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**Programme of advanced academic doctoral studies**

# **Scientific research, communication and deontology**

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Lectures delivered based on the materials of

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**LECTURE 6**

## Course outline

### Communication through scientific papers

#### 3. Elaboration (design) of a scientific paper

3.1. Establishing the strategic elements of communication (lecture 4)

3.2. Organizing the research findings (lecture 4)

3.3 Structuring the scientific paper (lecture 5)

R1 – Refining the outline of the future paper

R2 – Primary editing of the manuscript

R3 – Final editing of the manuscript

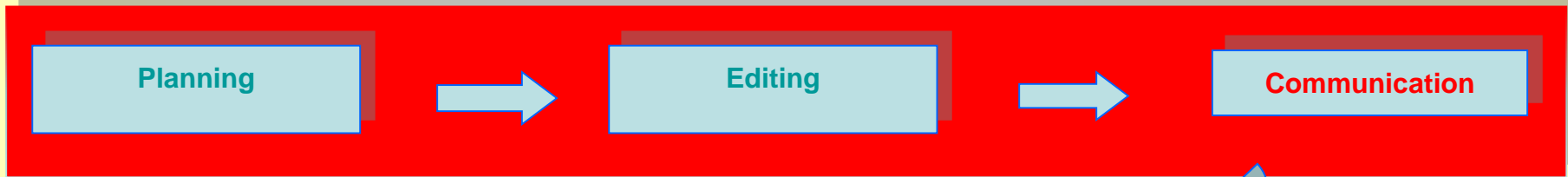
3.4. C1. Scientific communication processes

C2. Oral public communication

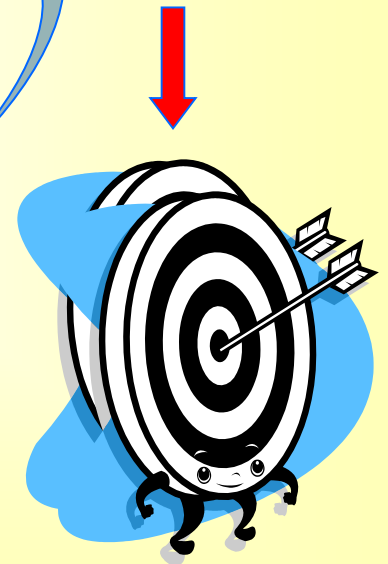
C3. Written public communication

## 3. Elaboration of a scientific paper (continuation)

### Communication



- C1. Scientific communication processes**
- C2. Oral public communication**
- C3. Written public communication**



## **C1. Scientific communication processes**

**a. Basic concepts and terms**

**b. Public communication opportunities**

**c . Publication cycles**

# Communication of scientific papers

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## a. Basic concepts and terms

➤ **human communication** – a mutually comprehensible exchange of information, reasonings and/or feelings between individuals and, respectively, between individuals and specific social groups. Types of communication:

- **linguistic** (language, speech, writing);
- **behavioural and sensorial** (para -, non -, meta - linguistic);
- **technical** (IT environments, devices, systems and networks);

➤ **scientific communication** - a specific, professional form of human communication, characterized by:

- information messages (scientific papers) with **objective** scientific and technical **content**;
- **a specialized audience** - the beneficiaries of such messages.

***PARA-** Scientific prefix meaning „beyond”, „besides”, „against”, [cf. Gr. para – next to, neighbouring], <http://dictionary.reference.com/browse/para>*

***META-** Scientific prefix meaning „after” or „beyond” , or expressing the idea of transformation, change, [cf. Gr. Meta - with, after, next to].*

