Changes

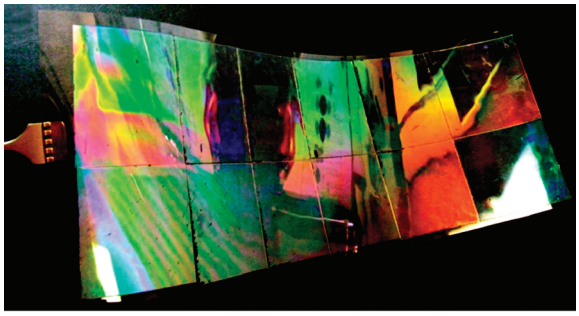
So much is changing in the world. As Gen. Eric Shinseki (the former U.S. Army Chief) said, "If you don't like change, you're going to like irrelevance even less!" On a recent trip to India, I had the chance to sit down for a Conversation with Prof. C. N. R. Rao, in which we discussed the dramatic changes in science in India, and the specific focus and investment in nanoscience there.[1] We also had a chance to talk about less-developed countries and how to promote both science and understanding. I hope you enjoy his thoughts on the power of "knowledge equality".

We anticipate that nanoscience will be one of the instruments of change. That puts us in a special position internationally and in terms of global connectedness.

I found it amazing how rapidly new resources could be applied, new institutes could be formed, and talented scientists and engineers could be brought to work together. This situation is not unique to India; it could be reproduced elsewhere. Also extraordinary at the workshop in Pune (the NCL Diamond Jubilee International Workshop on Nanotechnology and Advanced Functional Materials) and the surrounding events was how science was devoured. Over 100 extra participants showed up on the first day and stayed to the end. Some of the presenters traveled across India for 4 days by train to attend. For the last session on Saturday morning, a number of students and staff brought their small children. What a joyful way to do science.

We anticipate that nanoscience will be one of the instruments of change. That puts us in a special position internationally and in terms of global connectedness. Such opportunities are not to be missed. As Chunli Bai told us in an earlier Conversation, the threshold for entry into nanoscience is low, especially in the area of making new nanomaterials.[2] The potential impact is high and much remains to be explored. Those are two aspects that are not expected to change any time soon.

In laboratories across the globe, and in many examples in this issue,[3−7] we continue to make strides toward the *next* steps, of combining, placing, patterning, and manufacturing functional nanomaterials. This is another area where cleverness and creativity have not only resulted in a low threshold for entry, but have enabled new capabilities and new applications at a breathtaking pace.[8,9]



A pattern with a 700-nm period produced by roll-to-roll nanoimprint lithography on a 4-in. wide, 12-in. long flexible poly(ethylene terephthalate) (PET) substrate. Reproduced from ref 3 with permission. Copyright 2009 American Chemical Society.

Likewise, biological systems are being converted and exploited,[10,11] or are being probed directly with the tools created for and through nanoscience.[12,13] What a remarkable change in how we do science and how we look at the nanoscale and (overlapping) biological worlds.

We will do our best not only to capture these changes as they are being made, but also to help drive and accelerate the science and applications on the one hand, and knowledge equality and connectedness on the other.

Finally, on a personal note, earlier this month I changed positions and institutions, becoming the Director of the California NanoSystems Institute at UCLA, joining the faculty of the UCLA Department of Chemistry and Biochemistry, and holding the Fred Kavli Chair in NanoSystems Sciences. I am honored to take these new positions, and grateful to The

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Pennsylvania State University for all the support and all that I have been able to do with my colleagues and our groups there. With changes at all scales come new challenges and new opportunities; I am looking forward to both.

Paul S. Weiss
Editor-in-Chief

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