

How to Publish without Perishing

Shobhana
Narasimhan

Jawaharlal Nehru
Centre for Advanced
Scientific Research

Bangalore

Career Development
Workshop for Women in
Physics

ICTP, Trieste

October, 2015



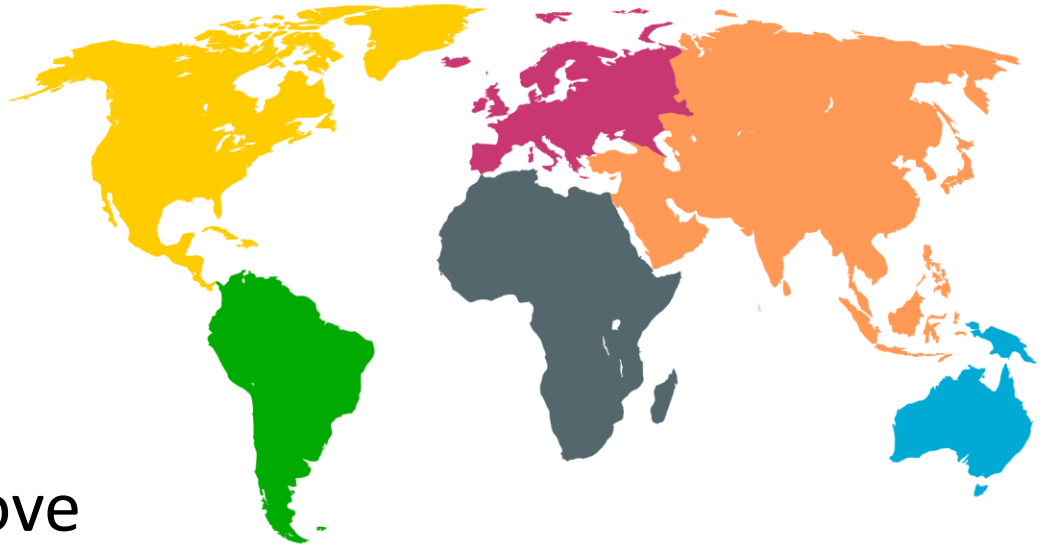
“Enforcing the publish
or perish rule, Dean McWit?”

1. **Login to the wifi** (details given on slip provided to you with your badge) if you haven't already done so, using your laptop or smart phone.
2. Using any web browser, go to **b.socrative.com/login/student**
3. Enter room number: **659414**

Test Question:

Which continent are you from?

- A. Africa
- B. Asia
- C. South America
- D. Europe
- E. None of the above

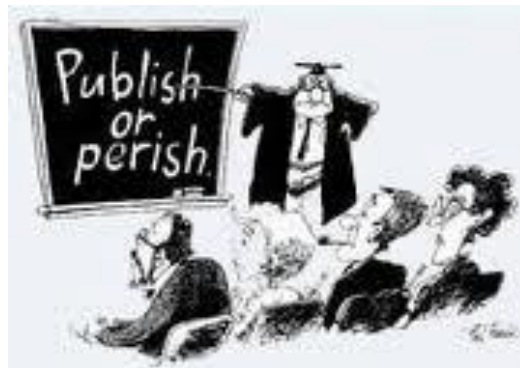


(Answer on b.socrative.com/login/student)

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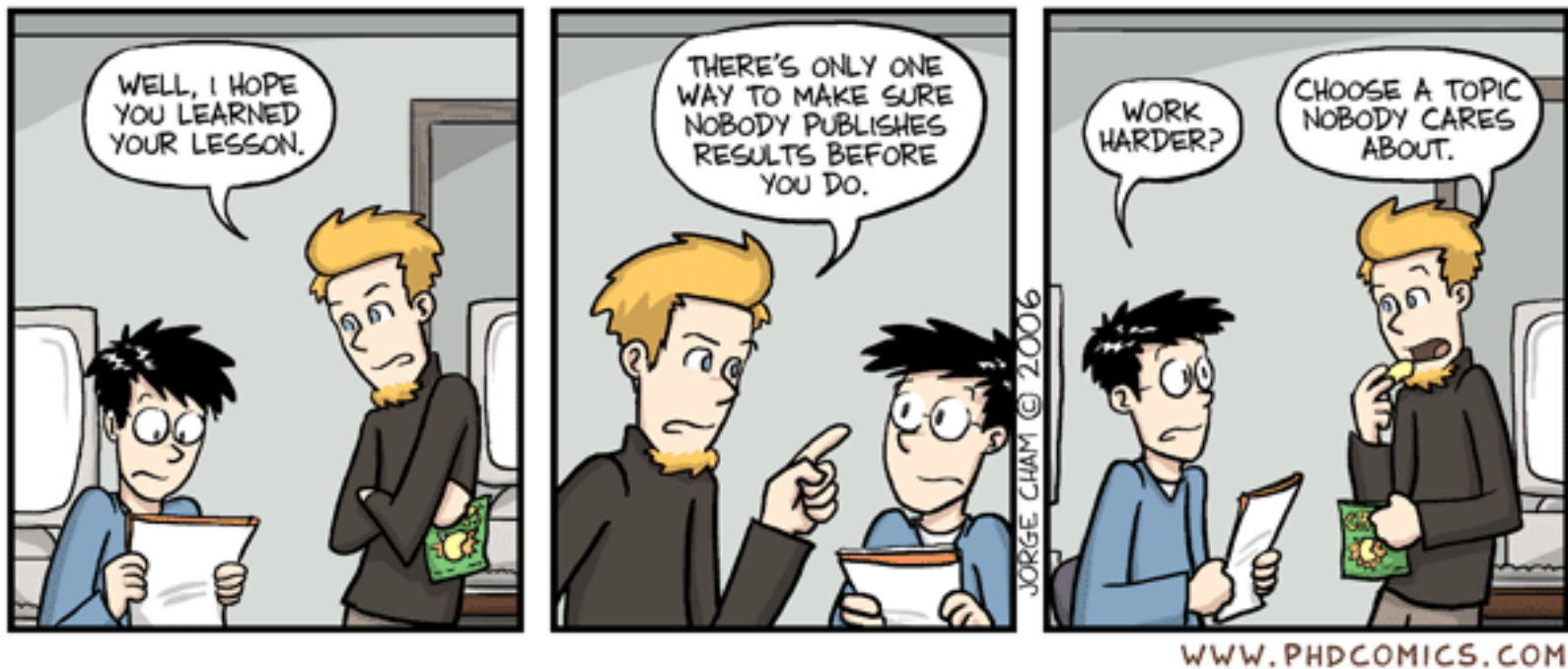
Decisions, decisions, decisions....

- When to publish.
- What to publish.
- Where to (try to) publish.
- How to get through the initial screening.
- How to get through the peer review process.



How to Decide When to Publish?

- Wait too long, and there is a danger you might be 'scooped'.
- However, if you publish too soon, your work may be incomplete and not make as much impact.



What to Publish?



- Long papers or short papers?
- Should you chop up your work into lots of little papers?
- Is it ok to publish (almost) the same work in different journals?
- Can you use the same figure in different papers?
- Can you use the same text in different papers?
- Should you write review articles about your own work?
- What should you place in Supplementary Material?

