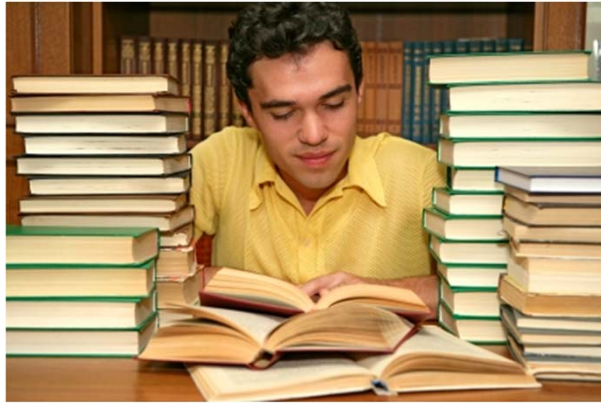


Writing Effective Abstracts



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The purpose of an abstract is to provide a snapshot of a paper or a talk for a reader.

The effectiveness of your abstract often determines whether anybody besides Mom actually reads your paper or comes to your talk.

The purpose of an abstract is to get somebody to come to your talk or read your paper

Attract her attention in the first sentence

- **What did you *do*?**
- **What's new?**
- **Why is it interesting?**





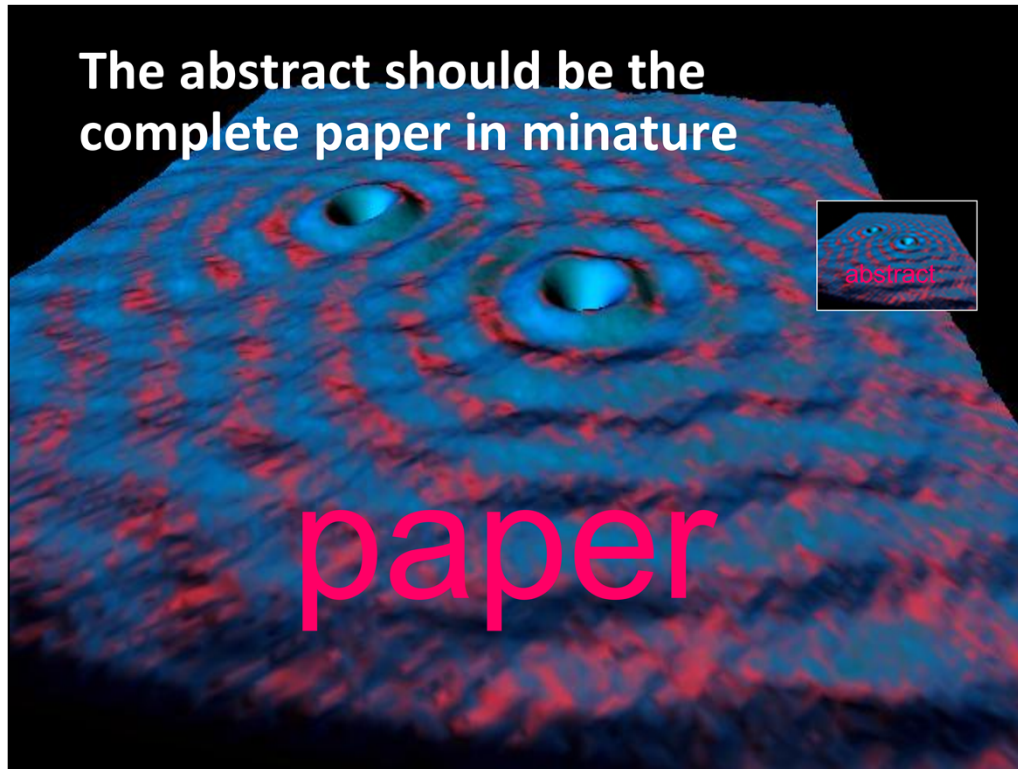
Two immutable rules for abstracts:

- #1—Every article must have one.**
- #2—The quality of your abstract largely determines whether anybody actually reads your paper or comes to your talk.**

#1—Every article submitted to a journal or a conference must have an abstract.

#2—The quality of your abstract largely determines whether anybody actually reads your paper or comes to your talk.

In addition to being printed in the journal or the meeting program, abstracts are entered into electronic databases by commercial abstracting services., which has implications for how you prepare your abstract.



The abstract should provide a snapshot of the complete paper, just as the small inset on this slide shows the complete image. Merely repeating the first paragraph of the background and introduction section is **not** adequate for an abstract.

