The publication of research results – ethics and plagiarism implications

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Outline

- What is unethical behaviour?
- Scientific misconduct
- Publishing misconduct
- Consequences
- Authorship questions

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What is unethical behaviour?

Unethical behaviour can earn rejection and even a ban from publishing in some journals. Unethical behaviour includes:

- **Scientific misconduct**
  - Falsification or fabrication of results
- **Publishing misconduct**
  - Plagiarism
    - Different forms / severities
  - Duplicate/multiple submission
  - Self plagiarism/Redundant publication
  - Failure to acknowledge prior research and researchers
  - Inappropriate identification of all co-authors
  - Failure to declare Conflict of interest

Scientific misconduct
- Fabrication and falsification

- Fabrication is making up data or results, and recording or reporting them
- Falsification is manipulating research materials, equipment, processes, or changing/omitting data or results such that the research is not accurately represented in the research record

Publishing misconduct

- Plagiarism

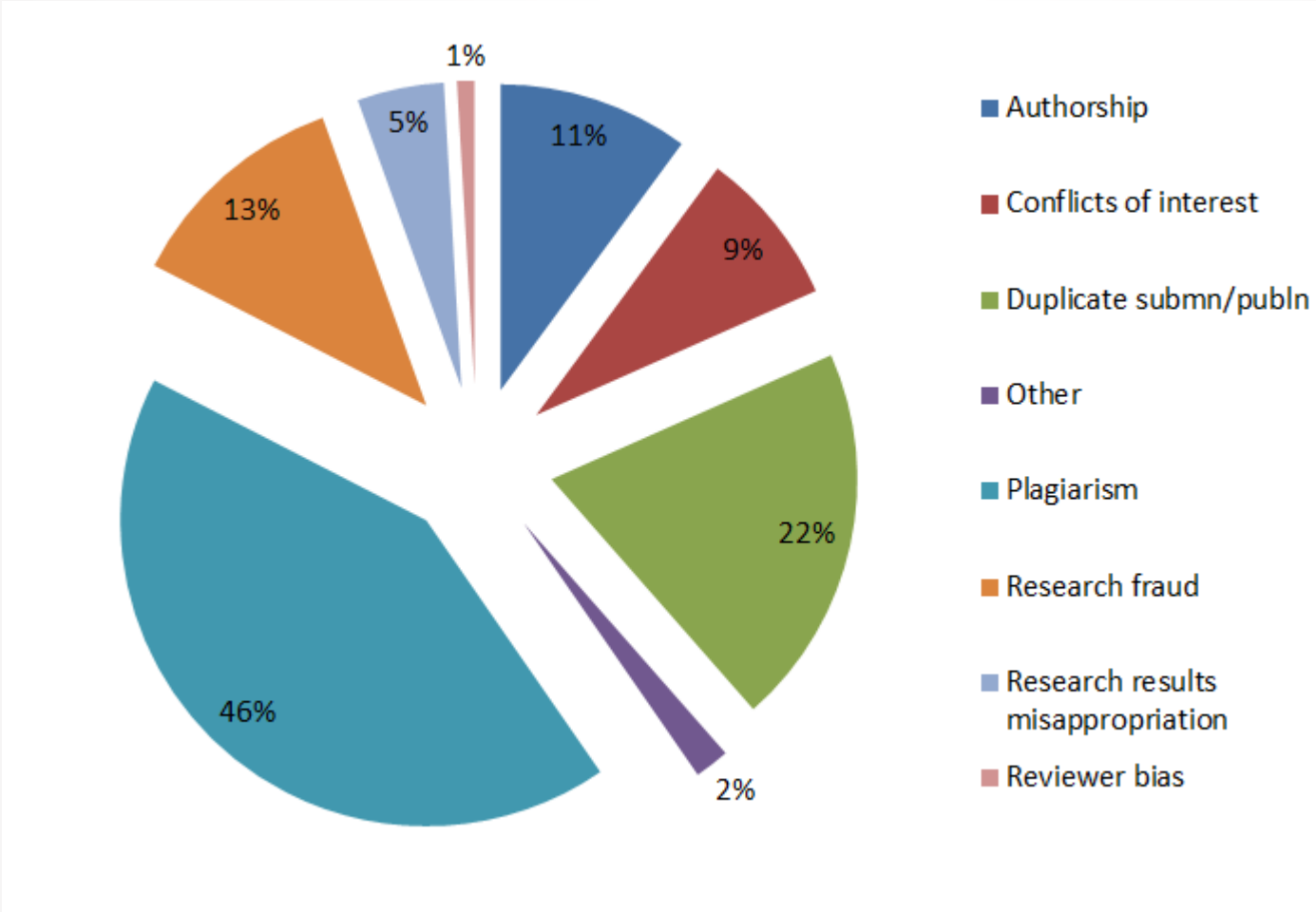
*"Plagiarism is the **appropriation** of another person's ideas, processes, results, or words **without giving appropriate credit**, including those obtained through confidential review of others' research proposals and manuscripts"*