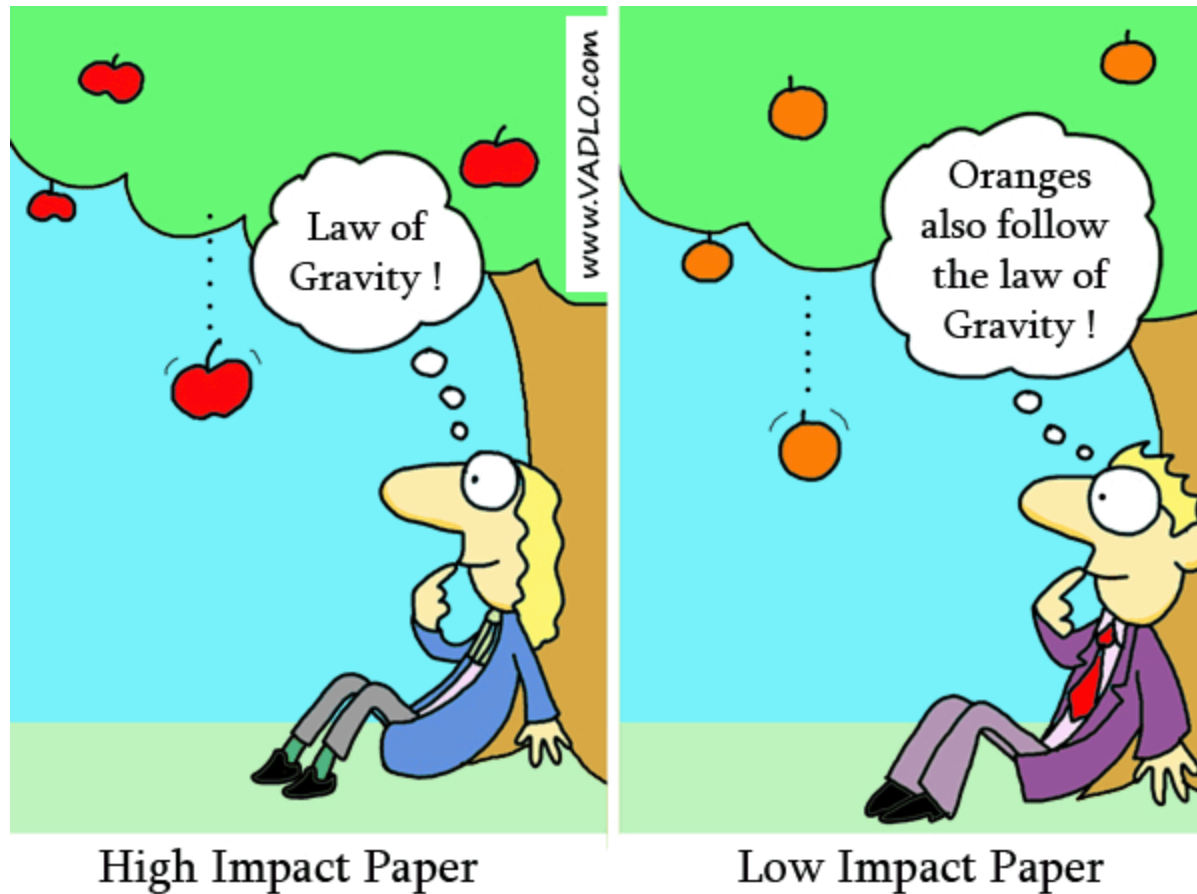
Grey Area?

- “There is nothing wrong in increasing the number of my publications by chopping up a piece of work into several related papers”
 - *Do you agree or disagree?*

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High Impact Science vs Low Impact Science



How to Increase Your Chances of Being Published in a Good Journal

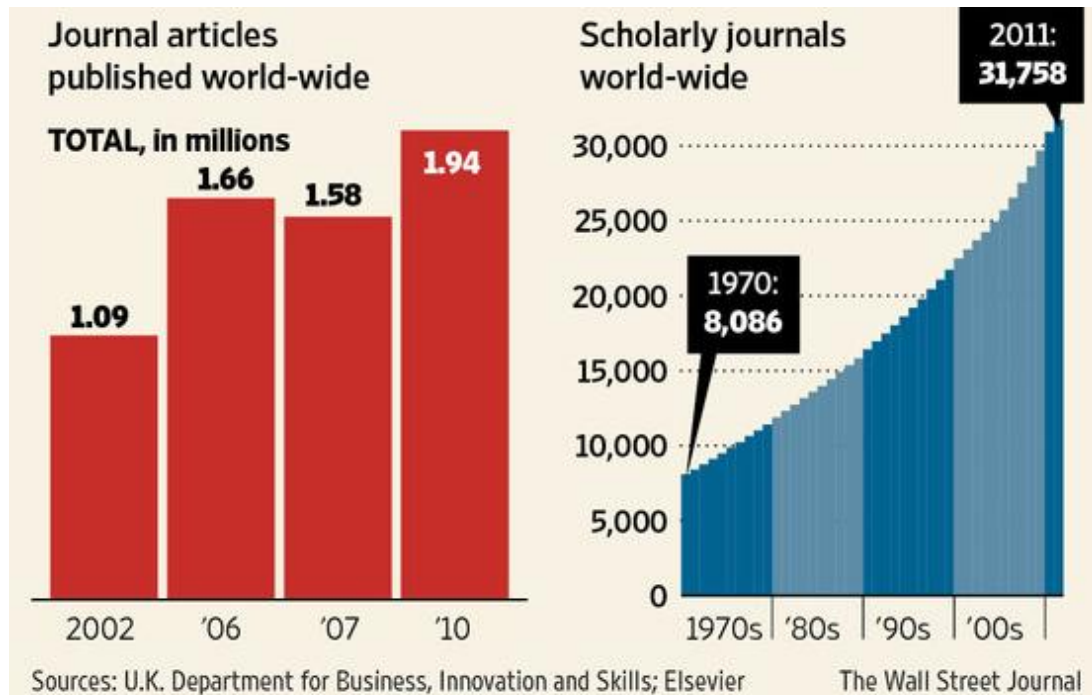
- Choose your journal carefully and appropriately.
- Write a good cover letter.
- Choose a good title for your paper.
- Write a good abstract
- Write well – not just good grammar, but also good style.
- Follow all journal guidelines.
- Have good graphics.
- Respond promptly, carefully, politely, strongly to referee comments.

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Which kind of journal to publish in?

- Conference Proceedings vs. Regular Journals
- Peer reviewed vs. non-peer-reviewed.
- International vs. from your country
- Letters/Communications vs. Regular Articles.



blogs.cureus.com

Which kind of journal to publish in?

- “International Journals” vs. “domestic” Journals
- Are all “international journals” the same?
- Should you pay to publish your article/book?
- (Should you agree to be an editor for a new journal?)



Good try Dr Brown, but an editorial in your Chess-Club Newsletter is not what I would call a peer-reviewed journal publication...

Impact Factor of Journal

- reflects average number of citations to recent articles in that journal. e.g.:

- Nature: 38.597
- Physical Review Letters : 7.728
- Canadian Journal of Physics : 0.928
- Pramana : 0.720
- Physica C: 0.718
- Physica Status Solida C: 0.550
- Acta Physica Polonica: 0.444
- Acta Crystallographica Section E: 0.347

Nationalism vs. Internationalism

- “I would publish in a journal published from my own country only as a last choice.”
 - *Do you agree or disagree?*

(Vote on b.socrative.com/login/student)

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Responding to “Invitations”

“ Dear Prof. Shobhana Narasimhan,

The journal **XXX** is a peer-reviewed international journal devoted to publishing timely, in-depth reviews and research articles on Nanomaterials, Biomaterials and Applied Chemistry.

XXX welcomes the submission of manuscripts that meet the general criteria of significance and scientific excellence, and will publish: **Original Research Article** and **(PhD) Reviews**.

With 6 issues per year, **XXX** is an open access journal, making all research results freely available online.

We are writing to invite you to consider submitting a proposal to edit a theme issue in a hot topic area. Your proposal should contain Title, Aims and Scope statement, keywords, your Curriculum Vitae including a list of your publications, a list of possible contributing authors and their institutional affiliations. Please submit your proposals to **review@XXX** or review and approval from the Editor-in-Chief.

We eagerly look forward to receiving your positive response in this regard. ”

What would you do??

