CHEMISTRY OF MATERIALS

Editorial

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Table of Contents Images: Science and Beauty = Clarity

One of the most enjoyable aspects of our job as editors is admiring the visual representation of scientific results. There is a myriad of different ways a scientific problem can be approached and tackled, and the same can be said regarding the presentation of schemes and data—there are many different approaches to telling the story, both textually and schematically. We have emphasized, in earlier editorials, the importance of the table of contents (ToC) image as the first impression, along with the title, that your paper makes on a prospective reader.[1] As stated in our author guidelines,[2]

> *"The ToC/abstract graphic should capture the reader's attention and, in conjunction with the manuscript title, should give the reader a quick visual impression of the essence of the paper without providing specific results.... Some of the best images are simple, relatively free of text and technical characters, and make use of color for visual impact. It is best to stay away from complex structure schemes and small-sized details."*

I have chosen three ToC images from a recent issue (issue 4, 2016) that provide very clear and elegant representations of the papers they represent; the approaches taken to graphically illustrate the themes of these papers are, however, very different. The first example, shown in Figure 1, illustrates the

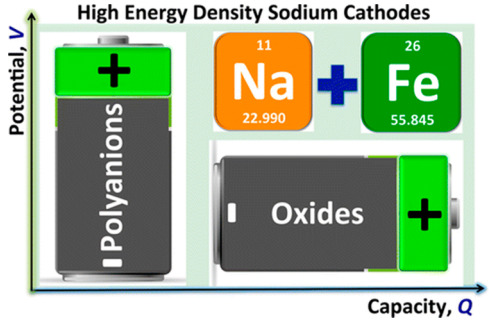

Figure 1. Table of contents image from ref 3, a perspective on a new family of sodium ion batteries.

topic of a perspective on iron-based sodium ion battery cathodes.[3] In this ToC image, there are no chemical structures or "real" data, but the use of simple, succinct and precise text in a creative format representing batteries leaves no doubt that this paper describes a new class of batteries. The clean font (text) and judicious choice of vivid color is an attractive start to an excellent overview of the area.

The second example of a ToC image uses a subset of the full network structure of a metal organic framework material, complemented by text that lists the 3 metrics typically used for evaluating these structures for gas absorption and separation (Figure 2).[4] The representation of the adsorbed hydrogen (blue H_2 molecules) and the clever use of the universally understood symbols ($\surd$, $\times$) makes the point that two different metal organic framework materials are being compared for hydrogen uptake. A complex material was represented clearly, precisely, and in a graphically enticing manner.

The third ToC image chosen, Figure 3, is more detailed in a chemical sense than those shown in Figures 1 and 2, as it

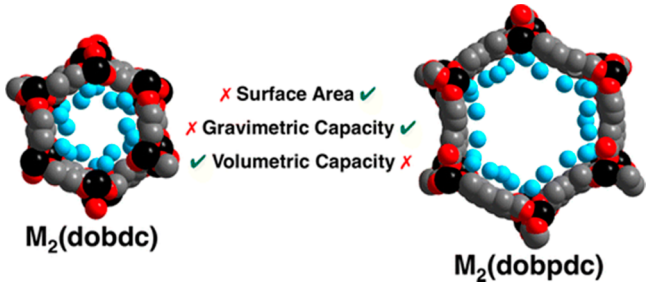

Figure 2. Table of contents image from ref 4, an article describing original research related to synthesis and characterization of metal organic frameworks for hydrogen uptake.

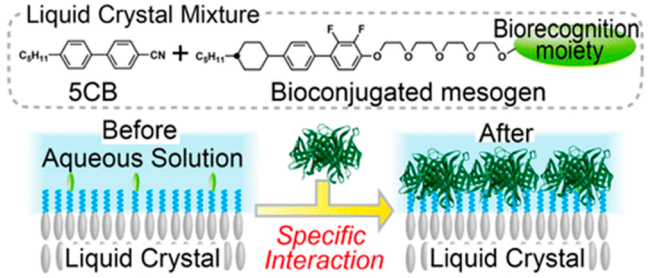

Figure 3. Table of contents image from ref 5, an article describing original research on the binding of molecules of biological interest to a liquid crystal interface using a tailored mesogen.

shows three specific items—chemical structures, a biological molecule, and a liquid crystal–water interface.[5] If not properly executed, this ToC image could have been cluttered and confusing, but this example succeeds because it is balanced; the details and text are sufficiently large and hence easy to read and attractive.

To summarize, there are many ways in which a scientific story can be represented, and we encourage all authors to consider carefully their personal style with regards to expression of their work to potential readers. We note that these examples do not show actual data (plots, graphs), and while some ToC images do succeed in including "real" data in the ToC image, it should only be used judiciously when it is easily understood and is complemented by clear chemical information (a chemical structure, for instance). An example of the use of a simple I–V plot that is complemented by clearly drawn chemical structures in the ToC image of paper on organic photovoltaics that does work well, due to its simplicity and clarity, is referenced here.[6] We hope that these examples of ToC images demonstrate that one does not need complexity or detailed graphics to draw attention to your paper—simplicity and clarity suggest to the reader that your written scientific story is also clear, and that

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your paper has as obvious focus and theme. We thank all authors for taking the time and effort that they do, to render their beautiful ToC images.

Jillian M. Buriak, Editor-in-Chief

AUTHOR INFORMATION

Notes

Views expressed in this editorial are those of the author and not necessarily the views of the ACS.

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