Federal Office of Science and Technology Policy, 1999

"Presenting the data or interpretations of others without crediting them, and thereby gaining for yourself the rewards earned by others, is theft, and it eliminates the motivation of working scientists to generate new data and interpretations"

Bruce Railsback, Professor, University of Georgia

Plagiarism high amongst ethics issues



Sample of cases reported to Elsevier Journals publishing staff in 2012

Correct Citation is Key

Crediting the work of others (including your advisor's or your own previous work) by citation is important for at least three reasons:

To place your own work in context

To acknowledge the findings of others on which you have built your research

To maintain the credibility and accuracy of the scientific literature

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Multiple submission

- Multiple submissions waste editor and reviewer time
- The editorial process of manuscripts will be completely stopped if the duplicated submissions are discovered
- Competing journals constantly exchange information on suspicious papers
- DO NOT send a paper to a second journal until the final decision is received from the first

Duplicate submission

- When two or more papers, **without full cross reference**, share the same hypotheses, data, discussion points, or conclusions

- An author should not submit for consideration in another journal a previously published paper.
  - Published studies do not need to be repeated unless further confirmation is required.
  - Previous publication of an abstract during the proceedings of conferences does not preclude subsequent submission for publication, but full disclosure should be made at the time of submission.
  - Re-publication of a paper in another language is acceptable, provided that there is full and prominent disclosure of its original source at the time of submission.
  - At the time of submission, authors should disclose details of related papers, even if in a different language, and similar papers in press.

Self-plagiarism (or text recycling)

"*Whereas plagiarism refers to the practice of claiming credit for the words, ideas, and concepts of others, self-plagiarism refers to the practice of* ***presenting one's own previously published work as though it were new***"*

Papers considered to be self-plagiarizing are often duplicate submissions

* American Psychological Association (2010). *The Publication Manual of the American Psychological Association*. Sixth Edition. Washington, D.C.: American Psychological Association.

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Examples of self-plagiarism

- Republishing the same paper that has already been published elsewhere in another journal
- Publishing a significant study as a number of smaller studies to increase the number of publications rather than publishing one large study
- Reusing portions of a previously written paper (published or unpublished) without proper citation or attribution

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Publishers have tools to detect plagiarism

- 3800 publishers
- Over 38 million journal articles
- Crawls 10 million web pages daily
- Papers are run through iThenticate which matches the document against the Crosscheck database and major data providers and the open web
- Get a report displaying degree of similarity to other documents and a link to the full text of the matching documents
- Cannot detect plagiarism but can identify a manuscript of concern

