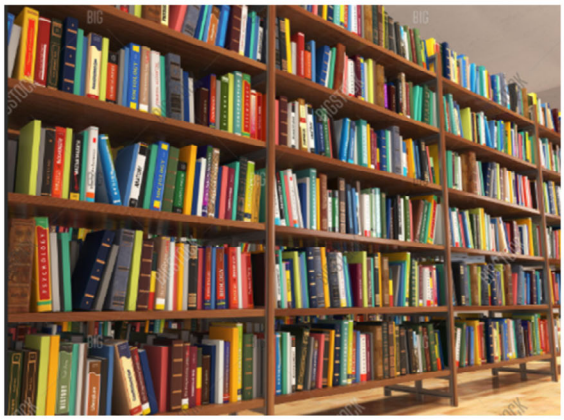
Publishing in Scientific Journals



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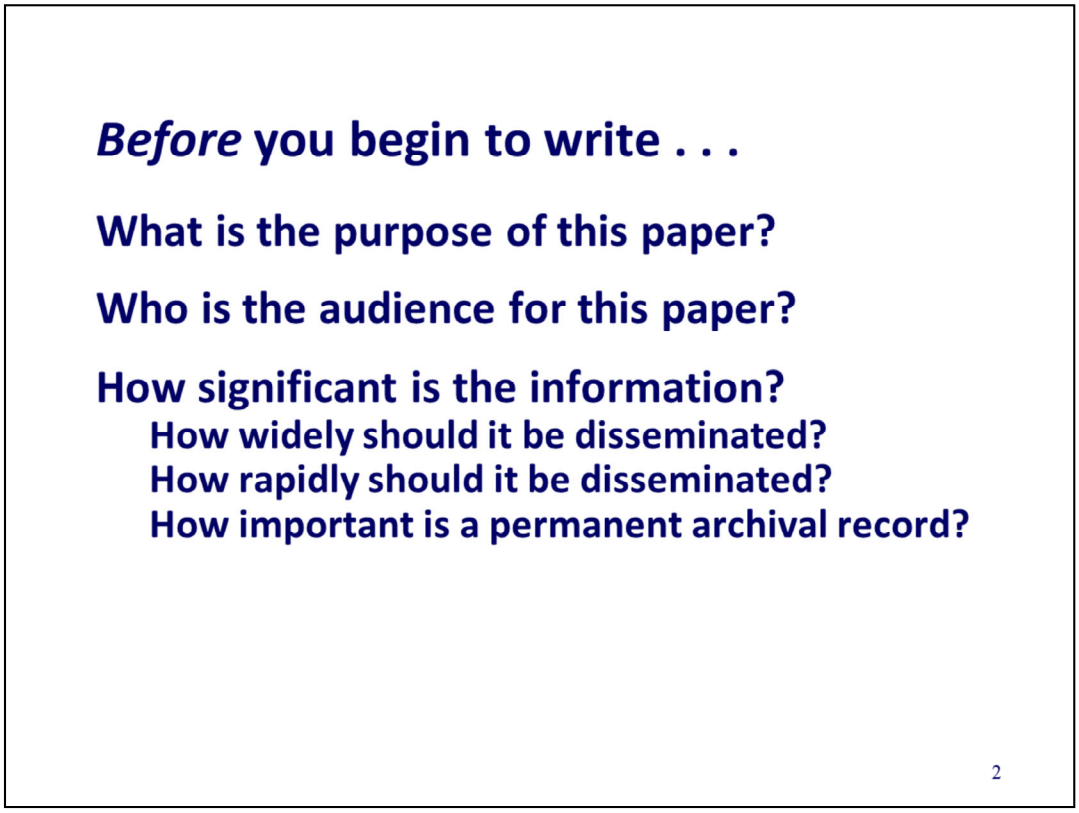

Possible motivations

- To achieve fame and fortune; to get promoted
- To disseminate your results to other workers in your field
- To provide a permanent archival record of your work
- To establish precedence by publishing before your competitors can
- To propose a new program or area of research

Appropriate purposes:

- Reporting original, significant research results
- Documenting methods or establishing standards
- Warning of a hazardous condition
- Examining the feasibility of a project
- Reinterpreting previously reported results
- Reviewing the literature
- Providing an overview of the topic

Who is the audience?

- What are their needs, interests, and level of knowledge?