An abstract should contain four distinct elements:

- A concise statement of the problem studied.
- A brief explanation of the approach used.
- A succinct description of the principal results obtained.
- A summary of the conclusions reached.

Write the abstract **after** you've finished the paper. Writing is an evolutionary process, and the focus or emphasis of a paper may change during the writing. The abstract must reflect the finished paper.

Image: two point defects adorning a Cu (110) surface; the point defects scatter the surface state electrons, resulting in circular standing wave patterns. IBM Almaden Research Center, <http://www.almaden.ibm.com/vis/stm/hexagone.html>.

Hew to this formula witlessly:

- 1. State immediately what you are reporting**
- 2. Explain why it's important**
- 3. Describe the methods you used in sufficient detail so the reader knows if your work is relevant to his or hers**
- 4. Summarize your key results**
- 5. Tell the reader what you think the results mean (and their implications for future work)**

Do not put anything else in your abstract



The abstract must ***stand alone***.

No mention is made of figures, tables or equations used in the main text.

No references are cited.

All abbreviations, acronyms, and unfamiliar terms are defined. For acronyms and abbreviations, write out the words first, followed by the acronym in parentheses ():

Rossi X-ray Timing Explorer (RXTE)
 resonant soft x-ray scattering (RSXS)
 charge coupled device (CCD)

The AIP lists common physics acronyms that need not be defined on first use

BCS (Bardeen–Cooper–Schrieffer)
 emf (electromotive force)
 NMR (nuclear magnetic resonance)
 dc (direct current)
 rf (radio frequency)

and many others; q.v. http://www.aip.org/pubservs/style/4thed/AIP_Style_4thed.pdf

Only very simple (linear) equations may be used; some editors say no equations at all in abstracts. If you do include an equation, define all terms.

No figures or tables may be included.

Abstracting services transcribe bibliographic information and abstracts into searchable databases; don't put anything in an abstract that cannot be represented in plain text.

No references should be cited in an abstract.

No introductory fluff

Get straight to the point—immediately



**Maybe ONE introductory sentence,
but no more than one!**

Example 1:

Suppression of superconductivity and spin-glass behavior in Cu-doped $K_{0.8}Fe_2Se_2$ ¹

Rongwei Hu, John-Pierre Palione, Shanta Saha, Richard Greene, Center for Nanophysics & Advanced Materials, Department of Physics, University of Maryland

Single crystals with nominal compositions of $K_{0.8}Fe_{2-x}Cu_xSe_2$ were grown and studied with low temperature electrical transport and magnetic susceptibility measurements. We show that the superconductivity present in undoped $K_{0.8}Fe_2Se_2$ crystals with transition temperature of 31 K is very quickly suppressed [sic] with Cu doping into the Fe site, and the system very quickly becomes insulating. We discuss anomalous behavior at higher doping, including spin-glass like behavior with further Cu doping.

BAPS.012.MAR.D22.3; <http://meetings.aps.org/Meeting/MAR12/Event/160585>

Example 2:

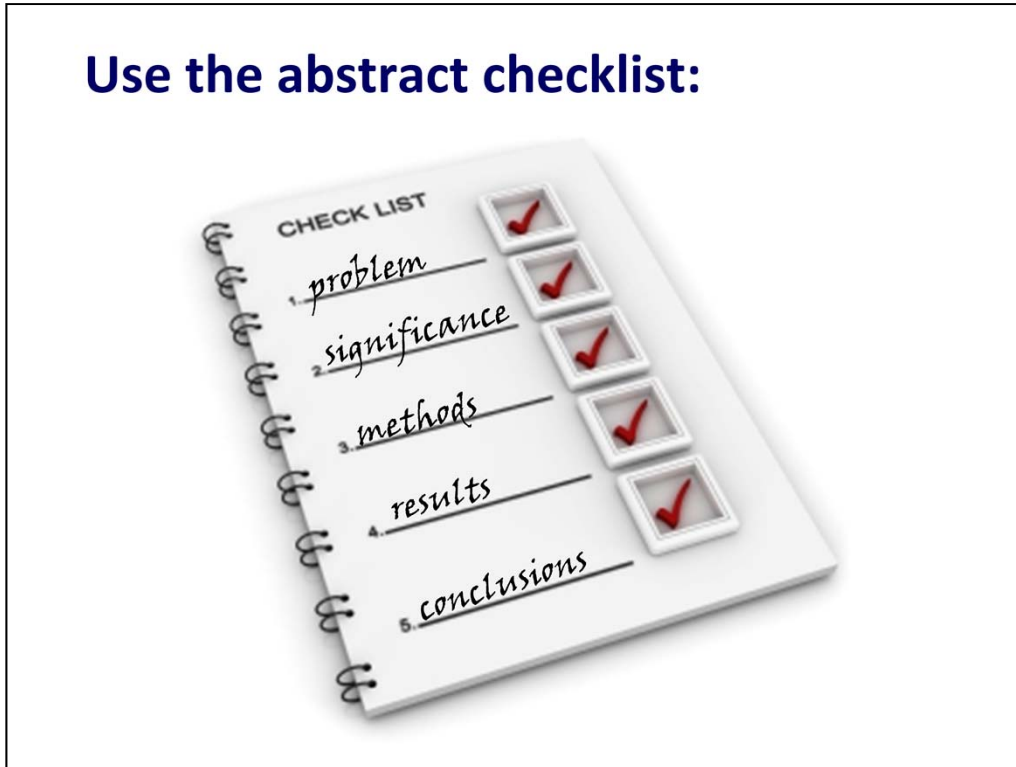
Simple Method for Stage Drift Correction