“Predatory Publishers”

“International Journal on ZZZ

Calling papers for Volume 2 | Issue 9 | September 2014

Scientific Journal Impact Factor (SJIF) Value for 2013 is 5.098

Impact Factor (5.098)

Kindly send your paper / manuscript to us by mailing
to **editor@zzz.org**

Important Dates

Manuscript Submission : 30 September 2014

Acceptance Notification : Within 7 days

Manuscript Registration : Within 7 days after Review

Feedback

Manuscript Publication : Within 5 days after Registration

Publication Charges

Indian Authors : INR 2000

Foreign Authors : 100 USD ”

See www.scholarlyoa.com

To Pay or Not to Pay

- A. *I would never pay to get my paper published.*
- B. *I might consider paying to get my paper published, but only if it were in a very high impact factor journal.*
- C. *I would only pay the additional charges to get figures published in color in print.*
- D. *I think there is nothing wrong in paying to get a paper published.*

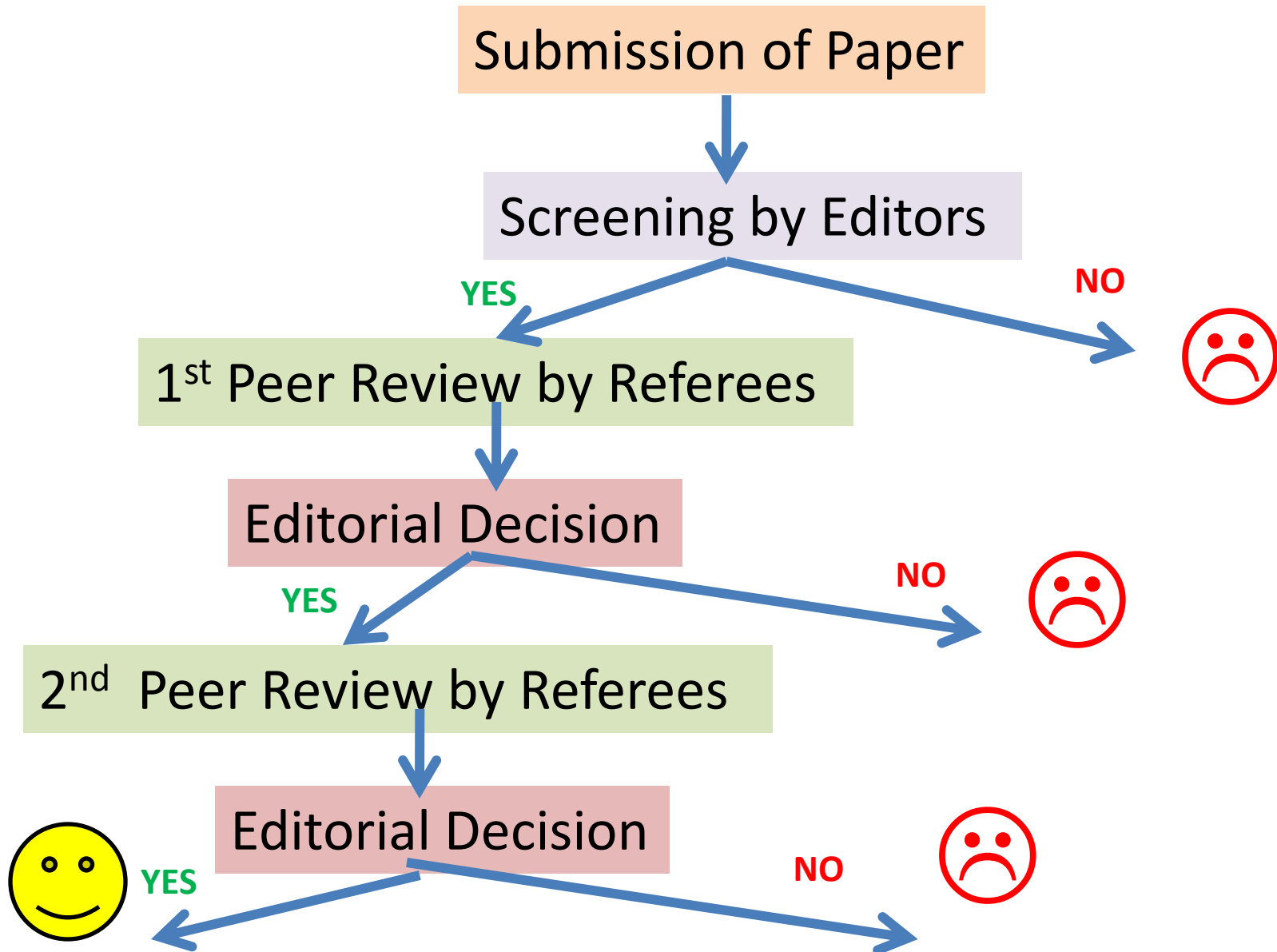
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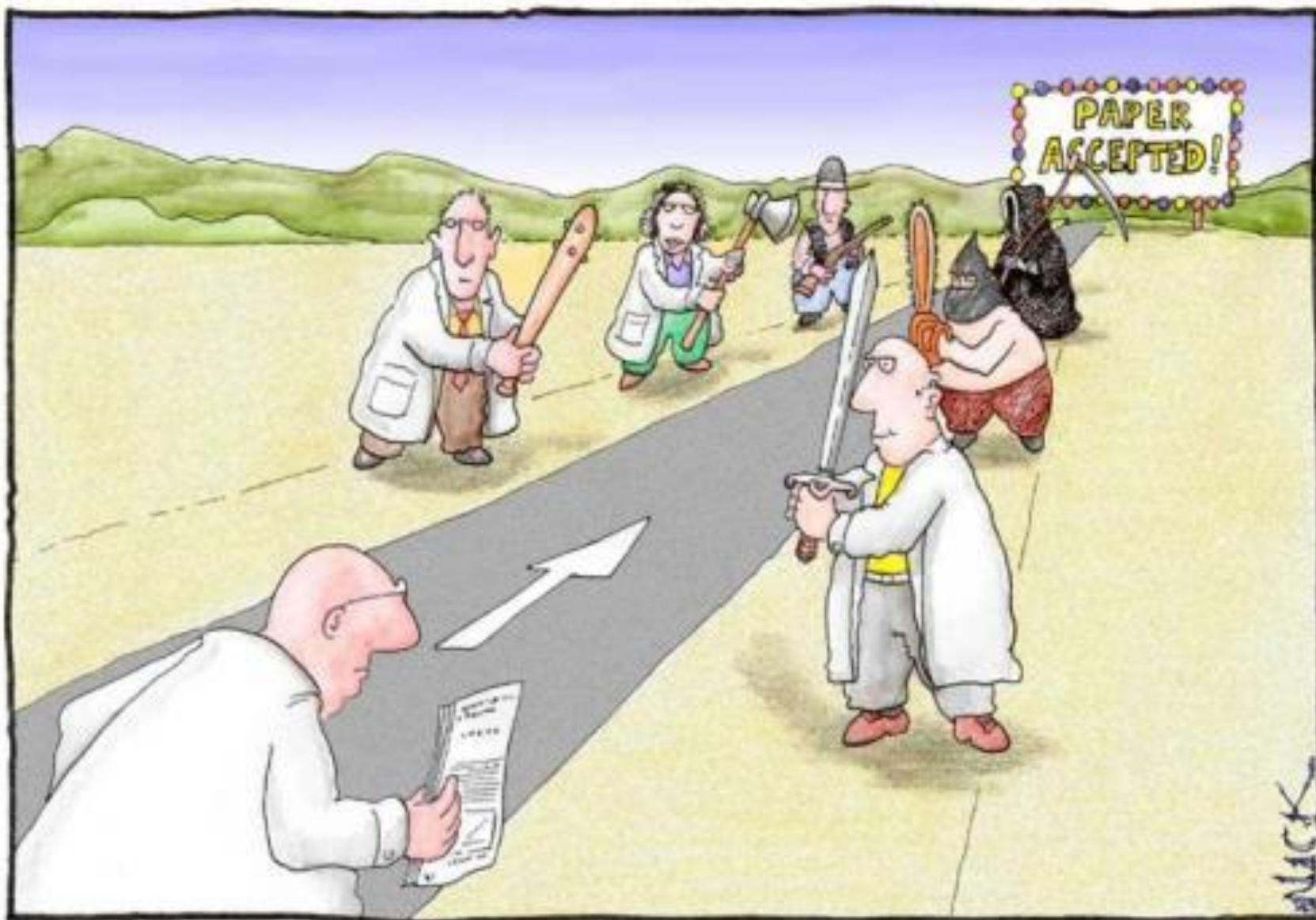
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Stages in Journal Publishing





Most scientists regarded the new streamlined peer-review process as "quite an improvement."