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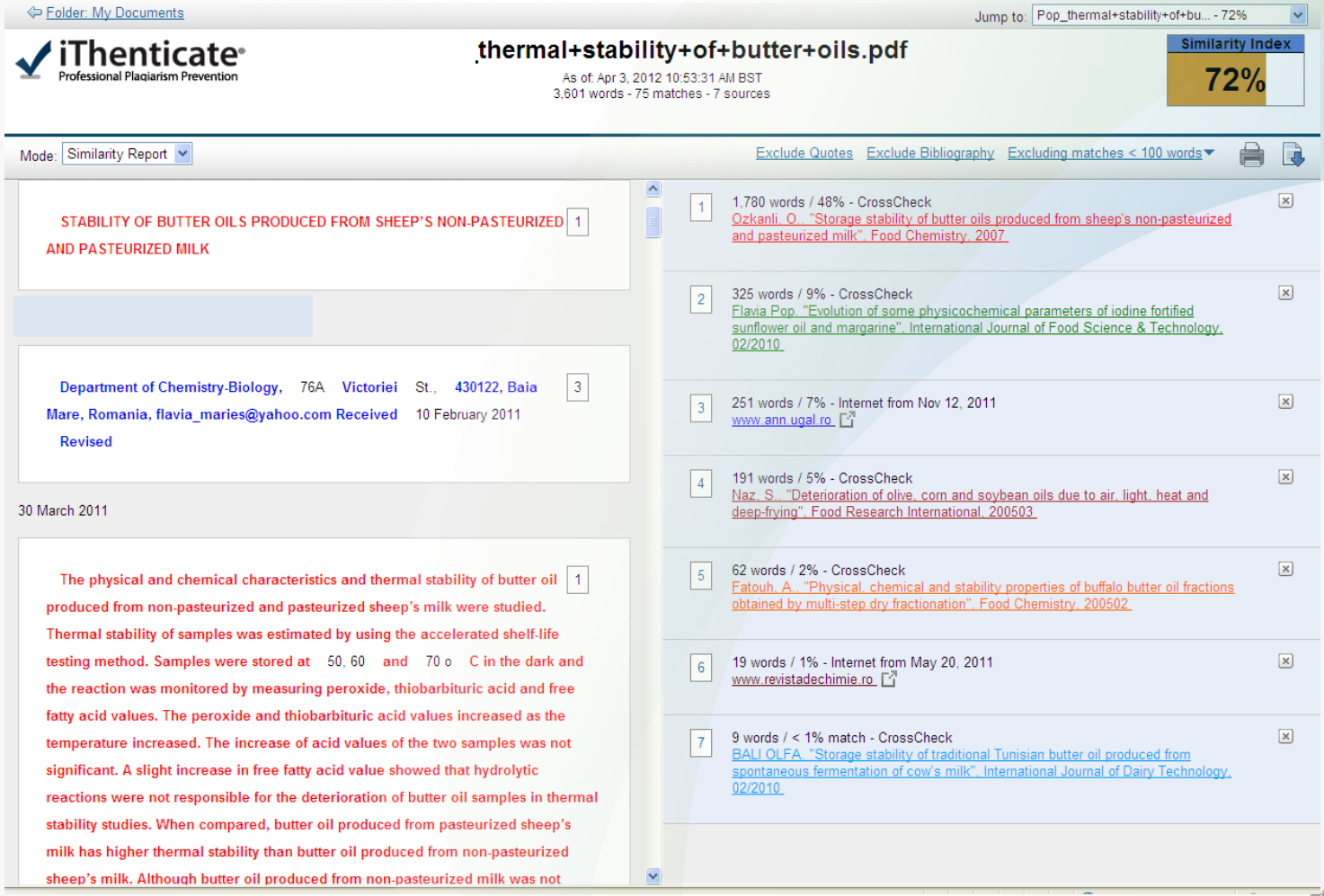
An iThenticate report



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Consequences

doi:10.1016/j.sigpro.2005.07.019 Cite or Link Using DOI

RETRACTED: Matching pursuit-based approach for ultr

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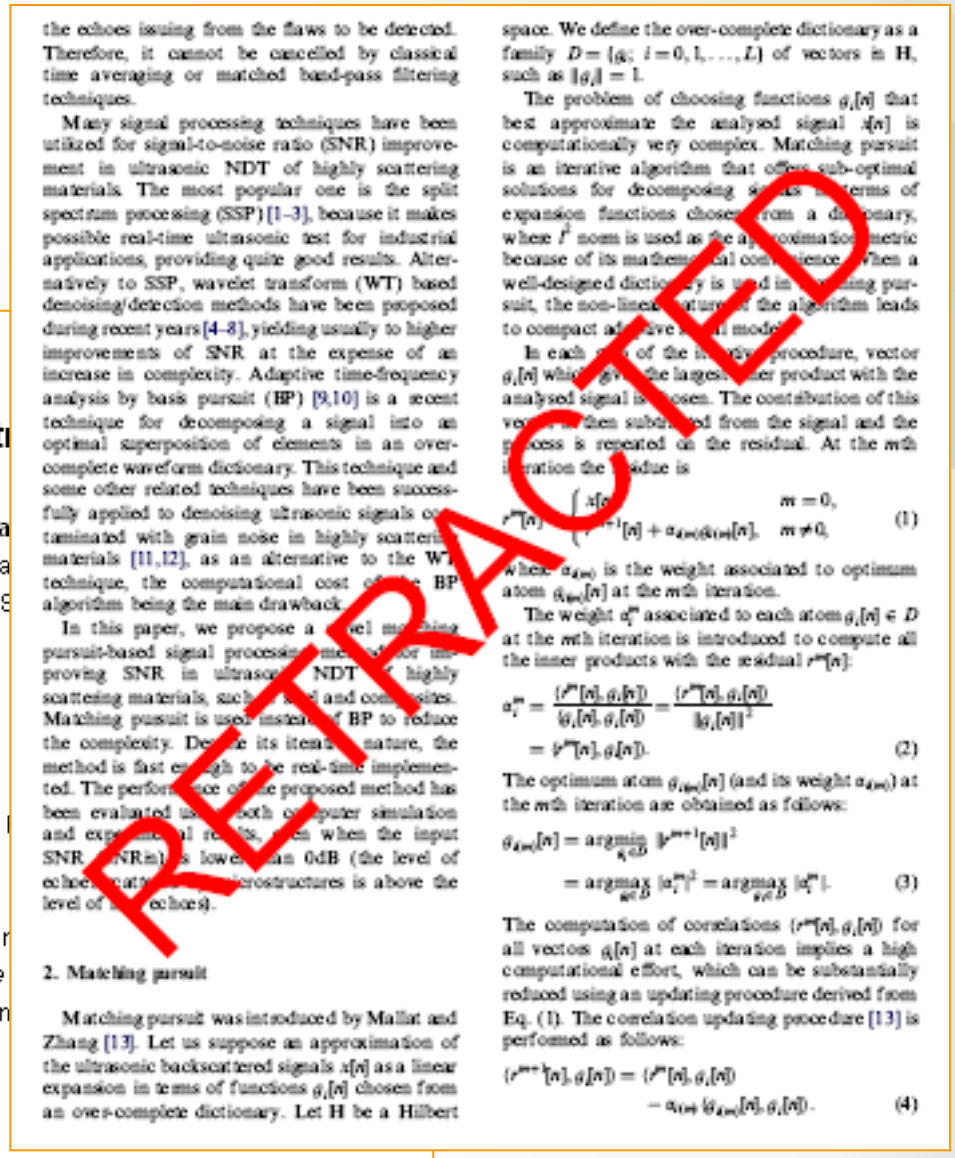
Available online 24 August 2005.

