

Guidelines for publishing simulation papers in scientific journals

1. Outline motivation, methodology, and practical significance of your simulation study in the introduction. Compare your approach to previous publications on this topic and explain why your approach is better and why your results advance our knowledge in this field.
2. Identify and discuss essential physical mechanisms and corresponding mathematical models. What are the limits of these models? Modeling should be governed by insight into device physics and not by mathematical convenience. Possible side-effects can only be evaluated if included in the models.
3. Find out which material parameters in your models have a significant impact on your results and justify your choice of parameter values. In some cases, a wide range of values can be found in the literature, so that an error analysis may be required to investigate the corresponding uncertainty of your results.
4. *Validate your model by reproducing measured characteristics, at least for a reference device. You may need to find experimental partners or suitable literature sources that provide a sufficient data set. This is often difficult but it is your job as author to prove to the general audience that your simulation is realistic. You may need to reproduce different measurements to find the correct set of models and parameters. If your models or parameters are incorrect, your paper may lead the reader in the wrong direction.*
5. Separate evidence-based results from speculative interpretations. Conclusions should be derived from demonstrated facts and not from wishful thinking.
6. Prepare supplemental information that enables the reader to exactly reproduce your results by using the same software (models, complete parameter list, input files, etc.). An increasing number of journals now accept or even require such supplemental documents.

Updated and posted by Joachim Piprek on March 16, 2017 at

http://www.nusod.org/2017/conf_oqe.html

as a result of the NUSOD Blog discussion at

<https://nusod.wordpress.com/2017/01/04/how-to-get-your-simulation-paper-accepted>