Stumbling At the First Step

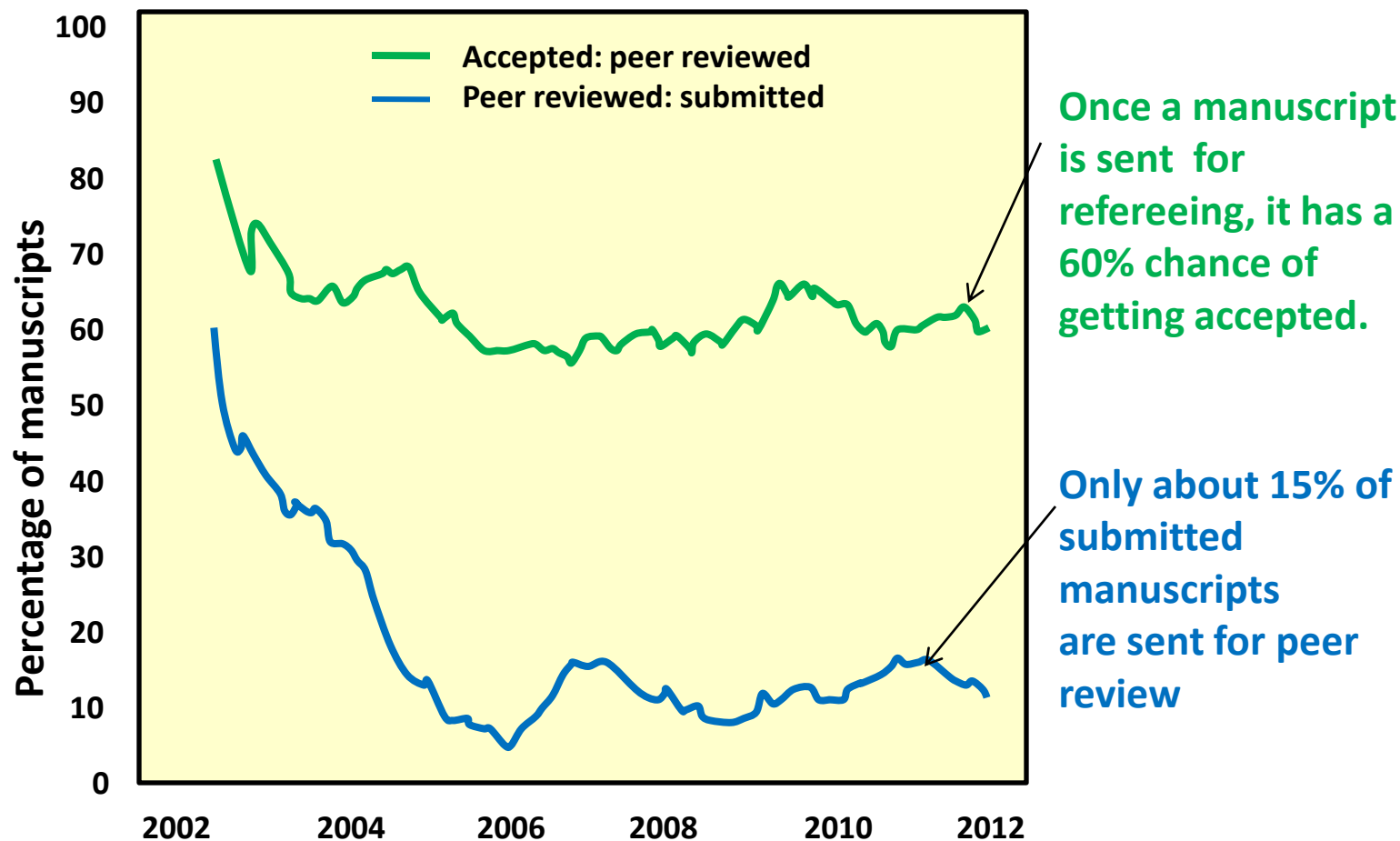
- Increasingly, many papers are getting rejected at the first step.
- i.e., the papers are getting rejected by the editors, and are not sent for refereeing.
- Depending on the journal, the editors may be working scientists, or professional editors (they will generally have a Ph.D.)
- Some journals allow you to pick the editor to whom your paper goes.



www.Vecto.rs - 23958

At What Stage are Papers Rejected?

e.g., Nature Materials:



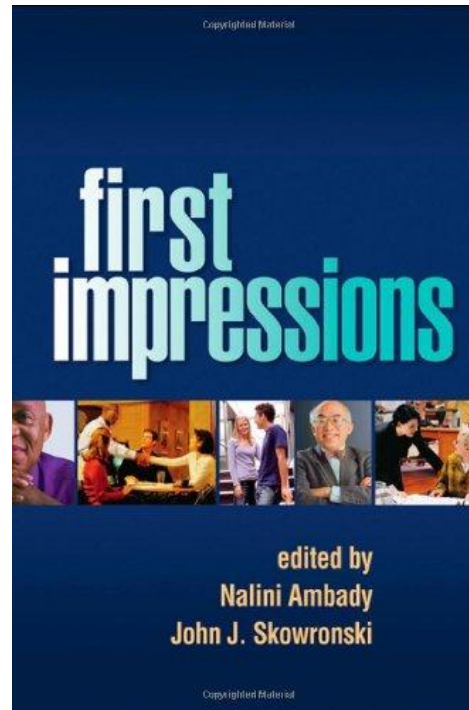
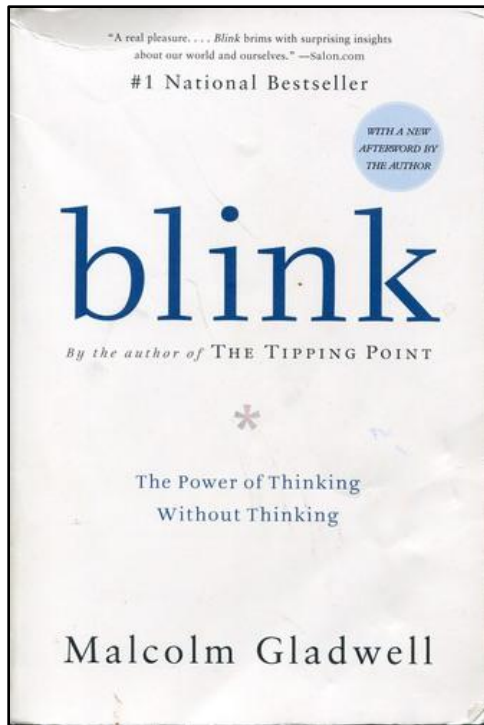
Data from Nature Materials **11**, 743 (2012).

Why might editors reject a paper at first stage?

- Subject inappropriate for journal.
- Very obviously badly written (bad grammar, spelling mistakes).
- Work doesn't seem interesting, timely, high impact.
- Editors will read **cover letter**, and (not always) paper.

“Blink”: Grabbing Attention

- Initial screening decisions by editors may be made very quickly.
- How can one make a very good first impression?



Nalini
Ambady

Cover Letter

- Letter of introduction/motivation that accompanies another letter/document.
- Used for:
 - job applications
 - grant applications
 - paper submissions

What Should the Cover Letter Do?

What Should the Cover Letter Do?

- State title and author names.
- State question being asked and why it is important.
- State your main result and what is special about it.
- Say who will be interested in your work and why.
- Suggest names of possible referees.
- Celebrity endorsements?!

How Long Should the Cover Letter Be?

2-4 paragraphs.