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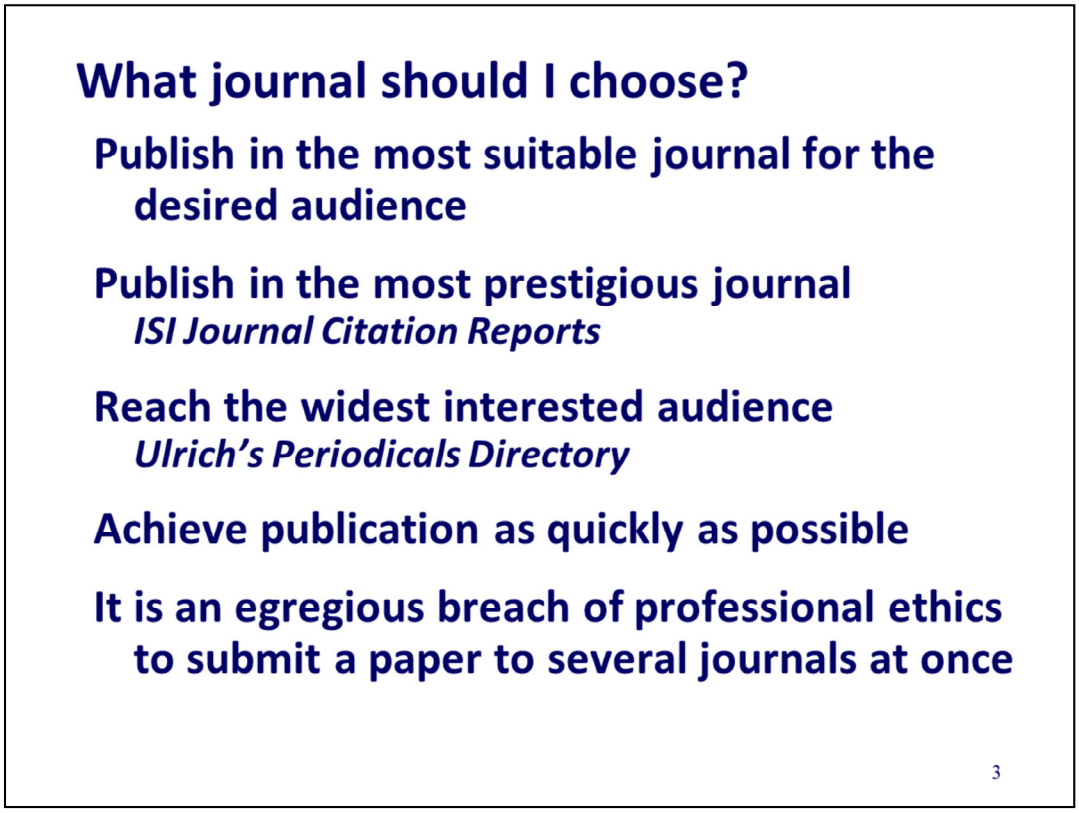

Journal Citation Reports: https://jcr.clarivate.com/jcr/home

Provides journal impact factor (JIF) for nearly 22 000 journals

Ulrich's http://www.ulrichsweb.com/UlrichsWeb/; has circulation figures for >300 periodicals of all types: academic and scholarly journals, e-journals, peer-reviewed titles, popular magazines, and trade publications for approximately 900 subject areas.

Reasons for flexibility:

Several journals may have the same readership but different policies for subject emphasis and length of articles. You must find the best fit with your paper.

Some journals publish faster; e.g. if a journal has scheduled a number of special issues, publication of your ms. may be delayed for months.

Editorial trends; editors develop preferences for "hot" topics, to the exclusion of others. If a journal has just published two special issues on your topic, the editor may not be interested in another long paper on that issue. Consult recent issues of your first choices or write to the editor to enquire about the journal's interest in your topic.

