1 BEFORE WRITING

Literature
Examine carefully the latest literature in the field, check for your keywords in the major journals of the topic, and refer as well as discuss these articles with respect to your methods, statements and conclusions. Emphasize the novelty of your work compared to other similar research.

Simulations
Simulations do not replace experiments, but they help to understand significant processes of a planned experiment or to find the proper experimental setup. Reproducing any widely used arrangements, or commonly known phenomena with simulations will not be of the interest to the scientific community. On the other hand, simulating any unusual setups or materials in experiments does not replace the deep scientific understanding of interactions built-in the simulation code. Results of simulations must also be thoroughly interpreted.

Methods and software
Any methods (calculations, software or techniques) used in your work, must not be regarded as black boxes; their operation and effect on the results should be interpreted. Do not describe the use and the operation of software, instead the methods programmed in it.

2 PREPARING THE MANUSCRIPT

2.1 ORGANIZATION

Title page
The title page should include:
- The name(s) of the author(s)
- A concise and informative title
- The affiliation(s) and address(es) of the author(s)
- The e-mail address, telephone and fax numbers of the corresponding author

Title
The title should be specific and informative. Any subtitle, if absolutely necessary, must follow the main title with a dash. Avoid acronyms or complete sentences.

Abstract
Please provide an abstract of 50 to 100 words. The abstract should briefly describe the objectives of the research, the principal results, and the major conclusions. You should give a special emphasis to the novelty of your research. The abstract should not contain any undefined abbreviations or unspecified references.
- Avoid details
- Avoid introductory remarks (*e.g.* the investigated method has been used for many decades successfully…)

Keywords
Please provide 4 to 6 keywords which can be used for indexing purposes.

Keywords are very important; it helps not only the reader to decide if the paper meets his interest but also the editors to choose the proper reviewer. Here, you should list the names of the most important materials and methods you used or the phenomenon you investigated.

- Do not use too general phrases (like radiation or isotope), but you should not be too specific either (such as environmental radioactivity of polluted soil).

Introduction

The paper should start with an introduction. You should introduce the subject, summarize the fundamentals necessary to understand the paper, and define the problem. Discuss the latest publications in the same field and don't forget to cite them. The Introduction is not an extended version of the Abstract; do not use the same sentences in both places.

Further sections of the manuscript can be Theory, if needed, Experimental, Results and Discussion, and Conclusions. Your topic may require different sections (*e.g.* methods describing calculations or simulations). A **Review paper** certainly needs other sections: Abstract, Introduction, the reviewed topics one by one, and a conclusion. In the case of a review paper, it is even more important to give reference to the latest papers appearing in the major journals of the field.

Theory

In this section, the summary of the theoretical basis should be given. Here, you can cite handbooks or classical papers in your field, and use equations.

Experimental

Describe your experiments so that they could be reproduced by another researcher. Do not describe in detail the methods commonly used or already published, cite them instead. Emphasize the critical steps.

Results and Discussion

Here, your results and their interpretation should be given. It can be two separate sections if appropriate. Use informative tables and figures and always discuss them thoroughly in the text.

Do not use too many figures or tables. Do not present the same data in both a table and a plot. Always describe and refer to them in the text. If you want to show all the spectra you measured, put them in the supplementary material. The figures should be not only just informative but also esthetic and comprehensive. Avoid straight-line plots or graphs that can be described with a simple sentence (*e.g.* the signal was found to be proportional to the mass, or the measured quantity did not change in time).

Conclusions

This section is the most important one. It should not repeat sentences from the Abstract, Introduction, and the Results sections. It should summarize the most important results, their novelty and advantages. You may also mention here your future plans.

The paper ends with **Acknowledgements**, if needed, and **References**, see below.

Acknowledgments

Acknowledgments of people, grants, funds, etc. should be placed in a separate section before the reference list. The names of funding organizations should be written in full.

2.2 STYLE AND FORMATTING

Text

The papers must be written in English. You can write your text either in British or in American English, but be consequent. It is the responsibility of the author to use a correct language. Non-native speakers are recommended to ask the help of a colleague who is familiar with scientific writing in English, preferably a native speaker.

You should write for the colleagues working in similar fields. Do not describe methods or phenomena that are supposed to be of common knowledge in the field. Avoid repetitions.