Ideally, not longer than 1 page.



I want my cover letter to be the one you remember. It's also available as a music video, interpretive dance, and a haiku.

A Cover Letter to JACS that ‘worked’-1

Dear Editors,

We wish to submit our paper entitled "Tuning the Morphology of Au clusters by Substrate Doping" as a Communication to JACS. We believe that while our paper contains state-of-the-art computational results, it is very simple conceptually but has wide-ranging technological implications that would be of interest to a large community of chemists, physicists and chemical engineers.

One of the most exciting developments in the last two decades, where the areas of nanotechnology and catalysis have overlapped, has been the discovery that nanoparticles of gold can act as catalysts, even though bulk gold is famously inert. The papers that have shown the catalytic properties of gold have been of wide general interest, and have been published in high-profile journals. One goal here is to control catalytic activity by controlling the shape of small clusters. This is of interest not just for nanocatalysis but also for possible applications in electronics and nanomagnetism.

A Cover Letter to JACS that 'worked'-2

In a series of landmark papers that were published in JACS and Phys. Rev. Lett., previous authors showed that 20-atom Au clusters could be coaxed into assuming a planar shape by either depositing them on ultrathin oxide layers on a metal substrate, or placing the entire system in a very high electric field. While this was of considerable fundamental interest, these earlier approaches did not easily lend themselves to practical application. In the present work, we suggest that a similar effect can be achieved in a conceptually elegant yet technologically much simpler way, viz. by doping the MgO substrate with Al atoms. Our calculations confirm that indeed this method results in a planar cluster shape being favored over a tetrahedral shape, by an energy difference that varies linearly with dopant concentration. We are confident that our results will be of interest to a wide readership, and therefore feel our paper is suitable for publication in JACS.

+ information about referees.

A Cover Letter to Nature that 'Worked'-1



Jawaharlal Nehru Centre for Advanced Scientific Research

Theoretical Sciences Unit

Jakkur P.O., Bangalore 560 064, India

Dr. [REDACTED]
Faculty Fellow

February 19, 2015
JNCASR Jakkur Campus

Philip Campbell
Editor
Nature
Porters South, 4, Crinan Street,
London N1 9XW
U. K.

RE: Submission of Manuscript "Fragility, Configurational Entropy and the Potential Energy Landscape of Glass Forming Liquids" by [REDACTED], as a Letter to Nature

A Cover Letter to Nature that Worked-2

Dear Dr. Campbell,

I would like to submit the enclosed manuscript, entitled “Fragility, Configurational Entropy and the Potential Energy Landscape of Glass Forming Liquids” for your consideration. I outline briefly below the significant findings reported in this manuscript and reasons why this manuscript deserves serious consideration for publication as a Letter to Nature.

The manuscript addresses the origin of “fragility” in a glass forming supercooled liquid, in terms of quantifiable features of the potential energy landscape of the liquid. The fragility measures how rapidly transport and relaxation properties of a liquid vary with temperature as it approaches the glass transition. Given the vast range of materials that form glasses, the idea of fragility has served as a very useful organising principle, although without a solid foundation of theoretical understanding. Till recently, the term “energy landscape” has been used in a qualitative fashion to describe the complexity of interactions between particles that make up a liquid, arising from the disorder in its structure. This situation has changed recently (see, e. g., [16], [17], [19] and [24] in the enclosed manuscript), and substantial progress has been made in providing a *quantitative* description. The present manuscript exploits this recent progress to develop and verify a quantitative theory of fragility. I study a realistic model of an atomic liquid and characterise its dynamics for a range of densities. The fragility varies as a function of the density of the liquid. I then calculate parameters required

A Cover Letter to Nature that Worked-3

in the landscape description to fully characterise the thermodynamics. Using such parametrisation, I construct a model for evaluating the fragility of the liquid as a function of the bulk density and show that they predict, on a thermodynamic basis, the fragilities observed from simulation data regarding the dynamics. Two significant outcomes of the analysis are (a) the prediction of the Vogel-Fulcher-Tammen-Hesse (VFT) form for the temperature dependence of dynamical quantities (which is a universally used form to describe low temperature dynamics of glass formers), with the VFT parameters expressed in terms of quantities that characterise the liquid's energy landscape. (b) a demonstration that in order to describe fragility properly, one must incorporate changes in the vibrational spectrum of liquids upon cooling. It has been observed by experimentalists over many years that vibrational spectra of liquids change significantly upon cooling; the present work incorporates and explains the precise role of such changes in vibrational properties within a successful theoretical framework. Thus, the results presented here constitute a substantial and definitive addition to our understanding of fragility in supercooled liquids from the thermodynamic viewpoint.

[Text regarding potential referees]

Sincerely,

██████████

Enc: (i) Manuscript, including figures and captions, as a postscript file. (ii) Three figures, as postscript files.

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- Choose your journal carefully and appropriately.
- Write a good cover letter.
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Let's Look at a Few Titles....

- “Observation of a rapidly pulsing radio source”
 - A Hewish, SJ Bell, JDH Pilkington, PF Scott, RA Collins, Nature, 1968
- “Discovery of Luminous Pulsed Hard X-Ray Emission from Anomalous X-Ray Pulsars 1RXS J1708–4009, 4U 0142+ 61, and 1E 2259+ 586 by INTEGRAL and RXTE”
 - L Kuiper et al., The Astrophysical Journal, 2006
- “Broken symmetries and the masses of gauge bosons”
 - P W Higgs, Physical Review Letters, 1964
- “Effects of charged Higgs bosons in the deep inelastic process $\nu_{\tau} \mathcal{N} \rightarrow \tau^- \mathcal{X}$ and the possibility of detecting tau-neutrinos at cosmic neutrino detectors”
 - MI Pedraza-Morales, A Rosado & H Salazar, Pramana, 2008
- “A high performance cathode for the next generation of fuel cells”
 - Z Xhao, S M Haile, Nature, 2004
- “A new symmetric solid-oxide fuel cell with $\text{La}_{0.8}\text{Sr}_{0.2}\text{Sc}_{0.2}\text{Mn}_{0.8}\text{O}_{3-\delta}$ perovskite oxide as both the anode and cathode.”
 - Y Zheng et al., Acta Materialia, 2009

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What is a Good Abstract?



The Abstract

- Understanding the Nucleation Mechanisms of Carbon Nanotubes in Catalytic Chemical Vapor Deposition:

H. Amara, C. Bichara, and F. Ducastelle

“The nucleation of carbon caps on small nickel clusters is studied using a tight binding model coupled to grand canonical Monte Carlo simulations. It takes place in a well defined carbon chemical potential range, when a critical concentration of surface carbon atoms is reached. The solubility of carbon in the outermost Ni layers, that depends on the initial, crystalline or disordered, state of the catalyst and on the thermodynamic conditions, is therefore a key quantity to control the nucleation.”

Do you think this is a good abstract? Why / why not?

The Abstract

Synthesis and characterization of water-soluble carbon nanotubes from mustard soot

PRASHANT DUBEY, DEVARAJAN MUTHUKUMARAN, SUBHASHIS DASH, RUPA MUKHOPADHYAY and SABYASACHI SARKAR

“Carbon nanotubes (CNT) has been synthesized by pyrolysing mustard oil using an oil lamp. It was made water-soluble (wsCNT) through oxidative treatment by dilute nitric acid and was characterized by SEM, AFM, XRD, Raman and FTIR spectroscopy. The synthesized wsCNT showed the presence of several junctions and defects in it. The presence of curved graphene structure (sp²) with frequent sp³ hybridized carbon is found to be responsible for the observed defects. These defects along with the presence of di- and tri-podal junctions showed interesting magnetic properties of carbon radicals formed by spin frustration. This trapped carbon radical showed ESR signal in aqueous solution and was very stable even under drastic treatment by strong oxidizing or reducing agents. Oxidative acid treatment of CNT introduced several carboxylic acid group functionalities in wsCNT along with the nicking of the CNT at different lengths with varied molecular weight. To evaluate molecular weights of these wsCNTs, an innovative method like gel electrophoresis using high molecular weight DNA as marker was introduced.”