# Communication of scientific papers

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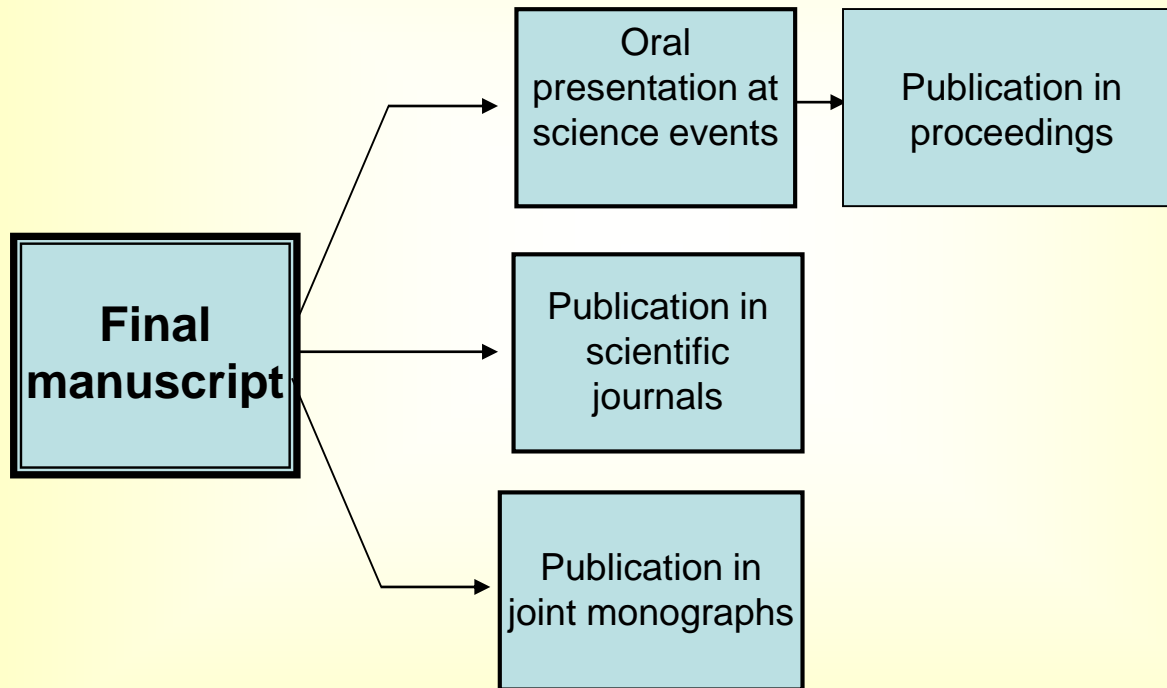
## Scientific communication may have:

- **an immediate impact**, occurring in real time, with direct or virtual participation of interested parties;
- **a delayed impact**, given the deliberate and significant delay between the moment of transmission of the message and that of reception and processing.

**Publication process** – transformation of an author's manuscript proposal into an end-product with a wide audience and of wide reach; specific activities:

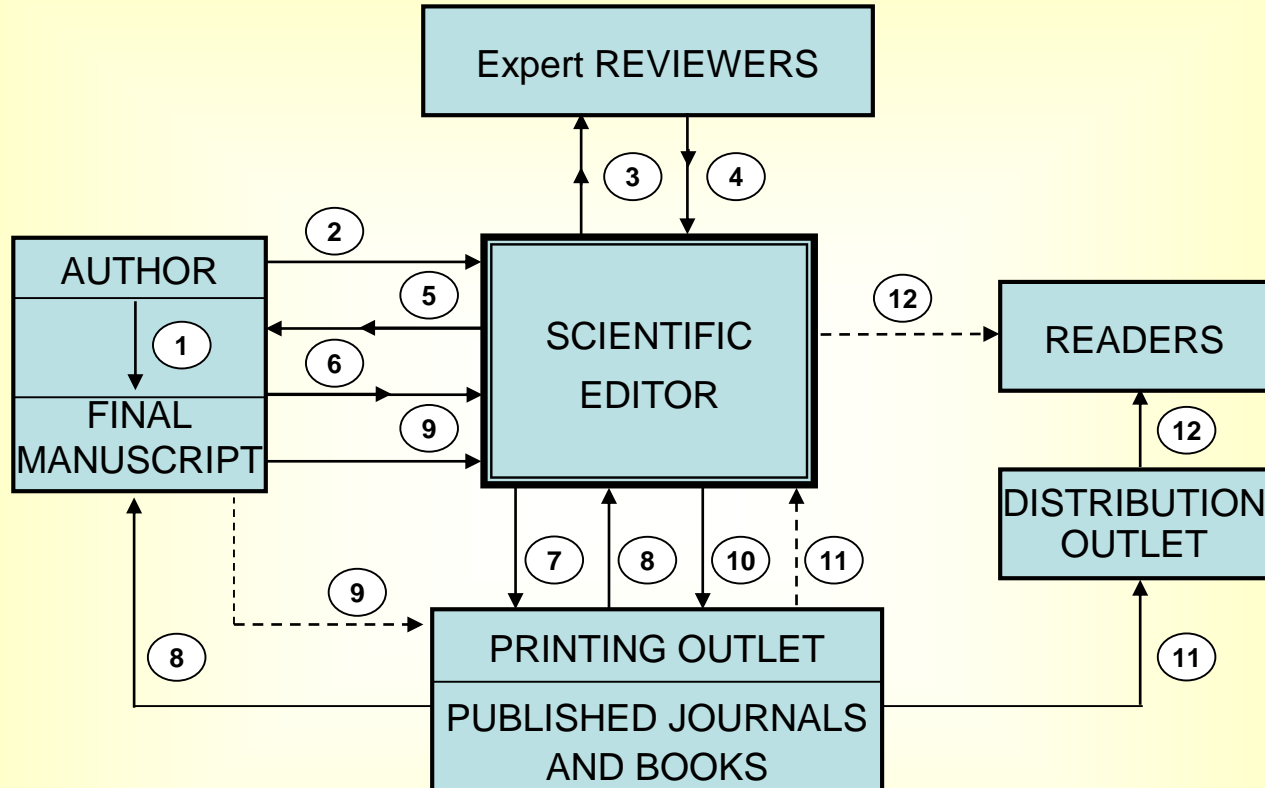
- **editing** the final manuscript;
- textual and graphic **representation** of the edited manuscript;
- **dissemination** of the published material.

