



Queen Mary

University of London

Science and Engineering

Radiation Detectors (SPA 6309)

Lecture 9

Peter Hobson

What is this lecture about?

- Reading and interpreting scientific papers

Text

Infographic: *How to read a scientific paper*

Mastering this skill can help you excel at research, peer review – and writing your own papers

By Natalia Rodriguez - August 5, 2015 - Updated July 25, 2019
[Elsevier Connect]

1 SKIM



First get the “big picture” by reading the title, key words and abstract carefully; this will tell you the major findings and why they matter.

- Quickly scan the article without taking notes; focus on headings and subheadings.
- Note the publishing date; for many areas, current research is more relevant.
- Note any terms and parts you don’t understand for further reading.

RE-READ 2

Read the article again, asking yourself questions such as:



- What problem is the study trying to solve?
- Are the findings well supported by evidence?
- Are the findings unique and supported by other work in the field?
- What was the sample size? Is it representative of the larger population?
- Is the study repeatable?
- What factors might affect the results?

If you are unfamiliar with key concepts, look for them in the literature.

3 INTERPRET



- Examine graphs and tables carefully.
- Try to interpret data first before looking at captions.

- When reading the discussion and results, look for key issues and new findings.
- Make sure you have distinguished the main points. If not, go over the text again.

SUMMARIZE

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- Take notes; it improves reading comprehension and helps you remember key points.
- If you have a printed version, highlight key points and write on the article. If it's on screen, make use of markers and comments.



Let us look at an example

“Micromegas, a multipurpose gaseous detector”
G Charpak, J Derré, Y Giomataris, Ph Rebourgeard
Nucl. Instr. and Meth. A **478** (2002) 26-36

[https://doi.org/10.1016/S0168-9002\(01\)01713-2](https://doi.org/10.1016/S0168-9002(01)01713-2)

Let us look at another example

“The upgraded DØ detector”

V M Abazov et al

Nucl. Instr. and Meth. A **565** (2006) 463-567

<https://doi.org/10.1016/j.nima.2006.05.248>



Resources

- Reading scientific papers.
 - <https://www.sciencemag.org/careers/2016/03/how-seriously-read-scientific-paper>
 - <https://www.elsevier.com/connect/infographic-how-to-read-a-scientific-paper>
 - <https://towardsdatascience.com/guide-to-reading-academic-research-papers-c69c21619de6>
 - <http://ccr.sigcomm.org/online/files/p83-keshavA.pdf>
 - <http://www.cs.columbia.edu/~hgs/netbib/efficientReading.pdf>