- Be consequent in using tense (*e.g.* past tense or present perfect tense), person, active or passive forms.
- Compound adjectives are written with hyphens, e.g.:
  - A high-energy photon means a photon with a high energy
  - A 5-cm crystal means a crystal with a length of 5 cm.
  - A low-background counting facility gives a low background count.
- Adverbs and adverbial expressions at the beginning of the sentences, are followed by a comma. E.g.:
  - First, the detector was calibrated.
  - Consequently, the measurement had to be repeated.
  - During the first experiment, the temperature was kept constant.

Text Formatting

Manuscripts should be submitted in Word.
- Use a normal, plain font (*e.g.*, 10-point Times Roman) for text.
- Use italics for emphasis.
- Use the automatic page numbering function to number the pages.
- Do not use field functions.
- Use tab stops or other commands for indents, not the space bar.
- Use the table function, not spreadsheets, to make tables.
- Use the equation editor or MathType for equations.
- Save your file in docx format (Word 2007 or higher) or doc format (Word 2003).

Manuscripts with mathematical content can also be submitted in LaTeX.
- LaTeX macro package (zip, 182 kB)

Headings
Please use no more than three levels of displayed headings.

Abbreviations
Abbreviations should be defined when mentioned for the first time in the paper and used consistently thereafter.

Equations, Mathematical Expressions and Physical Quantities
- For equations, use the equation editor or MathType.
- Number the equations consecutively.
- The equations should be placed centered, while their serial numbers should be given after them in parentheses aligned to the right.
- Refer to them in the text as Eq. (1) etc.
- For in-line equations, or just one symbol, you can also use equation editors, or just type them as texts, following a few simple rules:
  - Letters (including Greek letters) meaning numbers and the symbols of physical quantities are typed in italic (ε, T)
  - Vectors are printed in bold (**v**)
  - Letters denoting names, chemical symbols are written normally (like Avogadro constant: N_A, or k_{Au})
  - Numbers are always normal (k_0)
  - Function names are typed with normal fonts (e.g. sin $2x$)
  - Operation signs are separated with spaces (use the "hard space"), like: $x + 2 = 5$. Multiplication sign should be avoided in formulae ($a = bc$). When it needs to be emphasized, use $\times$ or $\cdot$, but never x or X.
  - Minus sign is written directly in front of the number, use Ctrl + '-', instead of just '-' (hyphen).
- All physical quantities, especially the experimentally determined ones, have to be given with uncertainties, together with the proper units.
- Units follow the numbers after a space and are written with normal font. Separate the basic units with spaces (use hard space: Ctrl+Space). Division is to be avoided in units, use negative powers instead. E.g. 1 cm, 19.1 g cm^{-1}, 9.81 $\times$ 10^{-2} kg m s^{-2}. SI units (base or derived) are preferred. Accepted units (min, hour, ° (degree), liter (l or L), eV) and certain commonly used units (bar, barn (b), Å (angstrom)) can be accepted. (You can find very useful summaries on the use of SI units even on Wikipedia.)
- Use decimal points, not decimal commas. (Check your regional settings).
- When writing physical quantities with uncertainties, use just the significant number of digits, e.g.
  - 99 $\pm$ 3%, not 99.21 $\pm$ 2.89%, or 100 $\pm$ 1.123
  - 10 600 $\pm$ 400, not 10 592 $\pm$ 356
- You can also put the absolute uncertainty in parentheses showing the last or last two digits, e.g. 10.1(15) meaning 10.1 $\pm$ 1.5. According to our convention, the numbers in the parentheses can be one of the following: one-digit numbers from 3 to 9, two-digit numbers from 10 to 25, e.g. 568(3) instead of 568.2(28), 34.0(10) instead of 34(1) etc.
- For large and small numbers, use the powers of ten: 3.26(3) $\times$ 10^{-5}. In tables it can be abbreviated using "E": 3.26(3)E–5

Note the following:
- Names of chemical element and of simple compounds are written in lower case without hyphens: e.g. uranium, sodium chloride; follow the IUPAC nomenclature.
- For organic compounds, use their common names, when possible. Check the IUPAC nomenclature.
- Isotopes of chemical elements can be written as in the example: ^{60}Co or Co-60

- Oxidation states appear in parentheses written with Roman numbers: U(VI) or uranium(VI).