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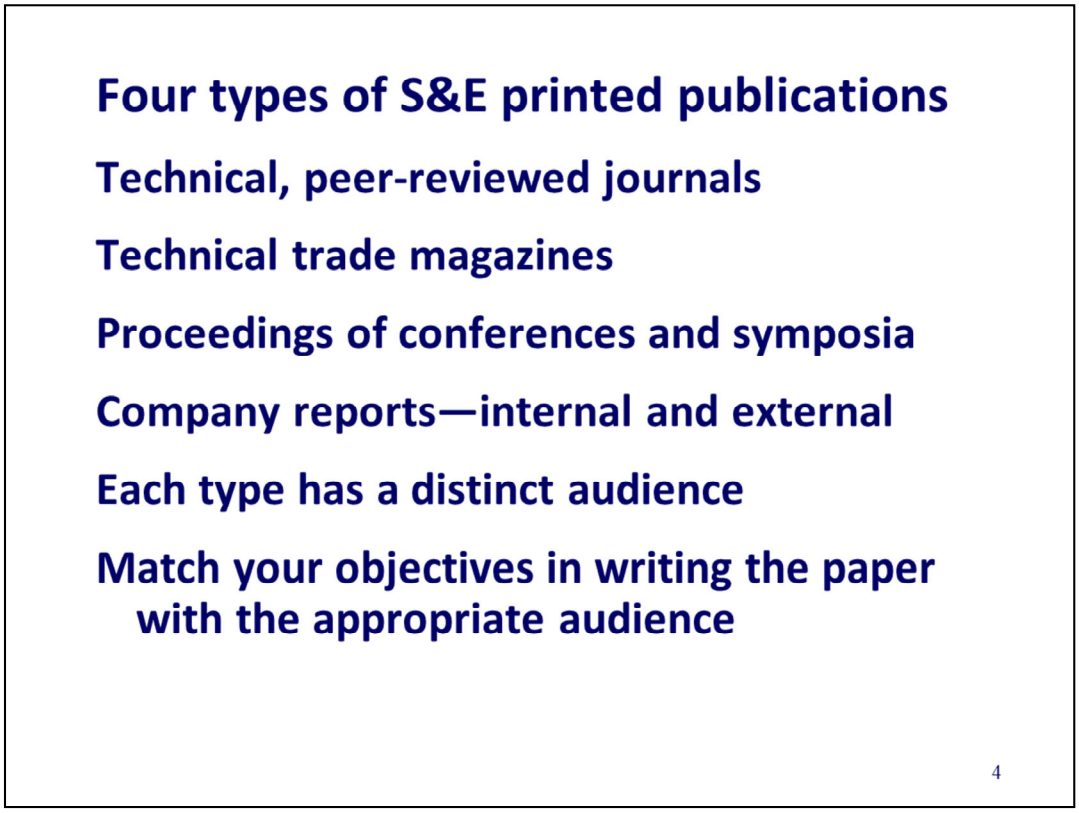

Consider the reader's wants and needs.

Peer-reviewed journals—originality of the concept and significance of the work; advantages are peer-review and prestige

Technical trade magazines—new technologies, with emphasis on utility and near-term applications; advantages are relatively quick publication, wide distribution, possible payment for article

Conference proceedings—presenting a paper at a conference allows direct interaction with audience

Company reports—*IBM J. of Research and Development*, *Science & Technology Review* (LLNL)

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Your paper must match reader interests

Look at what the publication says its readers' interests are:

Computing in Science and Engineering tells authors: ***CiSE's readers are researchers, developers, and practitioners involved in computational aspects of various scientific and engineering disciplines, as well as educators, especially those developing curricula for this new interdisciplinary field.***

Examine tables of contents of representative issues (scope and technical level)

Consult the editor

Read the "Call for Papers"

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Journal of Architectural Engineering

•practice-based information on the engineering and technical issues concerned with all aspects of building design.

•topics related to buildings such as planning and financing, analysis and design, construction and maintenance, codes applications and interpretations, conversion and renovation, and preservation.

IEEE Sensors Journal

The journal focuses on the theory, design, fabrication, manufacturing and applications of devices for sensing and transducing physical, chemical and biological phenomena with emphasis on the electronics and physics aspects of sensors and integrated sensor-actuators. ***Papers on sensor applications are of special interest.***

