THE LAB REPORT

The laboratory report is an important form of writing for scientists as it provides a record of experiments completed. Depending on the type of task or investigation you carry out, the sections of the written piece may vary, but a lab report or project report will usually have a title page, abstract, introduction and methods, results, discussion sections, a conclusion and references test section.

Section	Description
Title page + ID details	• displays your name and student ID number • the title gives a precise description of what is in the report (this may be supplied by the lecturer).
Abstract	• placed at the beginning of the report • provides a summary of the entire paper (about 5% of the whole text) including: o the problem and its importance o what was done (the experiment) o how it was done (the method) o what resulted (the most important results) o what this research contributes to the field (significance) NB: The abstract does not include figures or tables.
Introduction	• gives the background or scope of study • includes background information so that the reader 1. understands the question behind the research 2. how it relates to other work in the field, and 3. why it is worth investigating.
Methods	• describes the methods and procedures used • clearly explains the methodology so that it could be replicated (repeated) by another researcher.
Results	• presents the results of the experiment • uses an equation editor with correct mathematical symbols if the results involve numbers and equations • includes clearly labelled figures, tables and graphs where appropriate.
Discussion	• analyses and interprets the results, showing how these relate to the scope of study • states conclusions about how the results confirm, verify, or support the hypothesis, or refute, negate, or contradict it. NB: The word "prove" is not used except in very specific contexts (eg in mathematics).
Conclusion	• summarises the conclusions of the study.
References	• lists all references cited in the text.

Sample abstract from a mini-review in a Science journal.

- **Underline the verbs and note the tenses used.**
- **Note the organizational flow. Identify key idea, additional information to clarify, situation [today], focus of the writing and the key areas that will be covered.**
- **Note limited use of 'we' and the use of passive voice.**
- **Note *descriptive phrases defining the nouns * & especially note their concise nature.**

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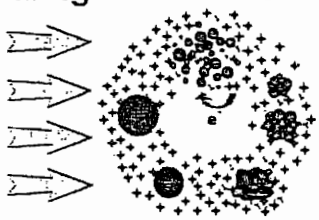
Self-healing at the nanoscale



Vincenzo Amendola and Moreno Meneghetti

The design of*self-healing materials* is a very important but challenging topic in nanotechnology. Self-healing strategies, also inspired by natural processes, allow the fabrication of *auto-repairing systems*, and in recent years, materials engineering at the nanoscale has allowed further advances in this *emerging field*. In this mini review, we recall some interesting self-healing systems found in natural processes and others created by man-made activity with special emphasis on the role played in this field by nanostructures. Finally, the self-healing of gold nanoparticles during laser irradiation is considered in more detail since it is a rare example of a functional nanomaterial with self-repairing properties.

WRITING ORGANISATION

You may find it especially interesting to note the guidelines for 1.1.6 &7

www.rsc.org Royal Soc. Of Chemistry Publication Guidelines

1.0 Organization of material

The suggestions outlined here are for guidance only.

1.1 Full articles

1.1.1 Title. A paper should have a short, straightforward title directed at the general reader. The use of non-standard abbreviations and symbols in a title is not encouraged. Brevity in a title, though desirable, should be balanced against its accuracy and usefulness.

1.1.2 Author names. Full names for all the authors of an article should be given; initials should not be used.

1.1.3 Graphical contents entry. Graphics are included in the contents list. In view of the space available graphics should be as clear as possible. Simple schematic diagrams or reaction schemes are preferred to ORTEP-style crystal structure depictions and complicated graphs, for example. Authors should bear in mind

the final size of any lettering on the graphic. For examples of graphical contents entries check the online version of the appropriate journal.

1.1.4 Summary. Every paper must be accompanied by a summary (50-250 words) setting out briefly and clearly the main objects and results of the work; it should give the reader a clear idea of what has been achieved. The summary should be essentially independent of the main text; however, names, partial names or linear formulae of compounds may be accompanied by the numbers referring to the corresponding displayed formulae in the body of the text.

1.1.5 Introduction. This should give clearly and briefly, with relevant references, both the nature of the problem under investigation and its background.

1.1.6 Results and discussion. It is usual for the results to be presented first, followed by a discussion of their significance. Only strictly relevant results should be presented and figures, tables, and equations should be used for purposes of clarity and brevity. The use of flow diagrams and reaction schemes is encouraged. Data must not be reproduced in more than one form, *e.g.* in both figures and tables, without good reason.

1.1.7 Experimental. Descriptions of experiments should be given in detail sufficient to enable experienced experimental workers to repeat them; the degree of purity of materials should be given, as should the relative quantities used. Descriptions of established procedures are unnecessary. Standard techniques and methods used throughout the work should be stated at the beginning of the section. Apparatus should be described only if it is non-standard; commercially available instruments are referred to by their stock numbers (*e.g.* Perkin-Elmer 457 or Varian HA-100 spectrometers). The accuracy of primary measurements should be stated. Unexpected hazards encountered during the experimental work should be noted. In general there is no need to report unsuccessful experiments.

1.1.8 Conclusion. This is for interpretation and to highlight the novelty and significance of the work. The **conclusions should *not* summarise** information already present in the text or abstract.

1.1.9 Acknowledgements. Contributors other than co-authors may be acknowledged in a separate paragraph at the end of the paper; acknowledgements should be as brief as possible.

1.1.11 Bibliography, references and notes. These should be listed at the end of the manuscript in numerical order.

The style and organization of your academic writing should follow guidelines from your faculty; it is useful to become familiar with the guidelines used by the major journals as this can ***make your reading more efficient*** *and helps you to recognize the reasons behind format limitations. Journal article guidelines tend to be very similar to those required by the teaching staff of post graduate students.*