Do you think this is a good abstract? Why / why not?

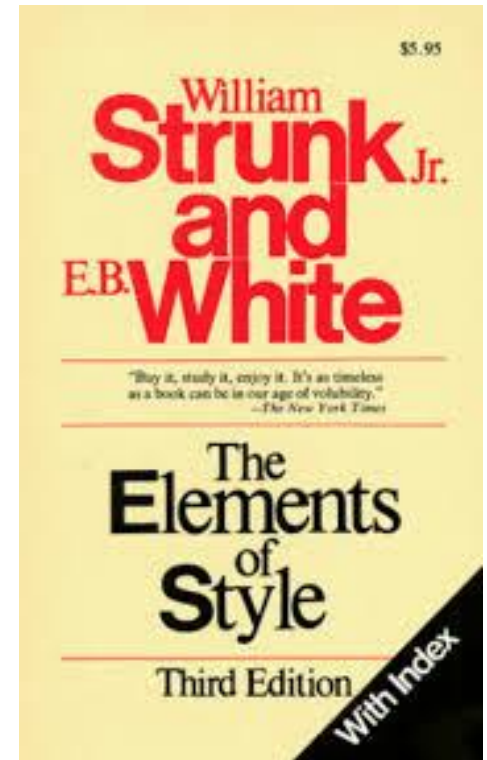
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Style

Before submitting your paper, go over it carefully, to see if you can improve the **style of writing**.

“Who can confidently say what ignites a certain combination of words, causing them to explode in the mind? Who knows why certain notes in music are capable of stirring the listener deeply, though the same notes slightly rearranged are impotent? These are high mysteries...”



Writing Style: Do Words Matter?

Which of these do you like best? (from Strunk & White)

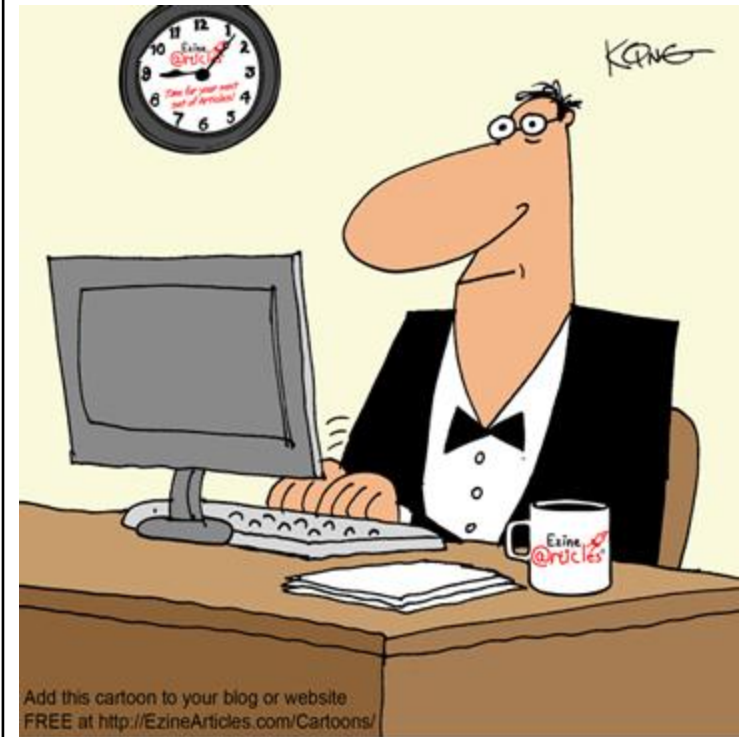
- A. *“These are the times that try men’s souls.”*
- B. *“Times like these try men’s souls.”*
- C. *“How trying it is to live in these times!”*
- D. *“Soulwise, these are trying times.”*
- E. *All of the above seem the same to me.*

(Vote on b.socrative.com/login/student)

Room No. 659414

Writing Style

- Depends on journal and intended audience.
- Decide on amount of **detail** supplied, and **jargon** used.
- **Active voice** or **passive voice**?
e.g., “**We performed experiments** that show...” or “**Experiments were performed** that show...”
- Consider re-writing if you are re-submitting to another journal.



On the advice of his readers, Jeffery decided to adopt a more formal writing style.

Writing Style

- A general rule: Omit needless words.

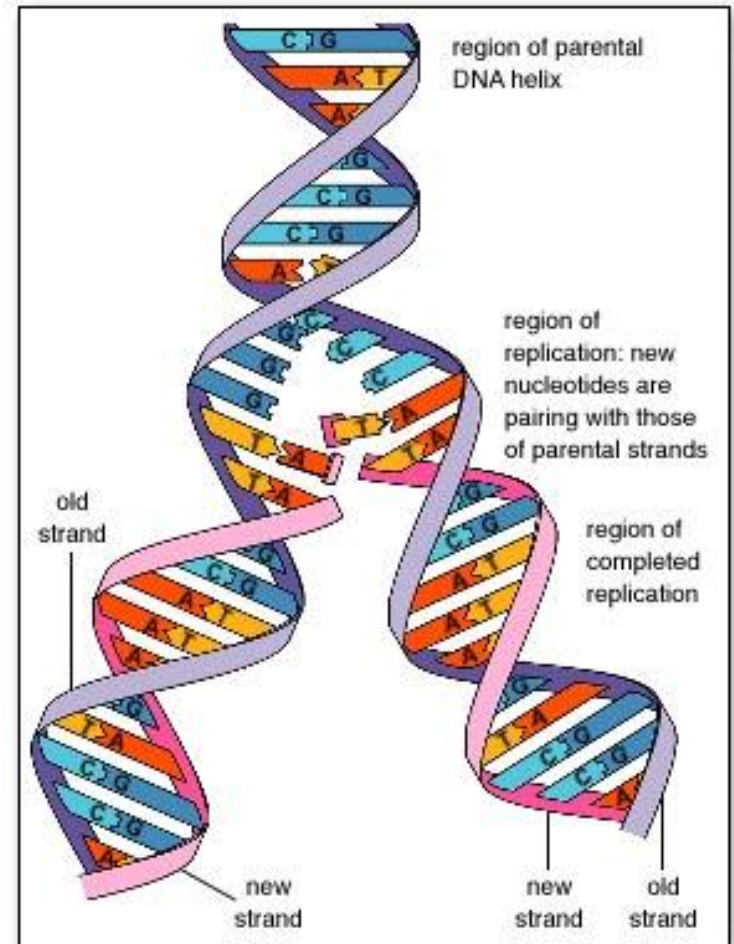
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"To make a long story short, what it all boils down to in the final analysis is that what you should take away from this is..."

The Double Helix Structure of DNA



Watson & Crick's DNA paper

1st sentence:

“We wish to suggest a structure for the salt of deoxyribose nucleic acid (D.N.A.).”

-Do you like this? If you were writing the paper, would you have used another first sentence?

2nd sentence:

“This structure has novel features which are of considerable biological interest.”

-

Watson & Crick's DNA paper (contd.)

Last sentence:

“It has not escaped our notice that the specific pairing we have postulated immediately suggests a possible copying mechanism for the genetic material.”

