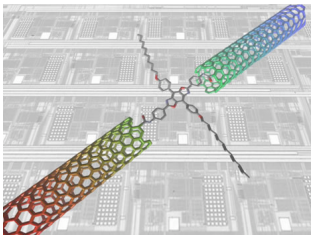

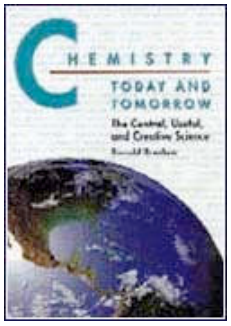

My research group is pursuing studies in several different areas. In our major effort we are trying to prepare artificial enzymes that can imitate the function of natural enzymes. Students typically design a potential catalyst on the computer, synthesize it, then determine its catalytic effectiveness and the mechanism involved. One of the most interesting recent successes is the preparation of such enzyme mimics that carry out selective oxidations of bound substrates with geometric control of the position attacked. In this way we override the natural reactivities of the substrate by using the geometric control imposed by defined binding to the catalyst.

We have had a long-standing program to develop novel compounds that can induce cells to differentiate. These have important potential in cancer treatment, and are now in human trials. One of these compounds has now been approved by the U. S. Food and Drug Agency for use by cancer patients.

http://www.columbia.edu/cu/chemistry/breslow/