

# The Scientific Publication

**Enrico Rubiola**  
<http://rubiola.org>

Lecture series for PhD Students  
Postdoctoral Fellows, Young Scientists, and Guests are welcome

**Classroom and online lectures**

## Program

The scientific publication is really at the hearth of spreading scientific discoveries and technological innovation. Inevitably, it is also an important force driving careers, opportunities and grants, and a force impacting the rise and the fall of research teams. The dictum “publish or perish” summarizes this. On the other hand, people obsessed with the success often do mediocre science and have unpleasant life. A wise publication strategy is therefore essential.

This course focuses on the logic of the publication, as a necessary consequence of the scientific protocol. It is also about ethics, and about the skill of reading between the lines. After a survival-oriented introduction, the student starts thinking about the long-term strategy of his/her life. The course covers:

- The peer-review process from submission to print.
- Choice of a journal or of a conference.
- Bibliometrics: impact factor, H index, etc.
- Subscriptions, paywalls, open access and open science.
- Predatory (scam/fraud) journals, conferences, and publishers.
- Repositories (arXiv, Hal, Zenodo, ResearchGate, etc.).
- Organization of an article, and the role of authors.
- Intellectual property, copyright and infringement, and open licenses.
- Ethics, plagiarism, and self-plagiarism.
- Other documents: thesis, books, edited books, financial proposals.
- Software tools: Word processors, bibliography management, drawing, presentations.

These concepts are quite general, and surprisingly similar in virtually of domains, from engineering, physics, biology, medicine, to humanities, presented with numerous anecdotes and examples.

The learning material is available <http://rubiola.org> (click on Syllabus on the left-hand side). Some former expected, or desiring to learn a step-by-step method to write their own article. They got everything else, and ultimately agreed that they got much more.

## Skills Acquired

Students will learn the following

- Understand the logic underneath the scientific publication (scientific protocol, innovation content, relevance, usefulness, impact, etc.).
- How to read an article and how to organize an article.
- Understand the role of the authors in articles and in curricula.
- Wise choice of journals and conferences.

- Understand and avoid the common risks: copyright infringement, plagiarism, embarrassment, fraudulent publishers.

## Burden, Schedule and Place

The course takes 10 hours in 5 lectures of 2 hours each. Two lectures per week take place from the end of January to the beginning of February, before the French winter vacations. The detailed schedule is on <http://rubiola.org> (click on “Syllabus” or on “News”). All lectures are at Supmicrotech/ENSMM, Besancon, France.

### Webinar Access to Lectures

Interactive videoconference (Zoom) is available to students located far from Besancon. This opportunity is denied to local students, they have to attend the real classes.

## Guests

Albeit this course is primarily intended for PhD students, other people may be interested, for example Postdoctoral Fellows, Young Scientists, High-school (lycée) Teachers, Research and Development Engineers, Consultants, Practitioners, and Master/CMI Students. Access is free of charge, and very little restrictions apply. See Registration, below.

## Registration

### PhD Students registered at the University of Bourgogne Franche Comte (UBFC)

Please register on the ADUM platform, following the usual procedure for all PhD lectures.

### Whoever else

Please email to [doctorat \[at\] ubfc.fr](mailto:doctorat@ubfc.fr), cc to [enrico.rubiola \[at\] femto-st.fr](mailto:enrico.rubiola@femto-st.fr), providing the following pieces of information: first and last name, age, affiliation, citizenship, Country and town of residence.

Better using your professional email, it is quite a decent proof of identity and affiliation without breaking in your privacy. In addition, your private email is welcome. If you use only your private email, you may be asked to prove your identity and residence in respect of Country-specific restrictions (see below).

### Restrictions

The French National Research Council CNRS rules that collaboration with some Countries (quite a small number) is forbidden. Consequently, whoever is resident, or affiliated to a Company in one of those Countries, is not allowed to attend class/online lectures. In case of doubt, a proof may be required.

## Instructor

Enrico Rubiola is an internationally recognized scientist in the field of oscillators, frequency stability, noise, and precision instruments. He is a full professor with the University of Franche Comté, Besancon, France, a researcher with the CNRS FEMTO-ST Institute, Besancon, and an honorary researcher with INRiM, the Italian institute of primary metrology, located in Torino. At the FEMTO-ST Institute, Enrico founded Oscillator IMP, a technology platform that raised  $\approx 12$  M€ grants, and the EFTS, the European crash course on time and frequency. Born in Torino in 1957, he spent there the first part of his life, where he was a permanent researcher at the Politecnico di Torino and a guest professor at the University of Parma. He moved to Nancy, France, in 2000 as a full professor with the University Henri

Poincaré (Nancy I), and to the current position in Besancon in 2005. In the meanwhile, he spent a few years in California as a part-time scientist with the NASA/Caltech Jet propulsion Laboratory. Enrico has authored or co-authored >250 articles in international journals, conferences and edited books. He has published 4 books, one of which is translated in Chinese. He serves as a reviewer for a dozen of journals of electrical engineering, physics and optics, and has served as an associate editor for an IEEE journal. A wealth of articles, slides, and open literature is available on the Enrico's home page <http://rubiola.org>.

## Additional Information

As ruled by the PhD School of Bourgogne and Franche Comté, this course falls in the category of "humanities," as opposed to "science" or "toolbox."

### More about Contents

**The peer-review journal.** The scientific protocol and the peer-review process. Blind, double blind, and the new "open" scheme. Recognizing the referees work (Publons). Impact factor, journal "rank," citations, etc. The weird case of arXiv, Hal, and other repositories. How the full process works, from the submission of a manuscript to online/paper print. Subscription, open-access, and mixed journals.

**How to write an article.** Choice of the journal/conference, topic matching, and self-evaluation. Organization of an article. Manage weak points. Ethics, plagiarism, self-plagiarism, and other plagues. Safe rules to avoid committing academic sins. Citations and references.

**The plague of predatory publishers.** Virtually all researchers and PhD students are solicited to submit articles and books to fraudulent publishers, or to attend to fake conferences. Nobody is immune from these scams, and victims are found even in serious institutions.

**PhD thesis, reports, and books.** General organization. Specific issues: front/back matter, index. Figures, proofreading, and other (boring) relevant stuff. How to submit a project.

**The weird world of copyright and plagiarism.** Understanding in depth a small number of simple concepts is essential to protect intellectual property, and to avoid embarrassment.

**Financial proposals.** Science costs a lot of money. Whoever targets a career as an academic or as research and development engineer, has to learn about the funding process.

### More about the Learning Material

The latest slideshow is available on the Enrico's home page <http://rubiola.org>, click on "Syllabus" or on "News." In addition, students can learn a lot from

- R. A. Day, B. Gastel, *How to Write & Publish a Scientific Paper*, 7<sup>th</sup> edition, Cambridge 2012, ISBN 978-1-107-67074-7.
- B. Gustavii, *How to Write and Illustrate a Scientific Paper*, 2<sup>nd</sup> edition, Cambridge 2008, ISBN 978-0-511-39463-8.
- L. Lamport L, *Latex*, 2<sup>nd</sup> edition, Addison Wesley 1994, ISBN 978-0-201-52983-8
- *The Chicago Manual of Style*, 16<sup>th</sup> edition, University of Chicago Press 2010, ISBN 978-0-226-10420-1.