Understanding the Process of Writing Papers for MTT-S Publications

George E. Ponchak
Editor, IEEE Trans. on Microwave Theory and Techniques (2010-2013)
Editor, IEEE Microwave and Wireless Components Letters (2006-2009)
MTT-S Publications

<table>
<thead>
<tr>
<th></th>
<th>Transactions</th>
<th>Letters</th>
<th>Magazine</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Research Article</td>
<td>YES (6 pages, over-length charge)</td>
<td>YES (3 pages)</td>
<td>NO</td>
</tr>
<tr>
<td>Tutorial Article</td>
<td>YES (at expert level)</td>
<td>NO</td>
<td>YES (at Fundamental to Intermediate level)</td>
</tr>
<tr>
<td>Application Note</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>Review Article</td>
<td>YES (at expert level)</td>
<td>NO</td>
<td>YES (at Fundamental to Intermediate level)</td>
</tr>
</tbody>
</table>

- **Research Article**: Papers in the journals use the IEEE standard format and must include a Title, Abstract, Introduction, Technical Content, Conclusions, and References. The transactions also include the author biographies.
- **Tutorial**: Unique presentation of known material. Valuable methodologies, exhaustive references
- **Application Note**: Describe current application of technology: circuits, systems, models, concepts.
- **Review**: Historical account of field, exhaustive references, explanation of state-of-the-art, indications of future research
Why Publish with IEEE / MTT-S Journals

<table>
<thead>
<tr>
<th>Journal Name</th>
<th>2011 Impact Factor</th>
<th>2012 Impact Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>IEEE Micro. and Wireless Comp. Lett.</td>
<td>1.717</td>
<td>1.784</td>
</tr>
<tr>
<td>IEEE Trans. Antenna and Propagation</td>
<td>2.151</td>
<td>2.332</td>
</tr>
<tr>
<td>IEEE Trans. Wireless Communication</td>
<td>2.586</td>
<td>2.418</td>
</tr>
<tr>
<td>IEEE Microwave Magazine</td>
<td>2.111</td>
<td>1.495</td>
</tr>
<tr>
<td>Electronics Letters</td>
<td>0.965</td>
<td>1.038</td>
</tr>
<tr>
<td>IEEE Antenna and Wireless Prop. Lett.</td>
<td>1.374</td>
<td>1.667</td>
</tr>
<tr>
<td>Micro. and Optical Technology Letters</td>
<td>0.618</td>
<td>0.585</td>
</tr>
<tr>
<td>IET Proc. Micro. and Antenna and Prop.</td>
<td>0.681</td>
<td>0.836</td>
</tr>
</tbody>
</table>

IEEE MTT-S Journals have the highest Impact Factors among comparable journals
Why Write Papers in MTT-S Journals

• Many universities and funding organizations require that funded work be published in open access journals.

• There are several open access journals that publish papers within the scope of our journals, and they have a high impact factor. However, there is debate whether the IF has been artificially raised.

• All papers published in IEEE journals may be open access. The papers undergo the same review process as all other papers, and they are published in the print journals as they always had been. It is called Hybrid Open Access.
Why Publish with IEEE / MTT-S Journals

These are among the quickest times between submission and publication of all engineering journals
Why Write Papers in MTT-S journals

Scientific Process
• Publish new scientific results
• Allow other researchers to confirm your results
• Allow other researchers to extend your results
• Clarify difficult concepts for the other engineers and the general public

Personal Reasons
• Establish priority (private notebooks do not establish your priority)
• Publicize (advertise) new technology capability
• Career advancement

Science depends on the peer review process to assess paper technical correctness, novelty, significance.
Paper Writing / Approval Process

New Idea

- Literature Search
- Technology Development

Author

- EIC
- AE

EIC Assistant

1. Decide Proper Journal
2. Write Paper
3. Submit Paper
4. Paper in Proper Format
5. Within Topic of Journal
6. Sufficient Technical Content

- Yes
- No

EIC Decides Paper
- Accept and Accept w/Revision
- Reject

EIC Reviews Paper with Reviewers and AE Input
- AE Makes Recommendation
- AE Invites Reviewers

- Reject

- Revise Paper
- Resubmit Paper

EIC Decides Paper
- Reject
- Accept

IEEE Publishes Paper
Observations Related to Paper Returns

• Not in the proper format. These are not rejected, but they cause delay for the author. See MTT-S web site for author instructions, www.mtt.org

• Not within the scope of the journal.

• Does not have sufficient technical content

All of these steps may be avoided if authors take time to read papers in the journal they are submitting to, understand the quality expected, and understand the submission guidelines.
Reasons for Rejection of Reviewed Papers

Note: Most reviewers look for reasons to reject a paper, not to accept it. Do not give them easy reasons.