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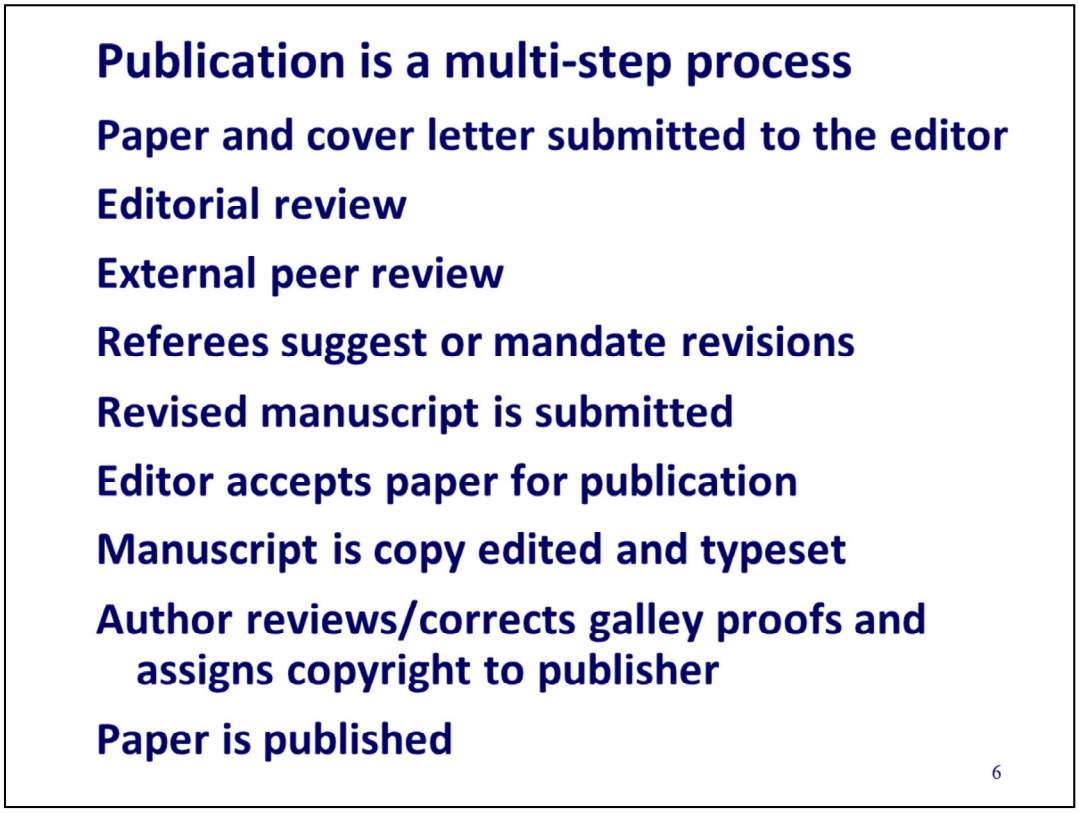

Author submits manuscript to editor

Editor determines if the paper is appropriate:
- Represents new and significant work
- Is scientifically sound
- Falls within the journal's topical coverage

If the paper does not meet all of these criteria, it is rejected and returned without review

If the paper meets the criteria, the editor selects qualified referees and sends them each a copy of the paper for review

Reviewers provide written comments on:
- The technical soundness of the paper
- Mistakes and omissions
- Additional work to be referenced
- Suggestions for clarification, deletion of superfluous material, or other improvements

Reviewers also make a confidential recommendation to the editor:
- Accept paper as written
- Recommend optional changes
- Require mandatory changes
- Reject paper

If the reviewers suggest changes, the editor returns the manuscript to the author, along with the anonymous reviewers' reports, and requests revisions

The author makes the requested changes, additions, or deletions, and returns the revised manuscript to the editor

The editor determines that the author has satisfactorily complied with the reviewers' requirements and accepts the paper

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What is "peer review"?

- Independent recommendations of recognized experts in the field ("reviewers" or "referees")
- Reviewers are expected to offer objective and constructive criticism
- Reviewers are anonymous and are expected to maintain strict confidentiality
- Process should produce better papers
- Author benefits from insight and suggestions of experts
- Extremely unethical to ask for reviewers' names or to contact them directly

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What does a referee do for science?

Ensures only credible, high-quality research is published to safeguard the integrity of the literature

Improves the quality of published papers

Ensures papers are published in appropriate journals

Ensures that people are rewarded on the merits of their work

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Today we're going to focus specifically on reviewing scientific articles. But referees also evaluate proposals for funding agencies and nominations for prizes and awards. They evaluate the suitability of candidates for jobs and for promotion and tenure.

