote, "I am sorry, but this reviewer (who is one of the world's leading workers in this field) does not believe your ideas are tenable. I have considered the matter and find that I am in agreement with the reviewer." A copy of the very few words by the secret reviewer stated, "The proposed theory of Population III dark stars is at odds with decades of research."

On January 24, 2007, I made a formal request to the Johns Hopkins University faculty member serving as Editor-in-Chief of the *Astrophysical Journal* that, because of a conflict of interest and an institutional conflict of interest, the editorial handling of my pending *Astrophysical Journal Letters* manuscripts should be removed from the influence of the current Editor of *Astrophysical Journal Letters* and from the influence of other personnel at the University of Texas. But the Editor-in-Chief of the *Astrophysical Journal* refused to act to avoid a conflict of interest situation. Clearly, my having made a formal complaint to the President of the University of Texas at Austin alleging academic malfeasance by that Editor, and my having filed a formal complaint to the American Astronomical Society, is certainly reason to believe that a lack of objectivity condition might well exist or at least appear to exist.

A specific example from Herndon

Early Earth Formation as a Jupiter-like Gas Giant



J. Marvin Herndon's concept of Earth originally having formed as a Jupiter-like gas giant leads to a new vision of Earth's internal composition, new geodynamics that correct and extend plate tectonics, powerful new energy sources (stored energy of protoplanetary compression and nuclear fission georeactor energy), georeactor magnetic field generation, and a new concept for the formation of fold-mountain ranges that does not necessitate plate collisions. In short, a whole new indivisible geoscience paradigm, securely anchored to the properties of matter as described in detail under various relevant headings below on this website.

NOW: see this commentary

boing boing

Crackpots, geniuses, and how to tell the difference

Maggie Koerth-Baker at 2:10 pm Tue, Jul 10

Differentiating between unusual legitimate papers and crackpot ideas

http://boingboing.net/2012/07/10/crackpots-geniuses-and-how-t.html

So how do we know who to trust?

I don't think I have a perfect answer for that, but looking at books like Herndon's and those Creationist biology texts, I have a couple suggestions:

1) If it makes a really nice story, ask for the details.

2) If the proof seems self-evident (i.e., it's just good common sense), ask more questions.

3) If believing the idea will make you smarter than the official experts, be suspicious.

4) If the studies used to prove it are really old, or if there's only a few of them, dig deeper.

5) If you're told you can't trust any other sources of information (especially because of Big Conspiracy, or because so-and-so expert is a bad person in other areas of his or her life), be cautious.

From Prof. Hermann Grimmeiss <hermann.grimmeiss@ftf.lth.se>

Subject [UTEXAS: SUSPECTED SPAM] Needed your assistance me

To Chris Sneden

Reply | Reply All | Forward | Archive | Junk | Delete | More

1:46 PM

To protect your privacy, Thunderbird has blocked remote content in this message. Preferences

email received on July 18, 2016

Dear Dr. Chris Sneden,

For that reason I turn to you because I want to report a crime series, which happened and happening in these days also in the physics Nobel Committee and the whole physics community.

Andre Geim and Konstantin Novoselov in 2006 created their first graphene. For 10 years hasn't been application area of the graphene.

According to the justification of the Nobel Committee in 2010, the graphene transistors are predicted to be substantially faster than today's silicon transistors and result in more efficient computers.

The silicon is a semiconductor material. It is therefore suitable for making transistors. Therefore the graphene transistor is fully a nonsense imagining because the graphene is not a semiconductor, it is a very good electrical conductor. In regard of the last 10 years Andre Geim and Konstantin Novoselov received their Nobel Prizes and 10 million Swedish Korona for the NOTHING.

The Hungarian physicist Gabor Fekete demonstrated that the modern physics is a full pseudo-science in hundred percent degree and he described with eight digit accuracy the electromagnetic physics of photons, X-ray-photons, gamma-photons, muons, electrons and all atoms, thus solving all the problems in particle and nuclear physics. He also gave a new interpretation for the full spectrum of the hydrogen and described the strengthening points of all photons in the hydrogen atom.

At the same time he uncovered the fraud of the CERN manager Joseph Incandela and his team. Joseph Incandela and his team issued a speculative explanation. They said that they detected 133 proton mass Higgs boson. It proved to be a lie, because they detected only 4 muons and 2 photons. The mass of these is altogether 0.4 proton masses. Francois Englert and Peter Higgs received undeservedly their Nobel Prizes and 8 million Swedish Korona for their ridiculous boson theory and the fraud of the Incandela team.

please look for Gabor Fekete and his ArXiv interactions

Thanks!

Further questions:
chris@verdi.as.utexas.edu