Footnotes

Footnotes can be used to give additional information, which may include the citation of a reference included in the reference list. They should not consist solely of a reference citation, and they should never include the bibliographic details of a reference. They should also not contain any figures or tables.

Footnotes to the text are numbered consecutively; those to tables should be indicated by superscript lower-case letters (or asterisks for significance values and other statistical data). Footnotes to the title or the authors of the article are not given reference symbols.

Always use footnotes instead of endnotes.

2.3 REFERENCES

Citation

Reference citations in the text should be identified by numbers in square brackets. Some examples:

1. Negotiation research spans many disciplines [3].
2. This result was later contradicted by Becker and Seligman [5].
3. This effect has been widely studied [1-3, 7].

Reference list

The list of references should only include works that are cited in the text and that have been published or accepted for publication. Personal communications and unpublished works should only be mentioned in the text. Do not use footnotes or endnotes as a substitute for a reference list.

The entries in the list should be numbered consecutively.

- Journal article
  Nugen S, Baeumner HJ (2008) Trends and opportunities in food pathogen detection. Anal Bioanal Chem 391:451-454
  or
  Nugen S, Baeumner HJ (2008) Anal Bioanal Chem 391:451-454
- Article by DOI
  Slifka MK, Whitton JL (2000) Clinical implications of dysregulated cytokine production. J Mol Med. Doi:10.1007/s001090000086
- Book
  South J, Blass B (2001) The future of modern genomics. Blackwell, London
- Book chapter
  Brown B, Aaron M (2001) In: Smith J (ed) The rise of modern genomics, 3rd edn. Wiley, New York
- Online document
  Healthwise Knowledgebase (1998) US Pharmacopeia, Rockville.
  http://www.healthwise.org . Accessed 21 Sept 1998

Always use the standard abbreviation of a journal's name according to the ISSN List of Title Word Abbreviations, see www.issn.org/2-22661-LTWA-online.php . For authors using EndNote, Springer provides an output style that supports the formatting of in-text citations and reference list. EndNote style (zip, 2 kB)

2.4 TABLES

- All tables are to be numbered using Arabic numerals.
- Tables should always be cited in text in consecutive numerical order.
- Identify any previously published material by giving the original source in the form of a reference at the end of the table caption.
- Footnotes to tables should be indicated by superscript lower-case letters (or asterisks for significance values and other statistical data) and included beneath the table body.
- Format the tables in the simplest way using the table function of MS Word. The tables should be included at their intended positions in the text.

Table Captions
- Each table should have a concise caption describing accurately its content.
- Table captions begin with the term Table in bold type, followed by the table number, also in bold type. No punctuation is needed after either the number or the end of the caption. e.g.: **Table 1** Title
- Table should have minimum number of columns and rows. Large empty fields should be avoided in tables.
- Print numbers with significant digits (see Equations, Mathematical Expressions above). Do not copy the numbers from Excel without formatting!

