

Compressive Sensing for Characterization of Tinnitus

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Abstract—Goal: The purpose of this document is to illustrate how one should prepare manuscripts for submission to the IEEE Open Journal of Engineering in Medicine and Biology (OJEMB). Please notice that this is the template for TECHNOLOGY LETTERS. These are short manuscripts with primary focus on the development of new devices, methods, and technologies. The material must be organized in a main manuscript body and a section entitled Supplementary Materials. The main manuscript body should be limited to 1,000 words and the material should be organized in the following sections (in the order shown here): Introduction, Materials and Methods, Results, Discussion, Conclusions. Authors can include in the main manuscript body up to 3 display items (i.e. figures and tables). In addition, the main manuscript body should include an abstract and up to 20 references. The references are not considered in the 1,000-word count. The abstract should be organized in subsections as shown here (i.e., Goal, Methods, Results, Conclusions). An impact statement should be included. The impact statement should be a short paragraph of no more than 30 words. Additional material should be included in the Supplementary Materials section of the manuscript. The Supplementary Materials section should either be organized in sections as per the main manuscript body (using up to 4,000 words) or it should be used to provide readers with a set of up to 10 additional display items (i.e. figures and tables). **Methods:** Use this document as a template if you are using Latex. Otherwise, use this document as an instruction set. **Results:** Paper titles should be written in uppercase and lowercase letters as shown above. Do not cite references in the abstract. Do not delete the blank line immediately above the abstract; it sets the footnote at the bottom of this column. The abstract should not exceed 150 words. **Conclusions:** Preparing carefully your manuscript will lead to enhanced readability.

Index Terms—Enter up to 5 keywords in alphabetical order, separated by commas.

Impact Statement- The authors should include here a significance statement of no more than 30 words. The statement should summarize the main findings of the research work reported in the manuscript.

I. INTRODUCTION

THIS document is a Latex template for Technology Letters to be submitted to IEEE OJEMB [1]. Submissions must have the sections listed in the following exactly in the order shown here: Introduction, Materials and Methods, Results, Discussion, Conclusions. Manuscripts to be submitted to IEEE OJEMB as a Science Letters must use a different template. For both types of manuscript, the authors can opt to add a Supplementary Materials section.

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II. MATERIALS AND METHODS

To use this template, type over sections of the template or cut and paste from another document. Highlight a section that you want to designate with a certain style, then select the appropriate name on the style menu. The style will adjust your fonts and line spacing. Do not change the font sizes or line spacing to squeeze more text into a limited number of pages. Use italics for emphasis; do not underline. IEEE will do the final formatting of your paper. However, you should format your manuscript for submission to IEEE OJEMB for review and also for preparing for preprint that will be e-published several days after you upload the final version of an accepted manuscript.

A. Abbreviations and Acronyms

Define abbreviations and acronyms the first time they are used in the text, even after they have already been defined in the abstract. Abbreviations such as IEEE, SI, ac, and dc do not have to be defined. Abbreviations that incorporate periods should not have spaces: write “C.N.R.S.,” not “C. N. R. S.” Do not use abbreviations in the title unless they are unavoidable (for example, “IEEE” in the title of this article).

III. RESULTS

If you are using *Word*, use either the Microsoft Equation Editor or the *MathType* add-on (<http://www.mathtype.com>) for equations in your paper (Insert — Object — Create New — Microsoft Equation or MathType Equation). “Float over text” should *not* be selected. [1]

A. Equations

Number equations consecutively with equation numbers in parentheses flush with the right margin, as in (1). First use the equation editor to create the equation. Then select the “Equation” markup style. Press the tab key and write the equation number in parentheses. To make your equations more compact, you may use the solidus (/), the exp function, or appropriate exponents. Use parentheses to avoid ambiguities in denominators. Punctuate equations when they are part of a sentence, as in

$$\int_0^{r_2} F(r, \varphi) dr d\varphi = [\sigma r_2 / (2\mu_0)] \int_0^{+\infty} \exp(-\lambda |z_j - z_i|) \lambda^{-1} J_1(\lambda r_2) J_0(\lambda r_1) d\lambda \quad (1)$$

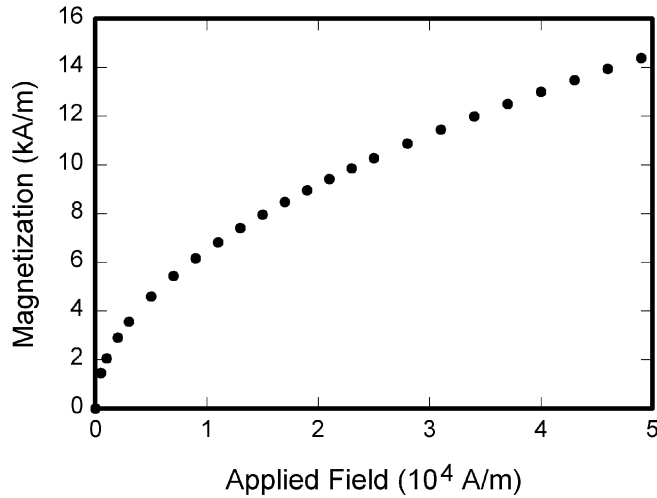


Fig. 1. Magnetization as a function of applied field. Note that “Fig.” is abbreviated. There is a period after the figure number, followed by two spaces. It is good practice to explain the significance of the figure in the caption.