## b. Public communication opportunities



# Communication of scientific papers

## c. Publication cycles



**PRINTING HOUSE** – A company engaged in the business of producing printed matter (e.g. texts) [n Gr. tipografia].

**(to) EDIT** - 1. to prepare an edition for publication. 2. to prepare written material for publication or presentation (including critical and explanatory annotations). – [Fr. Éditer].

## **C2 . Oral public communication**

**a. Features of oral communication**

**b. Communication at scientific events**

**c. Communication in „poster” presentations**

## a. Features of oral communication (1):

- **direct, interactive, real-time informational contact between the speaker and the audience;**
- **presentation of scientific papers in a personal manner, not restricted by the requirements of journal publication;**
- **direct, personal interaction and debate with other researchers belonging to other generations and working in different places;**
- **fostering cooperation and even friendship among researchers, which may lead to future collaborations;**
- **assessment of presentation content and of related discussions in terms of current scientific and technical realities.**

# Communication of scientific papers

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## Features of oral communication (2):

- Ideally, scientific papers should be presented freely, which enables skilled speakers to capture and maintain the attention and interest of the audience.
- Oral communication may be simultaneously or alternatively supported by graphic representations, photos, videos, audio messages, etc., using appropriate media devices.
- The presentation should be finely balanced between **the main information flow** (e.g. ideas, evidence and conclusions), delivered orally, and **the secondary one** (e.g. conditions, stages, findings), provided by the media devices used, which should complement the former.
  - the main information flow requires audience attention, reception and reflection;
  - the secondary flow adds a visual component to oral messages;
  - the two information flows should be designed as independent entities, and then synchronized and used in a synergic manner by the speaker.

**SYNERGY**- *Simultaneous action of several entities or agents towards the same goal. [Gr. syn – with, ergon – action]*

## Features of oral communication (3):

- **Successful, effective oral communication goes beyond the scientific value of the paper, depending on the presenter's charisma and rhetorical skills.**
- **Compared to publication, the oral presentation of scientific papers, though correct in its essence, is rather intuitive and persuasive than rigorous and precise.**

***PERSUASIVE*** – *having the ability or power to induce action and belief. [Fr. **persuasif**]*

- **Traditional oral communication has weak points, too:**
  - numerically limited audience;
  - difficult to control capacity of reception and understanding of informational messages;
  - volatile, unrepeatable nature of information transfer processes.