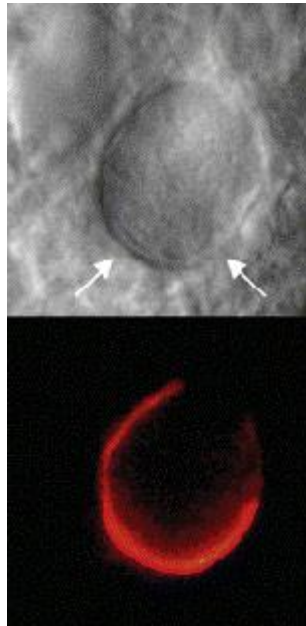## 2.5 FIGURES

Electronic Figure Submission
- Supply all figures electronically.
- Indicate what graphics program was used to create the artwork.
- For vector graphics, the preferred format is EPS; for halftones, please use TIFF format. MS Office files are also acceptable.
- Vector graphics containing fonts must have the fonts embedded in the files. MS Office figures are also acceptable.
- Include the graphs at their intended locations.
- Figures, not prepared in MS Office should be uploaded as separate picture files. Take care of their resolutions (line graphs: 1000dpi, pictures with fine shades, like photographs at least 300dpi, color diagrams at least 600 dpi, see the details below). Name your figure files with "Fig" and the figure number, e.g., Fig1.eps.
- Note that the final positions of the figures and the tables are decided by the typesetter
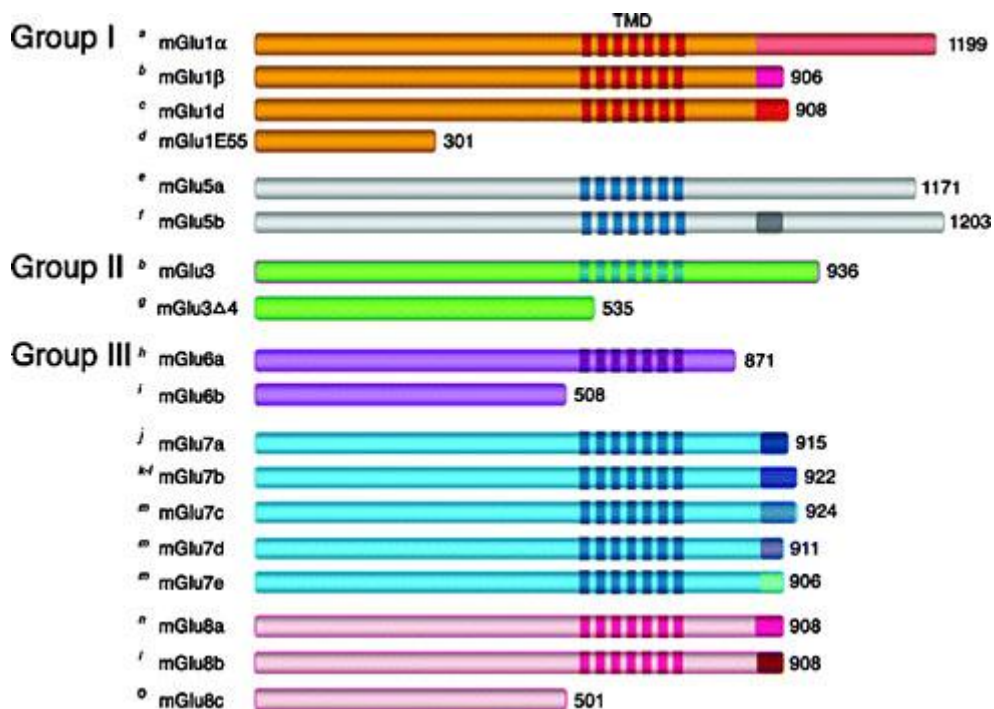
Line Art
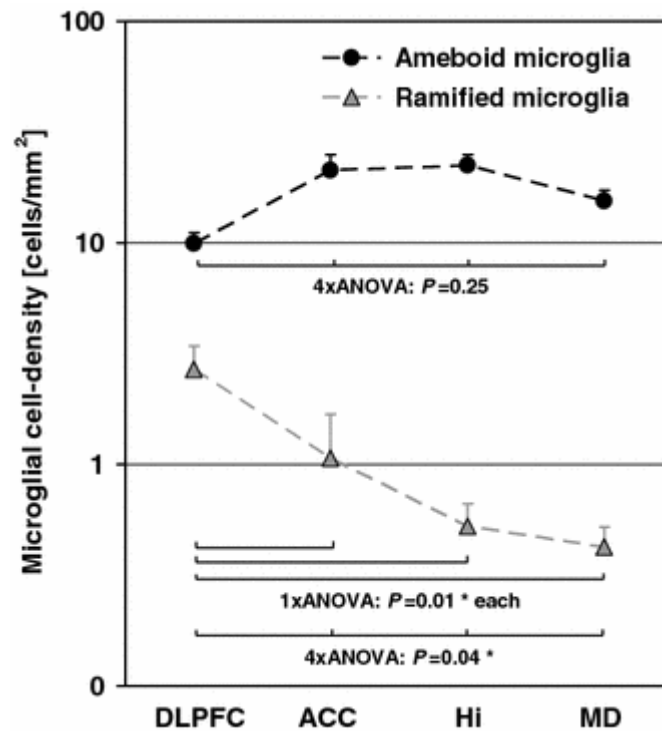
- Definition: Black and white graphic with no shading.
- Line drawings and line drawings in bitmap format should have a minimum resolution of 1000 dpi, or use vector graphics.
- Do not use faint lines and/or lettering and check that all lines and lettering within the figures are legible at final size.
- All lines should be at least 0.1 mm (0.3 pt) wide.
- In X-Y plots, always name the axes, also give the units in parentheses.
- As mentioned earlier, avoid figures containing just a linear or a constant function.
- Set the colors of the original graph so that they can be differentiated between when formatted to black-and-white figure, too. Don't use the default colors of Excel. For line plots, always use white background and vivid colors (like red, blue, or green).
- If you have more than three functions in the plot, also use patterns.
- For measured data, use markers and error bars.
- Use vector graphics when possible. Vector graphics containing fonts must have the fonts embedded in the files.