Be sure that the symbols in your equation have been defined before the equation appears or immediately following. Italicize symbols (T might refer to temperature, but T is the unit tesla). Refer to “(1),” not “Eq. (1)” or “equation (1),” except at the beginning of a sentence: “Equation (1) is” A general IEEE styleguide is available at <http://www.ieee.org/web/publications/authors/transjnl/index.html>

IV. DISCUSSION

Figure 1 shows a standard figure.

A. Sizing of Graphics

Most charts, graphs, and tables are one column wide (3.5 inches / 88 millimeters / 21 picas) or page wide (7.16 inches / 181 millimeters / 43 picas). The maximum depth a graphic can be is 8.5 inches (216 millimeters / 54 picas). When choosing the depth of a graphic, please allow space for a caption. Figures can be sized between column and page widths if the author chooses, however it is recommended that figures are not sized less than column width unless when necessary.

B. Using Labels Within Figures

1) *Figure Axis labels:* Figure axis labels are often a source of confusion. Use words rather than symbols. As an example, write the quantity “Magnetization,” or “Magnetization M,” not just “M.” Put units in parentheses. Do not label axes only with units. As in Fig. 1, for example, write “Magnetization (A/m)” or “Magnetization (A·m⁻¹),” not just “A/m.” Do not label axes with a ratio of quantities and units. For example, write “Temperature (K),” not “Temperature/K.” Figure labels should be legible, approximately 8 to 10 point type.

UNITS FOR MAGNETIC PROPERTIES

Symbol	Quantity	Conversion from Gaussian and CGS EMU to SI ^a
Φ	magnetic flux	$1 \text{ Mx} \rightarrow 10^{-8} \text{ Wb} = 10^{-8} \text{ V} \cdot \text{s}$
B	magnetic flux density, magnetic induction	$1 \text{ G} \rightarrow 10^{-4} \text{ T} = 10^{-4} \text{ Wb/m}^2$
H	magnetic field strength	$1 \text{ Oe} \rightarrow 10^3/(4\pi) \text{ A/m}$
m	magnetic moment	$1 \text{ erg/G} = 1 \text{ emu} \rightarrow 10^{-3} \text{ A} \cdot \text{m}^2 = 10^{-3} \text{ A/m}$
M	magnetization	$1 \text{ erg/(G} \cdot \text{cm}^3) = 1 \text{ emu/cm}^3 \rightarrow 10^3 \text{ A/m}$
$4\pi M$	magnetization	$1 \text{ G} \rightarrow 10^3/(4\pi) \text{ A/m}$
σ	specific magnetization	$1 \text{ erg/(G} \cdot \text{g}) = 1 \text{ emu/g} \rightarrow 1 \text{ A} \cdot \text{m}^2/\text{kg}$
j	magnetic dipole moment	$1 \text{ erg/G} = 1 \text{ emu} \rightarrow 4\pi \times 10^{-10} \text{ Wb} \cdot \text{m}$
J	magnetic polarization	$1 \text{ erg/(G} \cdot \text{cm}^3) = 1 \text{ emu/cm}^3 \rightarrow 4\pi \times 10^{-4} \text{ T}$
χ, κ	susceptibility	$1 \rightarrow 4\pi$
χ_p	mass susceptibility	$1 \text{ cm}^3/\text{g} \rightarrow 4\pi \times 10^{-3} \text{ m}^3/\text{kg}$
μ	permeability	$1 \rightarrow 4\pi \times 10^{-7} \text{ H/m} = 4\pi \times 10^{-7} \text{ Wb/(A} \cdot \text{m)}$
μ_r	relative permeability	$\mu \rightarrow \mu_r$
w, W	energy density	$1 \text{ erg/cm}^3 \rightarrow 10^{-1} \text{ J/m}^3$
N, D	demagnetizing factor	$1 \rightarrow 1/(4\pi)$

TABLE I. Vertical lines are optional in tables. Statements that serve as captions for the entire table do not need footnote letters.

^aGaussian units are the same as cg emu for magnetostatics; Mx = maxwell, G = gauss, Oe = oersted; Wb = weber, V = volt, s = second, T = tesla, m = meter, A = ampere, J = joule, kg = kilogram, H = henry.