***(Verba volant, scripta manent*** = words fly, writing remains).

## b. Communication at science events

### Main types of papers:

- **prospective papers**, to be presented in plenary sessions; the usual duration for such presentations is 30-60 minutes;
- **scientific papers of high importance**, delivered by the representatives of highly performant research teams; such papers shall be presented either in plenary sessions or in regular conference sections, the usual duration of such presentation being 15-30 minutes;
- **regular scientific papers**, with a usual duration of 10-15 minutes, to be presented in specific conference sections gathering 4-6 papers.

# Communication of scientific papers

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## Oral presentations may be organized:

- **by following the logical organization of the written paper;** in this case, the topic of the paper will be covered integrally, from beginning to end, but selectively, and the visuals will be extracted as such from the paper;
- **according to specific rhetorical conventions;** in this case, the presentation will be designed independently from the structure of the written paper, by appropriate adjustment, and the visuals will be presentation-oriented, covering the content of the written paper only partially.

**RHETORIC = *The art of speaking effectively, using elevated language to persuade an audience; oratory, eloquence .***

# Communication of scientific papers

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## General recommendations:

- the content of the presentation should be well thought in terms of the time allotted and of audience availability;
- the presentation should have a logical structure and should be delivered in a calm manner, without disturbing digressions, at a volume adjusted to the existing background noise;

***DIGRESSION – Deviation from the topic under discussion (in an oral or written presentation), meant to refresh the presentation; divagation. [Fr. digression, Lat. digressio, ~onis]***

- the speaker should make use of behavioural and sensorial communication techniques, which are extremely effective in such situations;
- the speaker should permanently „monitor” the state and reactions of the audience and should adjust the content and the presentation accordingly;
- the speaker should answer all the questions addressed at the end of the presentation professionally and kindly.

## c. Communication in „poster” presentations

### Defining features:

- oral communication in „poster” sessions is a specific form of public presentation, collective and simultaneous, of several scientific papers;
- „poster” sessions in scientific events are usually organized in parallel to traditional conference sessions (i.e. plenary and thematic);
- „poster” sessions have specific infrastructure, under the form of poster exhibitions, dedicated individually to the set of available papers;
- the public presentation of papers is made in well established time intervals (usually 1- 4 hours, depending on the number of participants), when authors must be next to their poster.

## Communication in „poster” presentations

### Specific features:

- the „poster” should cover, in one single image (usually, about 1000x650 mm - 1500x1000 mm), the most important aspects in the presented scientific paper, from title and authors to bibliographical references;
- the „poster” should be easy to read and understand in a very short time (about 10 – 20 s), needed by passing colleagues to ‘scan’ the poster before deciding to stop or not;
- the above mentioned conditions require special attention to poster design: „posters” should be comprehensive, synthetic, intuitive and catchy at the same time; consequently, preparing „posters” may be difficult and may imply a lot of hard work.

Successful „poster” presentations rely on the quality and mostly, the attractiveness of the poster, on the one hand, and on the competence, wit and conversation skills of the authors, on the other hand.



# Communication of scientific papers

**PÓSTER**, posters, n. –  
 The presentation of research work in the  
 form of a paper poster at scientific events.  
 [Engl. Poster].