Sang Hak Lee, Murat Baday, Marco Tijoe, Paul Dennis Simonson, and Paul Ronald Selvin,
University of Illinois at Urbana-Champaign

To measure nanometric features with super-resolution requires that the stage that holds the sample be stable to nanometric precision. Here we introduce a new method which uses conventional equipment, is low cost, and does not require intensive computation. Tiny fiduciary markers of approximately $1\ \mu\text{m} \times 1\ \mu\text{m} \times 1\ \mu\text{m}$ in x, y, z dimension are placed at regular intervals on the cover slip. These fiduciary markers are easy to put down, are completely stationary with respect to the coverslip...[how they were made]...The process of tracking the fiduciary markers does not interfere with visible fluorescence because an IR-LED (690–850 nm) is used and the IR-light is separately detected using an inexpensive camera. The resulting motion of the coverslip can then be corrected for, either after-the-fact, or using stabilizers to correct for the motion. We apply this method to watch kinesin walking with ≈ 8 nm steps.

2011 Biophysical Society Meeting Abstracts. Biophysical Journal, Supplement, 20a, Abstract, 814-Pos.

Use the abstract checklist:



Problem studied or hypothesis tested is stated immediately.

Significance of the work is explained.

Methods and operational ranges are specified.

Results are emphasized.

Principal conclusions are summarized.

Read your abstract critically



Ideas are clear and concise

Language is familiar and precise

Statements are specific, quantitative, and objective

Conclusions are supported

Text is free of errors

Length limits are observed

Read your (almost-finished) abstract critically:

Are ideas expressed clearly and concisely? Eliminate every superfluous word.

Are the words you use familiar and precise?

Have you used standard nomenclature and notation?

Have you observed standard stylistic conventions? (third person/passive voice?) (straightforward, unemotional narration?)

Is the text free of grammatical mistakes and typographical errors?

Does the length of the abstract conform to instructions from the journal or the meeting organizers?

Abstract hall of fame

IOP PUBLISHING

JOURNAL OF PHYSICS A: MATHEMATICAL AND THEORETICAL

IOP FTC ►►►

J. Phys. A: Math. Theor. 44 (2011) 492001 (5pp)

doi:10.1088/1751-8113/44/49/492001

FAST TRACK COMMUNICATION

Can apparent superluminal neutrino speeds be explained as a quantum weak measurement?

M V Berry¹, N Brunner¹, S Popescu¹ and P Shukla²

¹ H H Wills Physics Laboratory, Tyndall Avenue, Bristol BS8 1TL, UK
² Department of Physics, Indian Institute of Technology, Kharagpur, India

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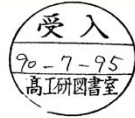
Online at stacks.iop.org/JPhysA/44/492001

Abstract

Probably not.

PACS numbers: 03.65.Ta, 03.65.Xp, 14.60.Pq

A final thought on abstracts from Professor Tony Liss



IS HINCHLIFFE'S RULE TRUE? ·

Boris Peon

Abstract

Hinchliffe has asserted that whenever the title of a paper is a question with a yes/no answer, the answer is always no. This paper demonstrates that Hinchliffe's assertion is false, but only if it is true.