# Comprehensive and Full

Since joining the team of *ACS Nano* editors more than a year ago, I continue to be impressed by how the journal operates. *ACS Nano* was founded as a forum for the cross-disciplinary exchange of high-impact, comprehensive articles in nanoscience and nanotechnology that represent advances of exceptional significance.[1−3] As anticipated, the editorial team does actively seek to gather and to publish the top comprehensive articles, perspectives, and reviews in this area.[3] The editors do indeed engage in behind-the-scenes discussions about manuscripts and frequent forward-thinking discussions about emerging research directions.[3]

One characteristic of *ACS Nano* that stands out is the exclusive focus on original research articles that are thorough, in-depth, and complete. The *ACS Nano Guide to Authors* document solicits "concise, yet comprehensive reports" that "are not intended to be follow-up papers, unless they contain new and extensive information that will advance the understanding of the field."[4] Accordingly, when referees submit reviews, they are asked to comment on whether or not the manuscript is a comprehensive article. So . . . what exactly *is* a comprehensive paper?

Most authors, reviewers, and readers easily recognize a typical communication—a short, often preliminary report of significance that has a concise introduction, no subdivisions, a few figures, appropriate (but not extensive) referencing and fits nicely on a small number of journal pages. Is a comprehensive full paper, therefore, one that is the opposite of a communication? Does it fill as many journal pages as possible by incorporating a lengthy introduction, a complete experimental section, a large number of figures, and an exhaustive list of references? Can a formula be used to distinguish a comprehensive paper from a communication, perhaps by requiring no fewer than *x* figures, at least *y* references, and a length of more than *z* pages? Authors will sometimes try to "repurpose" a communication as a full paper by adding subdivisions to the text and moving experimental details and ancillary data from a Supporting Information file to the main body of the manuscript, which makes it appear to fit such a formula. However, when I asked several graduate students to comment on the characteristics of a comprehensive full paper relative to a communication, they immediately responded with descriptions like "more work" or "exhaustive". This suggests that there are differences that go beyond simple packaging issues.

While these elements of "packaging" may often be accurate on the surface, it is the depth of the content that defines a comprehensive full paper, not numerical metrics. Simply rearranging a communication does not make it a full paper. In terms of the in-depth content that does define such a paper, there is (unfortunately) no one-size-fits-all guideline. For some types of research, "comprehensive" may mean providing evidence that a finding is general across multiple systems or that it has important properties or applications. For other types of research, this may not be appropriate or necessary. "Comprehensive" could also mean an in-depth study of how a set of key variables collectively influences a particular system or how a series of experiments provides important new mechanistic or physical insights. Even a study of a single system using a single technique can be comprehensive if it is carried out and presented with appropriate depth.

The examples listed above are clearly not "comprehensive" because there is no single definition that encompasses all of the possible constructs for such a paper, and expectations in different fields vary. However, we often know what does *not* constitute a full paper. At *ACS Nano*, a manuscript may be rejected without review if it is not sufficiently comprehensive because such papers fall outside of the scope of the journal. Reviewers will often indicate ways in which a manuscript can be made more thorough, which can include additional experiments, generalization, applications, *etc*. Since there are many ways of compiling a comprehensive paper, authors have latitude in both content and scope, but three things must always be present: a study that is in-depth, results that have novelty, and impact that is significant, both now and into the future.[3]

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**Published online September 27, 2011**
**10.1021/nn203388d**

## REFERENCES AND NOTES


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