Halftone Art

- Definition: Photographs, drawings, or paintings with fine shading, etc.
- Halftones should have a minimum resolution of 300 dpi.
- If any magnification is used in the photographs, indicate this by using scale bars within the figures themselves.

Combination Art

- Definition: a combination of halftone and line art, e.g., halftones containing line drawing, extensive lettering, color diagrams etc.
- Combination artwork should have a minimum resolution of 600 dpi.

Color Art

- Color art is free of charge for online publication.
- If black and white will be shown in the print version, make sure that the main information will still be visible.
  - A simple way to check this is to make a xerographic copy to see if the necessary distinctions between the different colors are still apparent.
- If the figures will be printed in black and white, do not refer to color in the captions.
- Color illustrations should be submitted as RGB (8 bits per channel).

Figure Lettering

- To add lettering, it is best to use Helvetica or Arial (sans serif fonts).
- Keep lettering consistently sized throughout your final-sized artwork, usually about 2–3 mm (8–12 pt).
- Variance of type size within an illustration should be minimal, e.g., do not use 8-pt type on an axis and 20-pt type for the axis label.
- Avoid effects such as shading, outline letters, etc.
- Do not include titles or captions within your illustrations.

Figure Numbering

- All figures are to be numbered using Arabic numerals.
- Figures should always be cited in text in consecutive numerical order.
- Figure parts should be denoted by lowercase letters (a, b, c, etc.).
- If an appendix appears in your article and it contains one or more figures, continue the consecutive numbering of the main text. Do not number the appendix figures, "A1, A2, A3, etc." Figures in online appendices (Electronic Supplementary Material) should, however, be numbered separately.

Figure Captions

- Each figure should have a concise caption describing accurately what the figure depicts. Include the captions in the text file of the manuscript, not in the figure file.
- Figure captions begin with the term Fig. in bold type, followed by the figure number, also in bold type such as **Fig 1**.
- No punctuation is to be included after the number, nor is any punctuation to be placed at the end of the caption.
- Identify all elements found in the figure in the figure caption; and use boxes, circles, etc., as coordinate points in graphs.
- Identify previously published material by giving the original source in the form of a reference citation at the end of the figure caption.

Figure Placement and Size

- When preparing your figures, size figures to fit in the column width.
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In order to give people of all abilities and disabilities access to the content of your figures, please make sure that

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- Patterns are used instead of or in addition to colors for conveying information (color-blind users would then be able to distinguish the visual elements)
- Any figure lettering has a contrast ratio of at least 4.5:1

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Springer accepts electronic multimedia files (animations, movies, audio, etc.) and other supplementary files to be published online along with an article or a book chapter. This feature can add dimension to the author's article, as certain information cannot be printed or is more convenient in electronic form.

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- Supply all supplementary material in standard file formats.
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- Always use MPEG-1 (.mpg) format.

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- Submit your material in PDF format; .doc or .ppt files are not suitable for long-term viability.
- A collection of figures may also be combined in a PDF file.

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- Spreadsheets should be converted to PDF if no interaction with the data is intended.
- If the readers should be encouraged to make their own calculations, spreadsheets should be submitted as .xls files (MS Excel).

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- Specialized format such as .pdb (chemical), .wrl (VRML), .nb (Mathematica notebook), and .tex can also be supplied.

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- It is possible to collect multiple files in a .zip or .gz file.

Numbering

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- Name the files consecutively, e.g. "ESM_3.mpg", "ESM_4.pdf".

Captions
- For each supplementary material, please supply a concise caption describing the content of the file.

Processing of supplementary files
- Electronic supplementary material will be published as received from the author without any conversion, editing, or reformatting.

Accessibility
In order to give people of all abilities and disabilities access to the content of your supplementary files, please make sure that
- The manuscript contains a descriptive caption for each supplementary material
- Video files do not contain anything that flashes more than three times per second (so that users prone to seizures caused by such effects are not put at risk)

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3 SUBMISSION

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