

The Centrality of Chemistry



I was a biology major for the first two years of college. As required, I took a course in organic chemistry and was subsequently captivated: I wanted more. I asked the course's professor, "Should I change my major to chemistry even though I am still interested in biology?" He said, "Carolyn, you should change your major to chemistry because you are interested in biology." It was a message of chemistry's centrality to so many areas of science in which molecules and materials are the fundamental units of function. And now, I am proud to celebrate chemistry's central role in science and society with the launch of this exciting new journal, *ACS Central Science*.

Popularized almost 40 years ago, the term "central science" is now widely used to describe chemistry's focal role in bridging the physical and life sciences, and the basic sciences with applied disciplines like medicine and engineering. Indeed, chemistry is at the crux of so many of the 20th and now 21st centuries' transformative discoveries and technologies—from materials, fuels and medicines to computing and genome sequencing—that one might expect the chemical sciences to be most highly revered by society at large. And yet, chemistry often takes a back seat to other disciplines (biomedicine and astrophysics, for example) in the public eye perhaps reflecting the field's pervasive, foundational, and therefore often overlooked role in major scientific advances. When asked who makes medicines, for example, many people answer "doctors" rather than chemists.

My goal is to make *ACS Central Science* the primary venue for reporting the most important advances in chemistry and in allied fields wherein chemical approaches play a major role. The defining content of *ACS Central Science* will be primary research reports of exceptional quality and interest, written for

a broad readership of scientists and engineers, with problems and discoveries framed in light of the unmet needs of science and society. *ACS Central Science* will be highly selective with regard to submissions sent for review and accepted for publication. We offer several advantages to authors and readers as compared to other leading science journals. We will manage a rapid, high-quality and constructive review process, one that ACS Publications has refined admirably across its portfolio of journals. In order to disseminate these critical findings as widely as possible, ACS has decided to publish *ACS Central Science* completely open with all content available to read by everyone, and to provide all authors an option to publish for free without levying publishing charges. In short, our philosophy can be distilled to three missives: quality, transparency and accessibility.

ACS Central Science encourages relatively short reports (4–6 journal pages) to enhance readability and accessibility to those outside the core area of the work, and to focus on the defining essential elements of the science. We seek high quality reports of conceptual or technological breakthroughs that are likely to influence the course of science and society. We encourage contributions from authors across a broad range of fields but with a common thread of chemistry at the core of the work. Many articles will be interdisciplinary in nature, since chemistry plays a vital role in the materials, biomedical, environmental and energy sciences. I hope *ACS Central Science* will also be a venue for exciting fundamental discoveries regarding the nature of matter—chemical bonding, structure and reactivity. Articles from academic, industrial and government laboratories are welcome, from all around the globe.

The journal's broad appeal will be enhanced with "front matter" content of human and societal interest, including invited news features (See Ivan Amato's *The Hub* on the multidisciplinary science at Janelia Farm Research Campus and Erika Gebel Berg's piece on the chemistry and influence of The Pill) and interviews (*Center Stage*, this month a Q&A with Dame Carol Robinson). We are fortunate to be working closely with editors and writers from C&EN, the weekly magazine of the ACS on these endeavors. We will also include succinct news and opinion pieces called *First Reactions*, typically written by active scientists. Subjects might be linked

Published: March 23, 2015

to recent high-profile scientific discoveries (published in *ACS Central Science* or elsewhere), commercial product launches or clinical trial results, government policy news, or international events.

Once research papers are ready for publication, we will work closely with ACS's communications staff to highlight important stories for the international press. And of course, those articles will be immediately accessible in full thanks to ACS for sponsoring the complete open availability of all *ACS Central Science* content. I believe this coverage will expand the scientific community's appreciation of chemistry as the foundation for so many other pursuits.

THE EDITORIAL TEAM

Key to our success will be the top talent we have recruited at ACS Publications, starting with Dr. Miranda Paley, *ACS Central Science's* dedicated Managing Editor. We also enjoy an experienced top-notch team assisting with peer review, managed support, journal production and communications.

Managing the peer review process, I will be joined by a sterling group of five senior editors: Chris Chang (HHMI/UC Berkeley), Ben Davis (University of Oxford, U.K.), Monica Olvera de la Cruz (Northwestern University), David Tirrell (CalTech) and Dongyuan Zhao (Fudan University, China) along with a wonderfully talented and diverse editorial advisory board (EAB). We are committed to swift and fair appraisals of all submitted manuscripts.

While I am eager to solicit research from the chemistry community, ultimately the key to the journal's impact and aspirations will be contributions and readers from outside chemistry and chemical engineering. This combination will help establish *ACS Central Science* as a truly unique journal, emulating the multidisciplinary flavor of the well-established top-tier journals while providing a distinctly new flavor in framing the science through a chemistry lens. If you have an idea that showcases chemistry's central role to other areas, I'm game to listen. For example, chemistry perhaps has not traditionally embraced its role in the biomedical sciences, in the earth and planetary sciences (including atmospheric science and exobiology) and in energy sciences (including physical electronics and bioenergy). These, as well as many others, are key interdisciplinary areas for the journal and, combined with core chemistry, can create a unique journal that truly brings chemistry to the world.

I also want to particularly reach out to younger scientists, who are such an important demographic. Today's students and postdocs are less attached to and invested in "establishment" journals, they are more sympathetic to the cause of open access publishing, and will have unique perspectives on moving our science forward. We encourage

you to take an active role in contributing to the journal and we look forward to showcasing exciting young talent doing innovative research across the frontlines of chemistry.

THE OPEN ACCESS OPPORTUNITY

While I was intrigued by the framing of *ACS Central Science* from the moment I first heard about the idea early last year, it was the open access component that really sold me. As a journal with 100% of the content openly available to all interested readers from the first moment of publication—the first such journal published by ACS—*ACS Central Science* will have unprecedented reach across the scientific community and into the public at large. I envision the journal serving as an entry portal into the worlds of chemistry and chemical engineering, thereby elevating our visibility and stature in society. It is imperative that we promote the social significance of open access publishing, a subject I am attuned to after 20 years at UC Berkeley, and how this feature elevates *ACS Central Science* above related journals.

Moreover, ACS has committed to waiving any required author publishing charges typically levied by open access publishers, thereby making *ACS Central Science* not only free to read, but also free for authors to publish. I look forward to building bridges between well-funded scientific environments and emerging scientific communities (see Omar Yaghi and colleagues' engaging *Outlook* on the Globalization of Science). We have an opportunity to adopt a leadership position in reaching out to colleagues in lower-resource settings, perhaps in partnership with other nonprofit organizations, bringing science to more remote parts of the world and making key science advances globally accessible. We encourage the best scientists in those environments (of which there are many) to submit their high impact work to the journal for the world to see.

That is down the road. For now, enjoy the inaugural issue of *ACS Central Science*. I look forward to working with you to create a special journal that will serve well the broad chemistry and scientific community. *ACS Central Science* is open.

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Notes

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

Updated April 10, 2015 to correct C&EN contributor name.