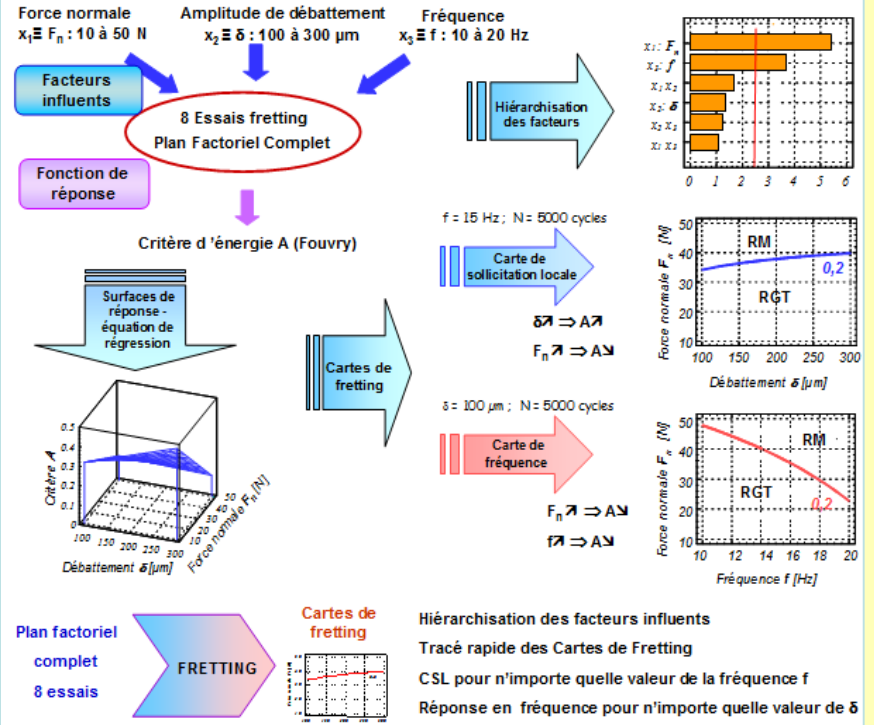
Original  
 Poster

## APPROCHE STATISTIQUE DE LA REALISATION DES CARTES DE SOLLICITATION LOCALE EN FRETTING



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Objectif : Étude du comportement tribologique du couple acier / polycarbonate en sollicitation de fretting. Détermination des Cartes de Fretting par la méthode des plans d'expérience