1. Paper is very similar to another paper by the authors that was not referenced.
2. Idea not novel or it is an obvious, incremental variation over prior art.
3. Results are not significant
4. Results are not state of the art.
5. Unsupported claims made in the paper.
6. Method or circuit are not fully explained.
7. Measured results not presented.
8. Poor grammar or use of English.
Not Referencing Prior Papers:

• Not referencing your own work that is similar almost always results in rejection. If you have published similar work, it is best to state so in the introduction and explain what is different in this paper.

• Be fair when referencing past work; reference work by all research groups.

• With IEEE Xplore and Google Scholar, the Editor or the reviewers will find prior papers by the authors.
Reasons for Rejection

Low Novelty:

- IEEE publication rules require every paper to be new. There is no definition of how different a paper must be to be new. Generally, new material must be technical content, not more references and longer introduction.
- Paper is very similar to prior paper by other authors.
- Obvious, incremental variations of prior art are rejected.
Reasons for Rejection

Not Significant:

• Title: Development of numerical method that merges Cartesian and Circular coordinate systems for the solution of “Snowcone Waveguide”

The theory and numerical method may be very novel, but who is ever going to use “Snowcone Waveguide.” Who cares. Not Significant!!
Reasons for Rejection

Not State of the Art:

• IEEE does not publish papers that present “comparable” results.
• Reviewers are experts in their fields and expect new results to be better than prior results.
Reasons for Rejection

Unsupported Claims:

• Do not make any claims that are not supported by measurements, simulations, or comparisons to prior papers. (Claims in the introduction of smaller, less memory required, less CPU time required, higher gain, etc. that are not supported will be rejected)
Reasons for Rejection

Method or Circuits not Fully Explained:

• A practicing engineer must be able to duplicate your results based on your paper. Give all dimensions, important equations, materials, and circuit element values.

• Explain how the circuit works, and why the new circuit works better. Adding another circuit component to the model without explaining what it does and why will result in rejection. The reader must learn something!
Reasons for Rejection

Measured Results Not Presented.

• The MWCL, the Trans. on Microwave Theory and Tech., the JSSC and almost every journal requires that all components and circuits be fabricated, a photo included, and measured results presented.

• Theory and numerical method papers require a comparison to another method.
Reasons for Rejection

Poor grammar or incorrect use of English

- IEEE rules allow a paper to be rejected based solely on poor grammar.
- Most editors will try to help authors correct grammar errors.
- However, poor grammar makes the paper harder to read, so the reviewers are more likely to vote to reject the paper.
Writing the Paper

Write the paper to avoid easy rejections
Organization of Paper

• Title
• Abstract
• Introduction
• Technical Content
• Conclusions
• References
Organization of Paper

- Title and authors
- Abstract: 50 to 250 words that summarize the paper.
  - 1st to 3rd sentence tell what problem is being investigated.
  - How you performed the investigation.
  - Accomplishments and conclusions (summarize your results)

Abstract—Microwave and millimeter-wave integrated circuits and RF distribution networks often require two transmission lines to cross over each other. In this paper, experimental measurements and three-dimensional (3-D) finite difference time domain analysis are used to thoroughly characterize coplanar waveguide (CPW) and finite ground coplanar waveguide (FGC) 90-degree crossover junctions. It is shown that FGC crossover junctions have approximately 15 dB lower coupling than CPW crossover junctions. Furthermore, it is shown that the FGC junctions do not excite the parasitic slotline mode, whereas, the CPW junctions do excite the slotline mode. The results presented indicate that the FGC crossover junction is easier to implement and has better characteristics than the CPW crossover junction.

Index Terms—Coplanar waveguide, coupling, finite ground coplanar waveguide, planar transmission lines, transmission lines.
Organization of Paper

- Introduction (Hardest and most important part of paper, write this last)
  - 1st paragraph states problem to be solved and its importance
  - 2nd to nth paragraph states previous state of the art (Reference previous papers here, do not show bias towards or against any specific author or paper. Simply state the facts!)
  - Last paragraph states what is new in this paper (This statement is maybe the most important in the Introduction) and organization of the paper
- Many papers are rejected because of errors in the Introduction

Experimental Verification of the Use of Metal Filled Via Hole Fences for Crosstalk Control of Microstrip Lines in LTCC Packages

George E. Ponchak, Senior Member, IEEE, Donghoon Chum, Jong-Gwon Yoo, Member, IEEE, and Lindo P. B. Khelifa, Fellow, IEEE
Organization of Paper

- Body of paper separated into sections:
  1. Procedure (Design of the experiment)
  2. Results
    - Use clear figures and discuss all figures in the text
    - If paper is long, start each section with an introduction and end with a summary (few sentences)

- Summary or Conclusions
  (Emphasize what novel or good results were demonstrated. This is best done with a Table of Comparison or the use of Figure of Merit.)

- Acknowledgements (This can be added after acceptance of paper)
References

References should:

• Put paper in context with prior work. If reporting a state of the art result, references should be used for comparison. Newer references with the latest results are preferred to older references.

• Provide supplemental information. There is no need to repeat well known ideas, equations, or facts in your paper.

