

How to write an abstract

1

Dr. Azam Rabiee

The importance of abstract

2

- Many more people will read the title than the Abstract, and many more will read the Abstract than the whole paper.
- The Abstract should make sense as a standalone, self-contained description of the research article, and readers should be able to understand the key points and results of the research even if they never see the whole article. Like a representor!

How to write the Abstract

3

- you should not simply cut and paste whole sentences from the body of the article. Rephrasing!
- On the other hand, the Abstract does not contain material which is not already in the paper.

Two general models

4

1. Summary (background/method/result/conclusion)
 2. The method and the results
- The second one is more common.

Model 1

5

Abstract: The speed of sound in a fluid is determined by, and therefore an indicator of, the thermodynamic properties of that fluid. The aim of this study was to investigate the use of an ultrasonic cell to determine crude oil properties, in particular oil density. An ultrasonic cell was constructed to measure the speed of sound and tested in a crude oil sample. The speed of sound was measured at temperatures between 260 and 411 K at pressures up to 75 MPa. The measurements were shown to lead to an accurate determination of the bubble point of the oil. This indicates that there is a possibility of obtaining fluid density from sound speed measurements and suggests that it is possible to measure sound absorption with an ultrasonic cell to determine oil viscosity.

Model 1

6

Abstract: The speed of sound in a fluid is determined by, and therefore an indicator of, the thermodynamic properties of that fluid. The aim of this study was to investigate the use of an ultrasonic cell to determine crude oil properties, in particular oil density. An ultrasonic cell was constructed to measure the speed of sound and tested in a crude oil sample. The speed of sound was measured at temperatures between 260 and 411 K at pressures up to 75 MPa. The measurements were shown to lead to an accurate determination of the bubble point of the oil. This indicates that there is a possibility of obtaining fluid density from sound speed measurements and suggests that it is possible to measure sound absorption with an ultrasonic cell to determine oil viscosity.

Background
aim

Method

Results

Discussion

Model 2

7

Abstract: This study investigated the use of a novel water-soluble polymer blend as a coating to control drug release. It was found that using a blend of methylcellulose and a water-soluble copolymer significantly slowed the release rate of ibuprofen compounds in vitro and allowed for a more consistent release rate of 10–20% per hour.

Model 2

8

Abstract: This study investigated the use of a novel water-soluble polymer blend as a coating to control drug release. It was found that using a blend of methylcellulose and a water-soluble copolymer significantly slowed the release rate of ibuprofen compounds in vitro and allowed for a more consistent release rate of 10–20% per hour.

Method

Results/discussion

More samples, guidelines, key words, ...

9

- Please read Unit 5 of the textbook for more details.

Concrete Advice on Abstract Writing

10

MIK FANGUY

What is an abstract?



- A specific kind of a summary included with various kinds of scientific publications.
- Abstracts should be no more than 200 words long.
- In a sense, this is the most important part of your paper since it is the section that is most often read.

How are abstracts written?



1. Identify the major point or points of the article.
2. When you have written down the main points, then look to see what information is crucial to lead up to those points.
3. *The research methods might be important if they are new or unusual, but if they are standard, they only need to be referred to briefly.*
4. Next, write down the conclusions that are drawn from the main points.

Description of an abstract



- Short
- A single paragraph
- Written for the same audience as the article
- Summarizes the major points of the results
- Ordinarily summarizes the major points of the materials and methods, and of the discussion.
- In most disciplines, it does not include bibliographic citations (references)
- You should explain the abbreviations (in addition to the main body)

The purpose



The title and the abstract must work together to give the reader clear, concise information about...

- What you did
- What you found
- Why it is important

When are abstracts used?



- An ordinary part of a research article in a journal
- Abstracts are also usual for review articles
- Chapters in a book, especially if each chapter has a different author
- In library reference tools, such as *Biological Abstracts*, even if the article being indexed lacked an abstract (people are hired to write abstracts for these)
- For presentations at scientific meetings (often the “published abstract” is the only written record of such a presentation)

Active or passive voice



- Active voice is generally preferable to passive voice.
- Abstracts are often an exception, but only if the passive voice reduces the total number of letters and words.
- With abstracts, the bottom line is **brevity**: they should be as short as possible and still include the important information.

Tense and person



- The abstract, as well as the paper itself, should be written in the first person. The "royal we" should only be used, if, in fact, there are multiple authors; otherwise, say "I."
- Generally, abstracts (and papers, too) are written in the past tense since the work has already been completed when the paper is written. Simple present is also common for simplicity and for emphasizing on findings as a fact or truth.

Sentence structure and style



- Avoid long, complicated sentences.
- Limit use of commas, colons and semicolons.
- Limit use of conjunctions (and, but, or).
- Break separate thoughts into separate sentences.

More advice



- Avoid noninformative phrases and abbreviations. Do not use "etc." or "and similar observations."
- Avoid repetition.

Avoiding technical jargon



- Keep specialized jargon, and especially abbreviations, to a minimum, especially in the abstract.
- If you can say the exact same thing in common words, do so.
- Keep technical terms for use only where absolutely necessary to convey a technical idea.

Stating results



- *If you have results, state them.*
- Which is better?
 - The data show that Vitamin E enhances manual skill
 - It is possible that the observed results of subjects taking manual skill tests are due to the effect of administration of Vitamin E.

Grammatical advice



- Keep nouns, verbs, and adjectives in their traditional roles.
- Do not use nouns as adjectives...
 - Ex. “We kept our data in our radio-collared coyote tracking sheet record book.”
 - Better: We kept our data in our record book that contained tracking sheets for coyotes wearing radio collars.
- Remember that your goal is to pass information to your reader as efficiently as possible.

Future experiments



Although many writers speculate on the kinds of future experiments that need to be done in the discussion section of the full paper, such speculation should not be part of an abstract.

Do not end with "The effects of vitamin E on different kinds of neurons needs to be fully investigated."

Examples of Abstracts



- *The best source of example abstracts is journal articles.*
- You can also look at electronic journals on the web.
- Pick the best ones, the examples where the abstract makes the article easier to read, and figure out how they do it.
- Not everyone writes good abstracts, even in refereed journals, but the more abstracts you read, the easier it is to spot the good ones.

For the next week



- Send me your abstract in less than 150 words.
- I will try to edit it in class.

References

28

Clark, Curtis. 2001. BIO 190 - Writing an abstract. California State Polytechnic University, Pomona, <http://www.csupomona.edu/~jcclark/classes/bio190/abstract.html>.

Sample abstract



We present a novel genetic-based algorithm for optimizing n-D simple-bounded continuous functions. In this paper, we propose a new mutation operator, called rotational mutation. The proposed approach starts from the vertices of the polytope created by the simple bounds, as the initial population. Similar to the conventional genetic algorithm, we calculate the optimum point of each population based on its cost value using the elitism mechanism. Then, we create the new generations based on the proposed rotational mutation and the conventional crossover operators. We have evaluated the algorithm on the two well-known test problems. Experimental results showed that the proposed approach outperforms the conventional genetic algorithm, in terms of the number of generations.