## **C3. Written public communication**

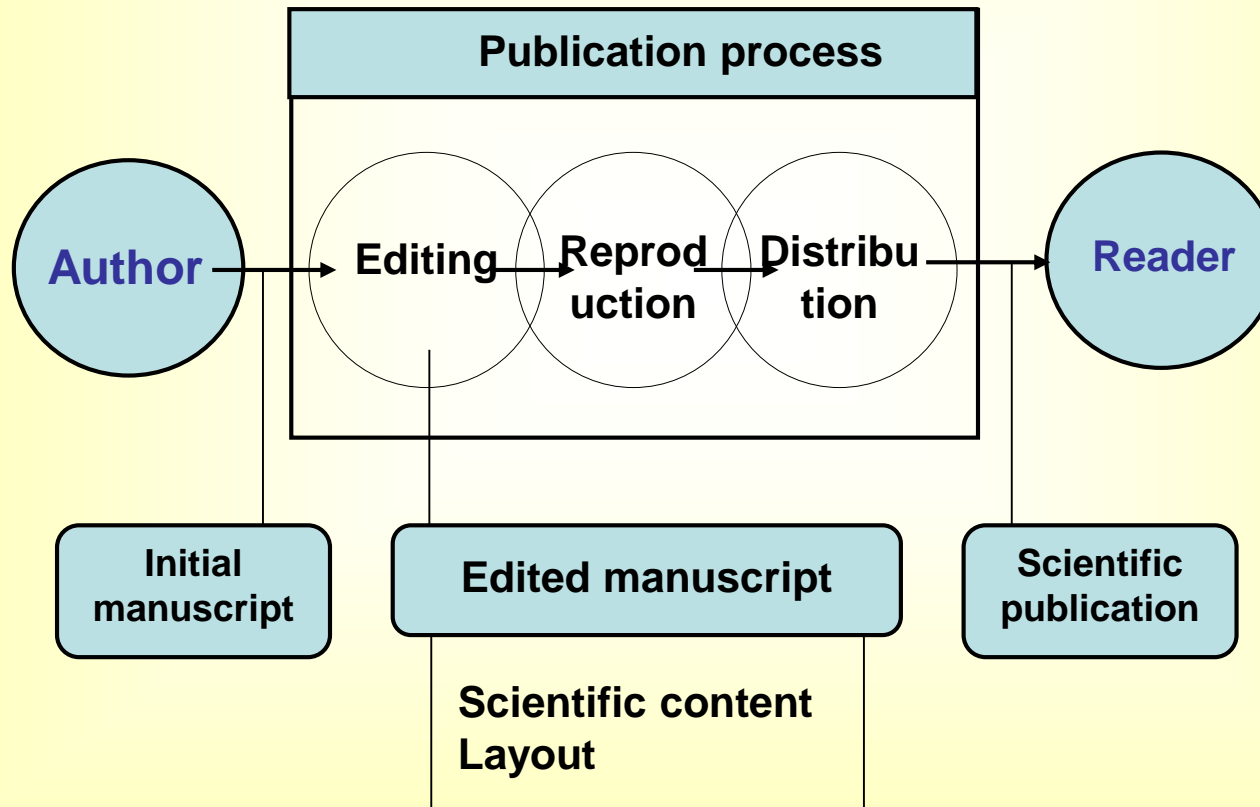
**a. The publication process**

**b. Graphic representation of scientific papers**

**c. Correlations and interactions: author - editor - reviewer**

# Communication of scientific papers

## a. The publication process



# Communication of scientific papers

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**Main objective:** transformation of the initial manuscript proposed by the author into a final information product – a **published scientific paper**, available to interested readers in the long term.

**Traditional approach** (paper – based publication of scientific papers):

editing, reproduction and distribution are distinct and strictly individual activities, performed successively in different places, by specialized, competent individuals and institutions.

**Modern approach** (electronic or media/web publication of scientific papers):

editing, reproduction and distribution are informationally interrelated and integrated, allowing for a simultaneous approach in time and space.

## b. Graphic representation of scientific papers

**Objective:** appropriate, attractive, suggestive and representative graphic representation of the content of the published scientific papers.

**Scientific paper** – a cohesive and coherent whole, consisting of text, mathematical relations, visuals (tables and figures) and empty spaces, displayed over a number of successive pages, which, beyond authors' intentions, carry information about:

- the relative balance or imbalance of the fundamental sections in a scientific paper;
- the relative richness or poverty of the primarily analytical parts of the paper (expressed by text), against the synthetic parts (mathematical relations, tables and figures);
- visual accuracy and clarity of the essential elements in the main message of the paper;
- cohesion and coherence in the presentation of ideas and essential evidence.

Present means of informationally integrated computer editing provide researchers – authors with exceptional opportunities for optimal graphic representation of scientific papers.

# Communication of scientific papers

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## Editorial requirements:

**Editors of scientific publications impose regulations concerning the graphic presentation of the papers to be published, usually in the form of instructions for authors, often providing a template, on matters such as:**

- size and orientation of workspace pages;
- size of the areas outside the workspace, attributed to the header and the footer;
- division into sections and paragraphs;
- actual text editing, including grammar and spelling correction;
- distribution of the edited text;
- editing mathematical relations, tables and figures, and their appropriate insertion in the text;
- editing bibliographical references and their insertion in the text;
- front page editing and insertion, immediately below the title, of essential information about the authors of the paper to be published (e.g. name, academic title, position, affiliation), etc.

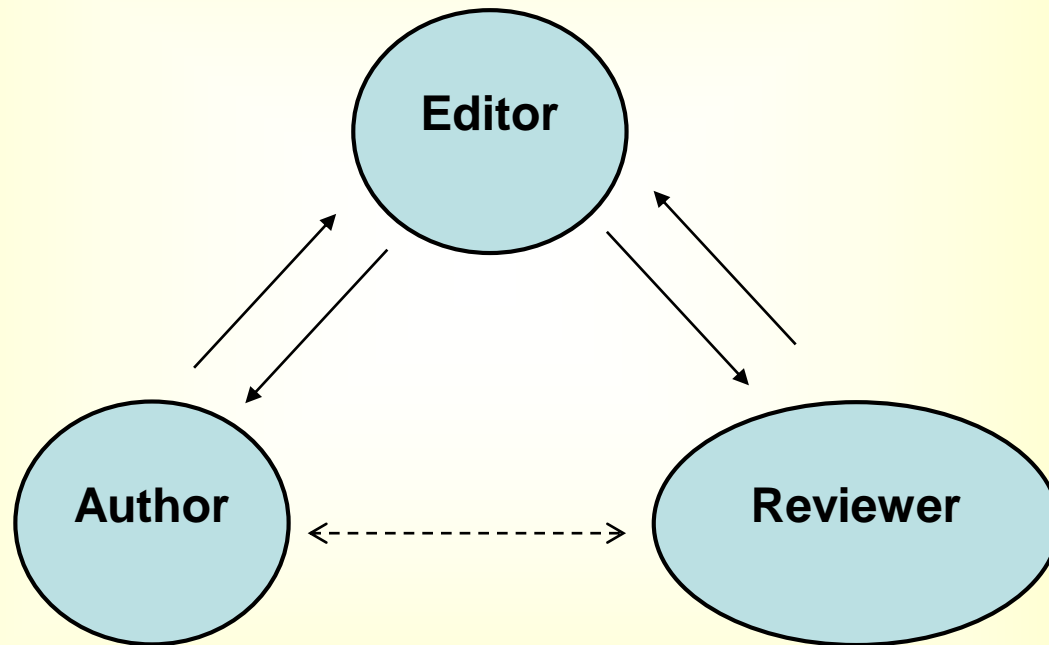
**Observance of editors' instructions by the authors is a selection criterion for publication proposals; such instructions should be taken into account responsibly and strictly.**