2) *Subfigure Labels in Multipart Figures and Tables:* Multipart figures should be combined and labeled before final submission. Labels should appear centered below each subfigure in 8 point Times New Roman font in the format of (a) (b) (c).

C. Referencing a Figure or Table Within Your Paper

When referencing your figures and tables within your paper, use the abbreviation “Fig.” even at the beginning of a sentence. Do not abbreviate “Table.” Tables should be numbered with Roman Numerals.

D. Checking Your Figures: The IEEE Graphics Checker

The IEEE Graphics Checker Tool enables authors to pre-screen their graphics for compliance with IEEE Transactions and Journals standards before submission. The online tool is located at <http://graphicsqc.ieee.org/>. For more information on using the Graphics Checker Tool or any other graphics related topic, contact the IEEE Graphics Help Desk by e-mail at graphics@ieee.org. For more information on using the Graphics Checker Tool or any other graphics related topic, contact the IEEE Graphics Help Desk by e-mail at <http://graphicsqc.ieee.org/>.

V. CONCLUSION

A conclusion section is required. Although a conclusion may review the main points of the paper, do not replicate the abstract as the conclusion. A conclusion might elaborate on the major findings and significance of the work or suggest applications and extensions. Do not exceed 300 words for the

conclusion section.

SUPPLEMENTARY MATERIALS

Supplementary materials are encouraged. Please use the Supplementary Materials template. If you have Supplementary Materials, please use this section to direct readers to the Supplementary Materials and give them a brief overview of what they can expect to find in the Supplementary Materials.

ACKNOWLEDGMENT

Write “F. A. Author thanks” In most cases, sponsor and financial support acknowledgments are placed in the unnumbered footnote on the first page, not here.

REFERENCES AND FOOTNOTES

A. References

See the end of this document for formats and examples of common references. For a complete discussion of references and their formats, see “The IEEE Style Manual,” available as a PDF link off the *Author Digital Toolbox* main page.

B. Footnotes

Number footnotes separately in superscripts¹. Place the actual footnote at the bottom of the column in which it is cited; do not put footnotes in the reference list (endnotes). Use letters for table footnotes (see Table I).

VI. SUBMITTING YOUR PAPER FOR REVIEW

A. Uploading the Document

All submissions must be uploaded via ScholarOne Manuscripts. Include full mailing addresses and e-mail addresses of all authors when uploading a manuscript. In addition, designate one author as the “corresponding author.” This is the author to whom proofs of the paper will be sent. Proofs are sent to the corresponding author only.

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¹It is recommended that footnotes be avoided (except for the unnumbered footnote with the receipt date on the first page). Instead, try to integrate the footnote information into the text.

C. Final Stage Using ScholarOne Manuscripts

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VII. EDITORIAL POLICY

Do not publish “preliminary” data or results. The submitting author is responsible for obtaining agreement of all coauthors and any consent required from sponsors before submitting a paper. IEEE OJEMB strongly discourages courtesy authorship. It is the obligation of the authors to cite relevant prior work. IEEE OJEMB expects the main source of references be archival journal articles or books or thesis. Conference proceeding papers should be minimized since many are not undergoing rigorous peer reviews. At least two reviews are required for every paper submitted. Indecipherable English is a valid reason for rejection. There is a service available that will help you improve your English for a fee, and the link to that service can be found at <http://www.ieee.org/web/publications/authors/transjnl/index.html>.

VIII. PUBLICATION PRINCIPLES

The two types of contents of that are published are; 1) peer-reviewed and 2) archival. IEEE OJEMB publishes scholarly articles of archival value as well as tutorial expositions and critical reviews of classical subjects and topics of current interest. Authors should consider the following points:

- 1) Technical papers submitted for publication must advance the state of knowledge and must cite relevant prior work.
- 2) The length of a submitted paper should be commensurate with the importance, or appropriate to the complexity, of the work.
- 3) Authors must convince both peer reviewers and the editors of the scientific and technical merit of a paper; the standards of proof are higher when extraordinary or unexpected results are reported.
- 4) Because replication is required for scientific progress, papers submitted for publication must provide sufficient information to allow readers to perform similar experiments or calculations and use the reported results. Although not everything need be disclosed, a paper must contain new, useable, and fully described information. For example, a specimen’s chemical composition need not be reported if the main purpose of a paper is to introduce a new measurement technique. Authors should expect to be challenged by reviewers if the results are not supported by adequate data and critical details.
- 5) Papers that describe ongoing work or announce the latest technical achievement, which are suitable for presentation at a professional conference, may not be appropriate for publication.

REFERENCES

- [1] A. Ahumada and J. Lovell, "Stimulus Features in Signal Detection," *The Journal of the Acoustical Society of America*, vol. 49, no. 6B, pp. 1751–1756, Jun. 1971.