- A. *“I feel this is a very good last sentence”*
- B. *“I feel the authors should have been more explicit here”*
- C. *“I feel the authors are showing off too much in this sentence”.*

(Answer on b.socrative.com/login/student) Room No. 659414

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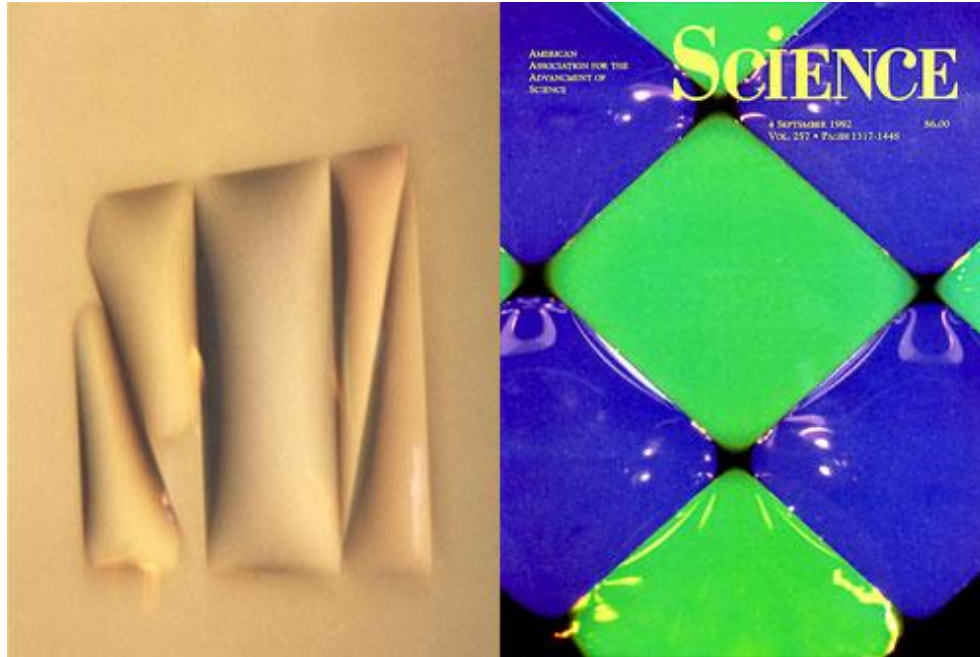
Journal Style Files

- Give information about how to **format** your text, figures and tables.
- **Templates** frequently available online.
- Decide whether to use **LaTeX** or **MS-Word**.
- Remember to stick to **length limits** (if any) for abstract and paper.
- Use **citation style** appropriate to journal (if your software doesn't do it automatically for you):
 - (86) Mammen, N.; Narasimhan, S.; de Gironcoli, S. *J. Am. Chem. Soc.* **2011**, *133*, 2801–2803.
 - ¹⁹N. Mammen, S. Narasimhan, and S. de Gironcoli, *J. Am. Chem. Soc.* **133**, 2801 (2011).

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Striking Figures



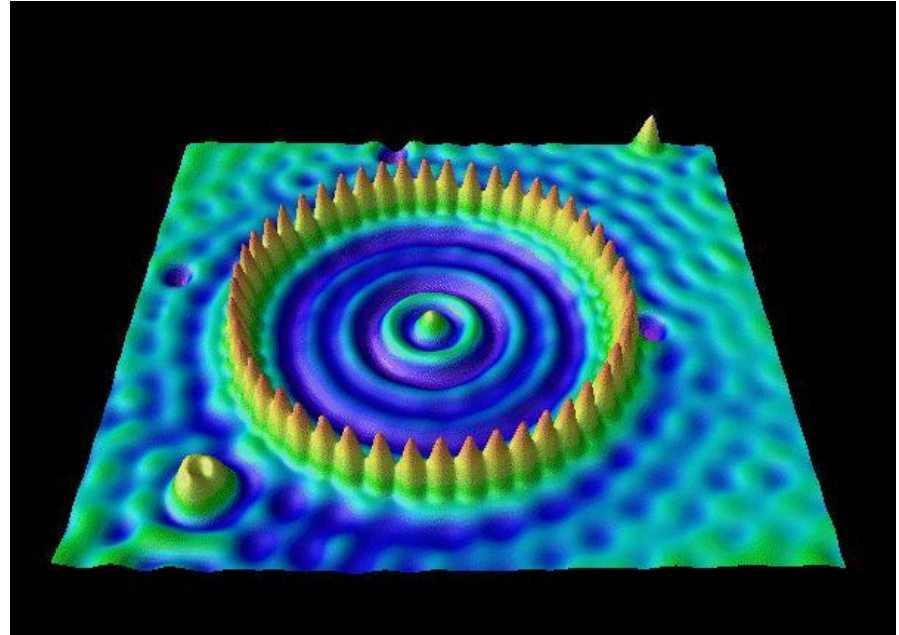
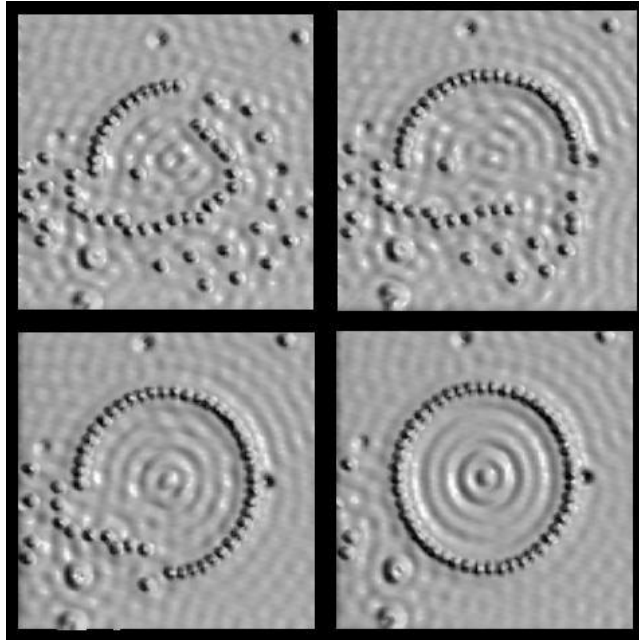
George Whitesides & Felice Frankel

- A. I like the figure on the left better, mostly because it is monochrome.
- B. I like the figure on the left better, mostly because the lines are asymmetric.
- C. I like the figure on the right better, mostly because of the colours.
- D. I like the figure on the right better, mostly. because of the square patterns.
- E. I think the left is better for 'science' but the right is better for 'Science' cover page. (Answer on b.socrative.com/login/student) Room No. 659414

Striking Figures - Colorization?

The 'quantum corral' [Fe/Cu(111)]

[Eigler et al.]

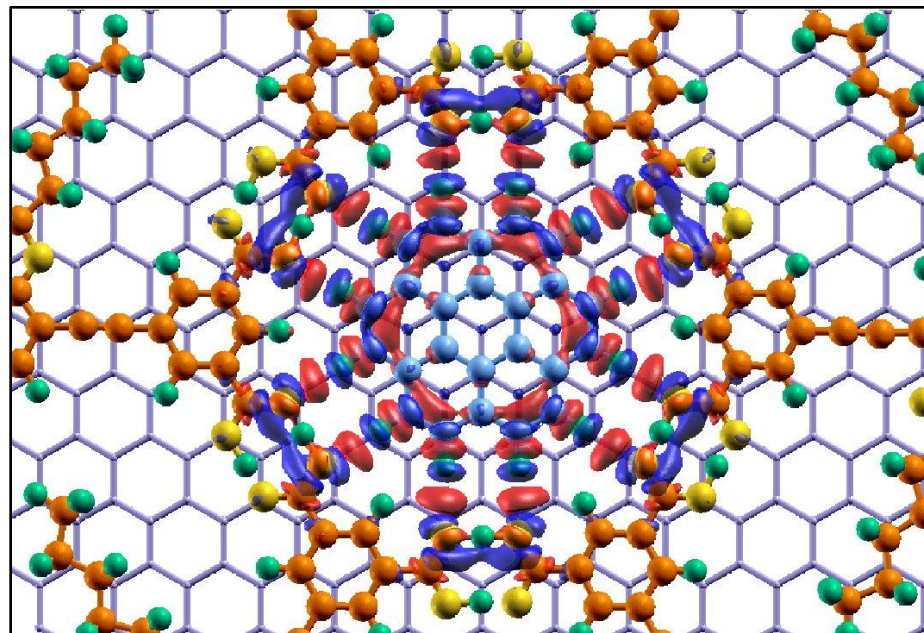
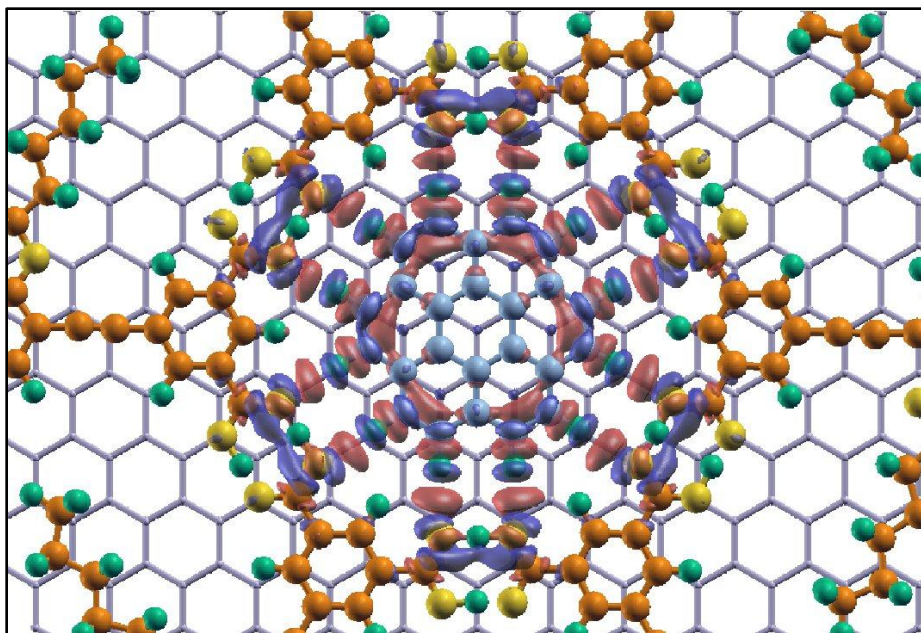