This article has been retracted at the request of the Editor-in-Chief and Publisher. I
http://www.elsevier.com/locate/withdrawalpolicy.

Reason: This article is virtually identical to the previously published article: "New r
algorithm for SNR improvement in ultrasonic NDT" , *Independent Nondestructive*
International, volume 38 (2005) 453 – 458 authored by N. Ruiz-Reyes, P. Vera-Can
Mata-Campos and J.C. Cuevas-Martínez.

Corresponding author. Tel.: +34 953648554; fax: +34 953648508.

Signal Processing
Volu



the echoes issuing from the flaws to be detected. Therefore, it cannot be cancelled by classical time averaging or matched band-pass filtering techniques.

Many signal processing techniques have been utilized for signal-to-noise ratio (SNR) improvement in ultrasonic NDT of highly scattering materials. The most popular one is the split spectrum processing (SSP) [1–3], because it makes possible real-time ultrasonic test for industrial applications, providing quite good results. Alternatively to SSP, wavelet transform (WT) based denoising/detection methods have been proposed during recent years [4–8], yielding usually to higher improvements of SNR at the expense of an increase in complexity. Adaptive time-frequency analysis by basis pursuit (BP) [9,10] is a recent technique for decomposing a signal into an optimal superposition of elements in an over-complete waveform dictionary. This technique and some other related techniques have been successfully applied to denoising ultrasonic signals co taminated with grain noise in highly scatteri materials [11,12], as an alternative to the W technique, the computational cost o BP algorithm being the main drawback.

In this paper, we propose a pursuit-based signal processi proving SNR in ultraso scattering materials, such Matching pursuit is used instea the complexity. De its iterati the method is fast e ted. The perfor been evalu and exp SNR NRin echo echoes).

2. Matching pursuit

Matching pursuit was introduced by Mallat and Zhang [13]. Let us suppose an approximation of the ultrasonic backscattered signals $x[n]$ as a linear expansion in terms of functions $g_i[n]$ chosen from an over-complete dictionary. Let H be a Hilbert space. We define the over-complete dictionary as a family $D = \{g_i;\ i = 0, 1, \ldots, L\}$ of vectors in H, such as $\|g_i\| = 1$.

The problem of choosing functions $g_i[n]$ that best approximate the analysed signal $x[n]$ is computationally very complex. Matching pursuit is an iterative algorithm that offers sub-optimal solutions for decomposing s terms of expansion functions chose from a d ionary, where l^2 norm is used as the a proximation metric because of its mathem al con ience. When a well-designed dictio y is u in ing pursuit, the non-linea ture of the algorithm leads to compact a ive al mode

In each of the i ive procedure, vector $g_i[n]$ wh the larges er product with the analysed signal is osen. The contribution of this ve then subt d from the signal and the process is repeated on the residual. At the mth iteration the idue is

$$r^m[n] = \begin{cases} x[n], & m = 0, \\ r^{m-1}[n] + a_{d_m} g_{i_m}[n], & m \neq 0, \end{cases} \quad (1)$$

where a_{d_m} is the weight associated to optimum atom $g_{i_m}[n]$ at the mth iteration.

