STM STEC Working Group on Image Alterations and Duplications

In scholarly publishing we encounter image alterations as well as duplications. Whatever the reason is behind the submission of altered and/or duplicated images to a journal, they should be identified early in the article evaluation process, so journals can take appropriate action prior to publication and in a best case scenario, before peer review. Opposite to text plagiarism, which usually results in the violation of the research *process*, image alteration and/or duplication can be much more damaging, as it corrupts actual research *results*, wastes research *money* on invalid leads, undermines society's *trust* in research, and can even *endanger* the society in which those "results" are used.

Automatic detection in text plagiarism is nowadays commonplace, and standard tools are widely adopted by scholarly publishers, while detection of image alteration and/or duplication is not. Tools that can assist journals in the detection of image alteration and/or duplication are now being developed by both academic research groups and commercial vendors.

The STM Standards and Technology Committee (STEC) has appointed a working group to answer questions around automatic image alteration and/or duplication detection. It will address topics like the minimal requirements for such tools, the current quality of them, how their quality can be measured, and how these tools can be widely, consistently, and effectively applied by scholarly publishers. In preparation of this focus on tools, it will also look at a standard classification of types and severity of image-related issues and propose guidelines on what types of image alteration is allowable under what conditions.

The members of this working group are:

- Sowmya Swaminathan, Springer Nature
- Jon SlinnHawkins, Wiley
- Sarah Robbie, Taylor & Francis
- Teodoro Pulvirenti, Rockefeller University Press
- Bernd Pulverer, EMBO Press
- Jacob Kendall-Taylor, JAMA
- Catriona Fennel, Elsevier
- Tony Alves, Aries Systems
- IJsbrand Jan Aalbersberg (chair), STM STEC and Elsevier

Related reading:

1. Bik, E.M., Fang, F.C., Kullas, A.L., Davis, R.J., Casadevall, A. (2018), *Analysis and correction of inappropriate image duplication: The molecular and cellular biology experience*, Molecular and Cellular Biology 38 (20), e00309
2. Rossner, M. (2002), *Figure manipulation: assessing what is acceptable*, The Journal of Cell Biology 158 (7), 1151
3. Williams, C.L., Casadevall, A., Jackson, S. (2019), *Figure errors, sloppy science, and fraud: keeping eyes on your data*, The Journal of Clinical Investigation 129 (5), 1805-1807