- A. I like the figure on the left better because it is in black and white.
- B. I like the figure on the left better because it shows the process of assembly.
- C. I like the figure on the right better because it is in color.
- D. I think the figure on the left is 'science' and the figure on the right is cover art.

(Answer on b.socrative.com/login/student) Room No. 659414

Use Photoshop or Gimp!

(as long as you don't lose or fake scientific content)

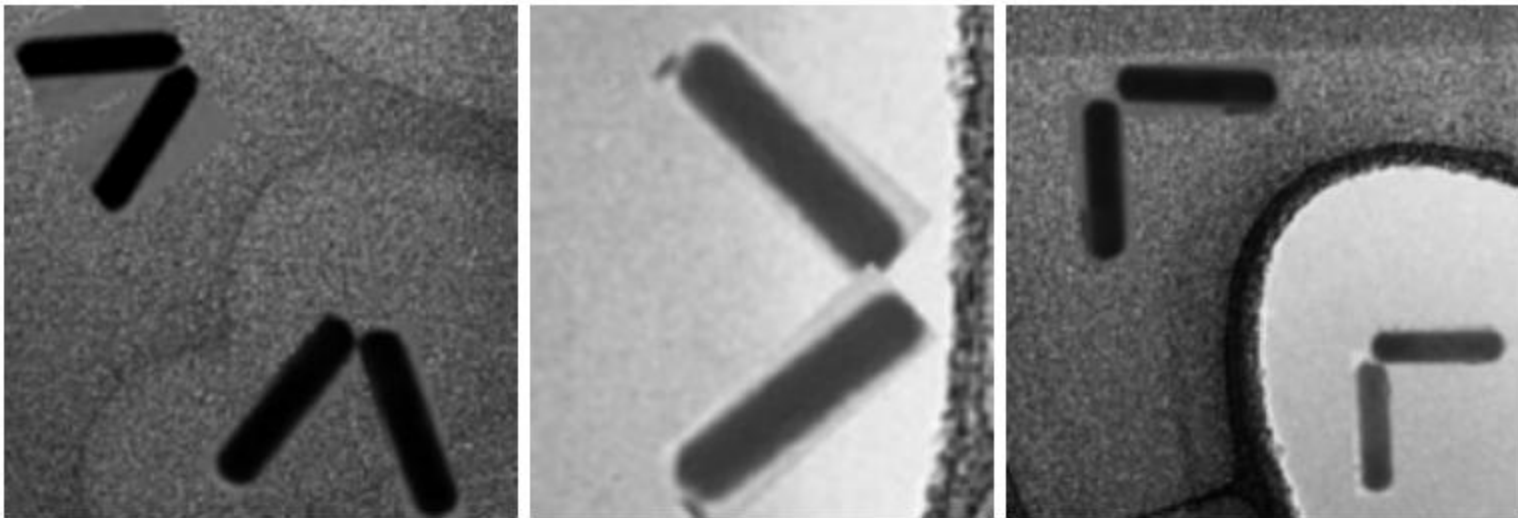


S. Ghosh & S. Narasimhan

Increase saturation of
red & blue colors

...but not all photoshopping is OK!

A paper on how to make 'chopstick nanorods' from the journal Nano Letters, was subsequently withdrawn after readers noticed some photoshopping...

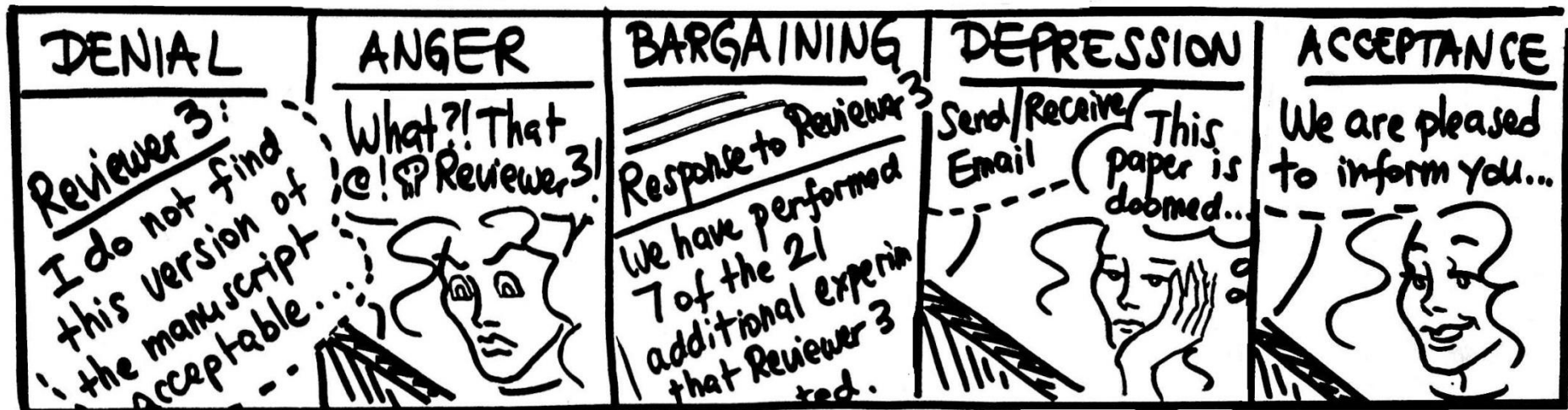


R. Anumolu, B. J. Robinson & L. F. Pease III, Nano Lett. 2013, 13 (9), 4580

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THE FIVE STAGES OF PEER REVIEW



XYKADENIQ2 2014

Responding to Referees' Comments

- Fight a rejection if you think you have a reasonable case.
- Be polite but firm.
- Reproduce each part of the referees' comments before responding to it.
- Make sure you respond to every single point made by the referee.

Reviewer comment:

"This paper is poorly written and scientifically unsound. I do not recommend it for publication."

How NOT to respond:

✗ "You #&@*% reviewer! I know who you are! I'm gonna get you when it's my turn to review!"

Correct response:

✓ "The reviewer raises an interesting concern. However, we feel the reviewer did not fully comprehend the scope of the work, and misjudged the results based on incorrect assumptions."

www.phdcomics.com

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