Renewal

Now, 10 years into the U.S. National Nanotechnology Initiative (NNI)[1] and related efforts worldwide, we look ahead to what the next decade will bring. As Associate Editor Jillian Buriak pointed out in her November 2009 editorial,[2] the indirect and perhaps unintended consequences of the NNI and of the development of the field have been substantial and may perhaps be even greater than the direct consequences predicted or promised. In any case, what is next? Can we accelerate advances, enable new technologies and new capabilities, and further expand these broader impacts?

Can we accelerate advances, enable new technologies and new capabilities, and further expand these broader impacts?

Among the virtues of competitive systems and competitive environments are the requirements of critical assessments and of projections at what might be accomplished. We estimate what efforts would be needed and also what aspects might need to be abandoned in order to move toward our goals on the steepest possible gradient. These goals are modified as new opportunities and new insights are uncovered. While the nanoscale world remains largely unexplored, what we have learned thus far is already having impact in biomedicine, energy, the environment, and other areas critical to our life on the planet.

Now, we look at what has been accomplished, what is underway, and what is missing. Our abilities in visualizing and exploring have expanded significantly but remain not only limited but limiting. Our abilities in creating and assembling have increased and are growing steadily,[3] but the precision and complexity are still only a tiny fraction of what should be accessible. These efforts go hand in hand. Likewise, we look at how to proceed responsibly and safely[4] and factor this into the calculations of the gradient along which we proceed toward our ultimate goals. These are the essential elements of renewed efforts at all levels.

Countries, regions, and international collaborations have approached these problems in different and complementary ways. We motivate and inspire each other, as ties and global cross-links increase.

PHOTO COURTESY OF JASON HAFNER

Prof. Jason Hafner joins *ACS Nano* as an associate editor.

In our own assessments and in response to your comments, we make every effort to provide views of the future of nanoscience and nanotechnology, as well as guidance as to the key challenges ahead for our community. Our hope is that through these discussions we not only see what is to come but help shape the future of our field and the future of our world.

On a smaller scale, part of our self-assessment at *ACS Nano* is to determine how we can best renew our efforts and continue to handle the extraordinary work that our authors submit in a thoughtful, intelligent, efficient, and expeditious manner. Thus, as we go to press with this issue, we are adding to our editorial ranks and welcome Prof. Jason Hafner of the Department of Physics and Astronomy Department at Rice University as our newest Associate Editor.

Paul S. Weiss
Editor-in-Chief

Published online January 26, 2010.
10.1021/nn100036z

REFERENCES AND NOTES

1. National Science and Technology Council Committee on Technology Interagency Working Group on Nanoscience, Engineering and Technology; Nanotechnology Research Directions: IWGN Workshop Report. Vision for Nanotechnology R&D in the Next Decade, **1999**, http://www.wtec.org/loyola/nano/IWGN.Research.Directions/IWGN_rd.pdf.
2. Buriak, J. M. A Quiet Revolution. *ACS Nano* **2009**, *3*, 3335–3336.
3. Weigelt, S.; Bombis, C.; Busse, C.; Knudsen, M. M.; Gothelf, K. V.; Lægsgaard, E.; Besenbacher, F.; Linderoth, T. R. Molecular Self-Assembly from Building Blocks Synthesized on a Surface in Ultrahigh Vacuum: Kinetic Control and Topo-Chemical Reactions. *ACS Nano* **2008**, *2*, 651–660.
4. Meng, H.; Xia, T.; George, S.; Nel, A. E. A Predictive Toxicological Paradigm for the Safety Assessment of Nanomaterials. *ACS Nano* **2009**, *3*, 1620–1627.