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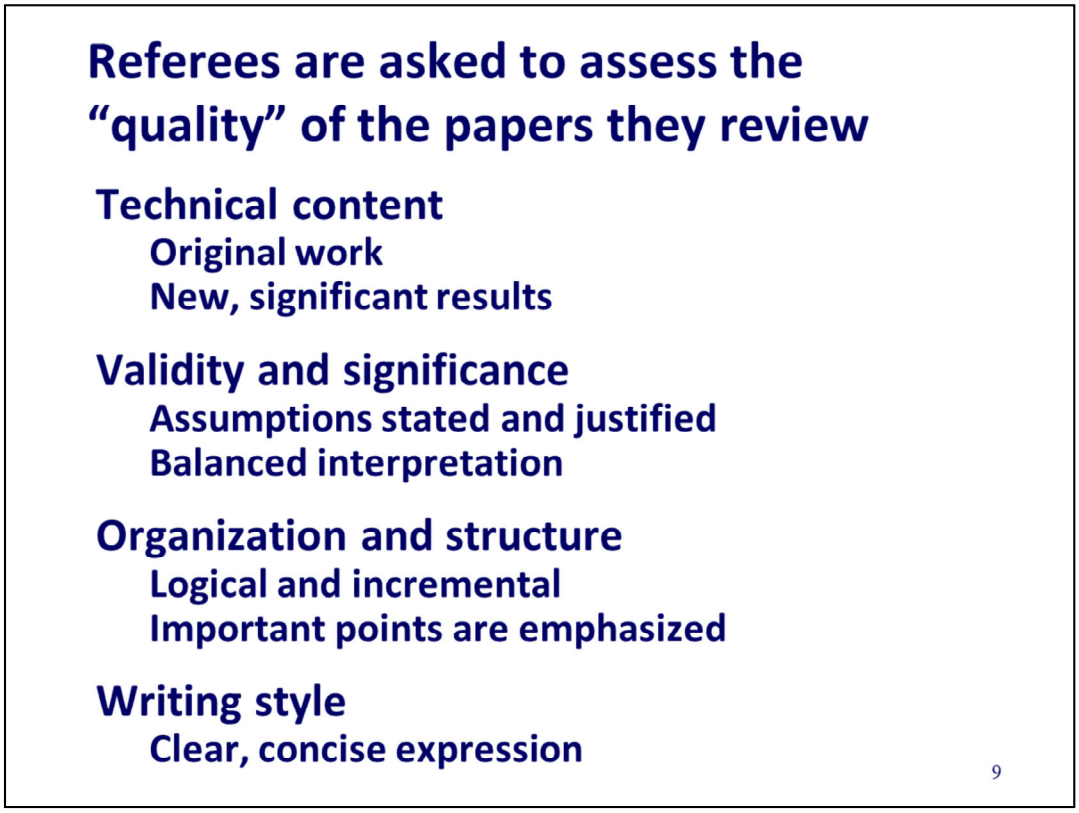

All of the elements of quality contribute to the overall merit of a S&E manuscript. Technical content is not enough; nor can elegant literary style compensate for sloppy experiments or outmoded theory.

Validity and Significance:

Some authors assume that describing their S&E efforts is sufficient and that the beauty of the results will speak for themselves, i.e., that a discussion of the work's significance is superfluous. However, the quality of any S&E publication is enhanced by a brief recapitulation of its significance. A busy reader will recognize the value of a brief discussion of the implications of the work.

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Referees focus on the quality of the technical content

- Data is error-free and valid; any selection or statistical treatment of data is disclosed
- Sufficient detail is provided so that peers could reproduce the experiment
- Figures and tables present information clearly and unambiguously
- Assumptions are clearly stated and supported
- Alternative approaches or interpretations are discussed

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Referees also comment on the quality of the writing itself

- Ideas are presented clearly and unambiguously
- Language is precise and concise
- Main points are emphasized and readily identifiable
- Conventions for nomenclature and scientific notation are observed
- Mistakes in grammar, spelling, punctuation, and standard English are absent

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Preparing your manuscript

Follow the "Instructions to Authors"
- Text formatting requirements
- Requirements for figures and tables
- Standards for references

Consult the editor *before* writing the article
- For review papers for journals
- For technical trade magazines

Contact the program organizer for meetings proceedings
- Limitations of scope
- Criteria for acceptance

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Always include a transmittal letter

- Address it to the editor
- State the name of the journal to which your manuscript is being submitted
- Include a statement that the work described is your original work and that the manuscript is not being considered for publication elsewhere
- State that all authors have reviewed the ms. and approved it for submission
- Provide complete contact information for the corresponding author

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Dealing with referees

The referee's job is to maintain the quality of the journal and to protect your reputation

Consider all referee comments carefully and objectively, even if the editor does not insist on revisions

Give more weight to specific objections than generic criticism

Refute technical objections by adding information and clarifying statements

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Helpful, specific criticism:

"In Fig. 4, the labels on the axes appear to have been transposed" vs. "the manuscript is poorly written"

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The referees criticized your paper—now what?

- Accept the referees' remarks and make revisions
- Ask the editor to clarify the referees' remarks
- Rebut the referees' criticisms and request a second review or arbitration
- Withdraw the paper from further consideration

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Include a letter to the editor when submitting a revised manuscript

- Refer to the original manuscript number assigned by the publisher
- If the title has been changed, refer to the original title and date of submission
- Thank the referees for their work
- Include a detailed statement of what has been changed, added, or deleted in direct response to referees' comments
- Specifically ask the editor to accept the paper for publication

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Withdrawing a paper

If the revisions required by the referees are too extensive, an author may withdraw the paper

The editor should be explicitly informed of requests to withdraw

The withdrawn paper may be submitted to another journal

cmelliot@illinois.edu
http://physics.illinois.edu/people/Celia/

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