The weight a_i^m associated to each atom $g_i[n] \in D$ at the mth iteration is introduced to compute all the inner products with the residual $r^m[n]$:

$$a_i^m = \frac{\langle r^m[n], g_i[n] \rangle}{\langle g_i[n], g_i[n] \rangle} = \frac{\langle r^m[n], g_i[n] \rangle}{\|g_i[n]\|^2} = \langle r^m[n], g_i[n] \rangle. \quad (2)$$

The optimum atom $g_{i_m}[n]$ (and its weight a_{d_m}) at the mth iteration are obtained as follows:

$$g_{i_m}[n] = \underset{g_i \in D}{\operatorname{argmin}} \|r^{m+1}[n]\|^2 = \underset{g_i \in D}{\operatorname{argmax}} |a_i^m|^2 = \underset{g_i \in D}{\operatorname{argmax}} |a_i^m|. \quad (3)$$

The computation of correlations $\langle r^m[n], g_i[n] \rangle$ for all vectors $g_i[n]$ at each iteration implies a high computational effort, which can be substantially reduced using an updating procedure derived from Eq. (1). The correlation updating procedure [13] is performed as follows:

$$\langle r^{m+1}[n], g_i[n] \rangle = \langle r^m[n], g_i[n] \rangle - a_{(m)} \langle g_{i_m}[n], g_i[n] \rangle. \quad (4)$$

The article of which the authors committed plagiarism: it won't be removed from ScienceDirect. Everybody who downloads it will see the reason of retraction…

Authorship – who is considered as an author?

- Policies to address authorship can vary
- One example, the International Committee of Medical Journal Editors (aka Vancouver Group) declared that an author must:
  1. substantially contribute to conception and design, or acquisition of data, or analysis and interpretation of data;
  2. draft the article or revise it critically for important intellectual content; and
  3. give their approval of the final version to be published.
  4. ALL 3 conditions must be fulfilled to be an author!

Authorship

General principles for who is listed first

- **First Author**
  - ✓ Conducts and/or supervises the data generation and analysis and the proper presentation and interpretation of the results
  - ✓ Puts paper together for submission to the journal
- **Corresponding author**

  ✓ The corresponding author can be the first author, or sometimes is a senior author from the institution

Avoid

- **Ghost Authorship**

  – leaving out authors who should be included
- **Gift Authorship**

  – including authors who did not contribute significantly

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Main causes of authorship disputes

- Papers submitted and published without the knowledge of all listed authors
- Papers submitted and published, and author claims they should have been included

Main problem – to make any changes to authorship after publication, ALL authors need to agree to request. This can result in significant delays and possible retraction of paper

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Elsevier has advice for authors on ethics issues

ethics
IN RESEARCH & PUBLICATION

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Be smart. Be ethical. Get ahead.

Home | Ethics Toolkit | Quiz | Experts' Corner | Community | Tools of the Trade | Resources | Stay Connected

Make your research count. Publish ethically

As researchers, you can make valuable and lasting contributions to the health and future of society.

Understanding the ethical boundaries in scientific research and publishing is a key step in making sure your work gets off to the best start. From there, anything's possible.

The Ethics in Research & Publication program is the collaboration of an independent panel of experts in research and publishing ethics and Elsevier. The materials on this website have been developed to provide resources and tools so you can proceed confidently.

Scientific truth is the foundation of scientific advancement. Present your work with the intellectual integrity that the scientific community expects.

Make your research count, publish ethically.

So you think you're ethical?
Take our quick quiz to find out!

What are the Top 5 reasons to publish ethically?
Find out here.

A Plagiarism Carol, developed by the University of Bergen. For more information see http://sokogskriv.no/english/

www.ethics.elsevier.com

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Committee on Publishing Ethics (COPE)

- Provides advice to editors and publishers on all aspects of publication ethics and, in particular, how to handle cases of research and publication misconduct
- Publishes guidelines for the industry
- Almost all reputable publishers (and their journals) are members

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To summarize:

- Two types of unethical behaviour – scientific and publishing misconduct
- Plagiarism is a serious offence that can lead to retraction of paper or termination of employment
- Publishers have tools and organizations to assist them in such cases
- Authorship disputes can also be classified as ethical issues

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