Helpful Hint: At least some of the references should come from the journal that you are submitting to. This shows that the paper is within the topic of the journal. Also, some journals, not the MWCL or the Trans. on Microwave Theory and Techniques, use this as a method of increasing their Impact Factor.
Before Submission

• Have all co-authors read the paper and make revisions.
• Have a non-author read the paper for clarity. After spending several weeks writing the paper, you tend to overlook obvious errors.
• Submit required government and company forms.
Submit Papers

- Visit submission web site
  http://www.mtt.org/publications/index.htm
  and follow procedures for the IEEE Transactions on Microwave Theory and Techniques, the IEEE Microwave and Wireless Components Letters, or IEEE Microwave Magazine
Letter from Editor after Review

Dear Dr. George Ponchak:

Your manuscript entitled, Coupling Between Microstrip Lines With Finite Width Ground Plane Embedded in Thin Film Circuits, by Dr. George Ponchak, et. al., is rejected in its current form. We ask you to revise your manuscript in response to the Associate Editor's/reviewers' comments which are at the end of this letter.

Thank you for submitting your paper to the IEEE Transactions on Advanced Packaging.

Sincerely yours,

This is a good review. It is very rare that a paper is accepted without reviewers comments that need to be addressed. Read all reviews and address each comment. Note that reviewers comments are meant to help you strengthen your paper. If the reviewers did not like your paper, they would state this to the editor in a separate letter.
This paper investigates the modes that occur in multilayer MCM-D structures when the grounds of two microstrip lines are not connected. The conclusion is that the two lines perform better (less coupling) when the grounds are connected than they do if the grounds are not connected. This is not much of a surprise.

Additional comments.
- The field plots are interesting
- The possibility of a dielectric mode is interesting, but there needs to be more investigation of it. Presumably the dielectric mode is related to a lossy mode in the low resistivity silicon.
- There needs to be more explanation of how Eeff is extracted for the various modes.
- At the beginning of Section 5, the increasing attenuation of W2 is blamed on radiation. This seems unlikely for the small size of the structure, and with no resonances. More likely is that the W2 mode is extending its currents into the low resistivity Silicon. Thus the loss increases.
Write a polite response to each point that the reviewers identified. Include a description of how you revised the paper to improve it based on the reviewers’ comments.

- “At the beginning of Section 5, the increasing attenuation of W2 is blamed on radiation. This seems unlikely for the small size of the structure, and with no resonances. More likely is that the W2 mode is extending its currents into the low resistivity Silicon. Thus the loss increases.”

- Response: The authors appreciated your comments and we reexamined the field plots. We deleted our previous assumption on why the loss increased and added “FDTD simulations show that the magnitude of the electric fields excited into the silicon wafer from the edges of the ground planes increases with frequency. Furthermore, microstrip lines with thicker substrates, such as W2, have greater excitation of electric fields in the silicon than lines on thinner substrates. Therefore, since the silicon is a lossy substrate, this is probably the reason for higher loss for line W2 at higher frequency.”

- In the revised paper, highlight all revisions.
If Paper is Rejected

• IEEE and IEE transactions and letters reject between 80 and 50 % of papers submitted. Do not take it personal.

• If your paper is rejected, read all of the reviewers’ comments. The reviewers and the editors are experts in the field and the comments should help strengthen the paper.

• Revise your paper to address all of the relevant comments. Note that reviewers often review for many journals. If they are the expert in the field of your paper, they may be asked to review it again, even if submitted to a different journal. In revised paper, highlight all revisions made.

• If invited to resubmit the paper by the editor, then resubmit the revised paper within 1 to two months.

• If editor does not invite resubmission, suggest selecting a different journal or sending the editor a letter asking if a resubmission would be welcome. IEEE allows for resubmitted papers, but the editor does not have to send them for review if the paper was not revised.
Conclusions

- Reviewers look for reasons to reject a paper - Do not give them any.
- Do not assume that you can fix the figures and text if the paper is accepted. Submit the best version that you can.
- Write papers in 3rd person.
- Write papers in the present tense {is, are} not {was, were}.
- Do not reuse symbols.
- Do not overuse acronyms, use acronyms that are not common to the journal you are submitting to, or invent new acronyms.
- Reference all relevant papers, especially your own.
- Reviewers will do a literature search on all of the papers’ authors.
- Be patient; although the editors try hard to return papers to authors as quickly as possible, some papers may take longer. Reviews to IEEE journals can take one year. (Note: IEEE MWCL averages 2 months for a review and IEEE Trans on Microwave Theory and Tech. averages 3 months for a review. These are among the quickest review cycles of IEEE journals.)
- Keep Writing and Submitting Papers to the IEEE MTT-S Publications.
Warning

- All IEEE journals now use software to check for plagiarism. If caught copying someone’s work, submitting the same paper to multiple journals/conferences in parallel, or fabricating data, IEEE can put the author on a “banned author list” which prevents the author from submitting to any IEEE publication for a period of 1 year to lifetime.