## Taking responsibility for editing the final form of the manuscripts accepted for publication:

**1. EDITOR** – mostly specific to paper – based journal editors, by means of traditional or digital printing technologies. The manuscript accepted for publication is edited in its final, print-ready form by specialized staff, i.e. editor/publishing house. A sample copy of the printed manuscript is sent to the authors, who should approve it in due time, making the necessary corrections, be the case.

**2. AUTHOR** – specific to editors of proceedings, with the purpose of reducing publication cycle time. The author holds the responsibility of editing the final form of the manuscript („camera ready”), be it paper - based or electronic. The editor’s responsibility is to provide a set of editing instructions; observance of such instructions conditions the completion of the publication process.

## c. Correlations and interactions: author - editor - reviewer



# Communication of scientific papers

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**AUTHOR** – the creator of the scientific paper and, possibly, the owner and beneficiary of copyright of the publication, depending on the provisions in the agreement closed with the funder of the research project.

**EDITOR** – the representative assigned by a scientific institution or economic entity, who publishes one or several scientific journals, a person entitled to make a final decision in the publication process.

**EXPERT REVIEWER** – competent, available expert, who can make fair, pertinent judgments on the papers submitted for review.

**Basic requirements:**

- competence, objectivity and professional ethics, ability to perform critical analysis on the papers submitted for review, in a detached, respectful and honest manner;
- generosity, by providing recommendations on possible rational and effective solutions to the comments in the review.

The direct or mediated exchange of opinions between the author, the editor and the expert reviewer is justified by their common interest in the successful publication of highly valuable scientific papers.

# Communication of scientific papers

## Completing the interaction author - editor - reviewer

Decision	Motivation	Recommendations
<b>1. Rejection based on quality</b>	The paper does not meet the minimum requirements of importance, relevance and intrinsic scientific value	Reconsider the research, write another paper and submit to another scientific publication
<b>2. Rejection based on form</b>	The paper does not meet the specific requirements of selection	Send the manuscript to another publication; Edit the manuscript according to publication requirements;
<b>3. Provisional acceptance</b>	The paper is incomplete in terms of logic, fact and/or structure; The findings are insufficient / misinterpreted;	Provide the missing elements; Reconsider and rewrite the paper from scratch; Submit the revised manuscript to the same or to another journal;
<b>4. Conditional acceptance</b>	The paper meets quality requirements, but lacks internal logic, valid conclusions, and a balanced approach of ideas and supporting evidence	Make the changes recommended by the editor; Partially rewrite the initial manuscript, focusing on the conclusions;
<b>5. Acceptance without any changes</b>	The paper meets all the quality requirements	Make some minor grammar, spelling and language corrections

# Editing scientific papers - Communication

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## Basic questions in the quality assessment of scientific papers:

- Are the objectives stated by the author expressed in a clear, realistic manner?
- Is the way in which the scientific research described in the paper has been planned and conducted appropriate for the objectives stated?
- Are the initial research conditions and the hypotheses put forward described clearly, correctly and completely?
- Are the research findings reported in the paper reliable and precise enough?
- Does the paper have a logical structure? Is the paper, both as a whole and in its parts, balanced in terms of the amount of information and that of supporting evidence?
- Are the conclusions of the research valid?
- Are they interpreted in an objective, accurate and complete manner, or are they predominantly tentative?
- Is there a clear distinction between personal findings and opinions and those of other researchers?
- How relevant are the conclusions of the paper?