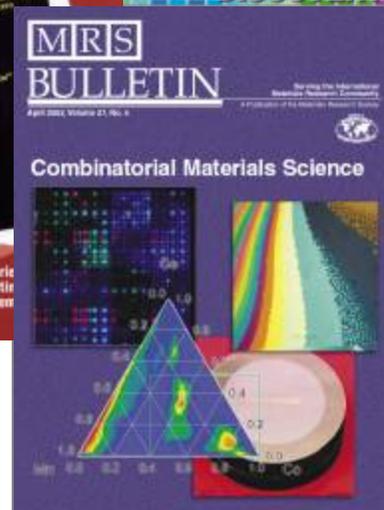
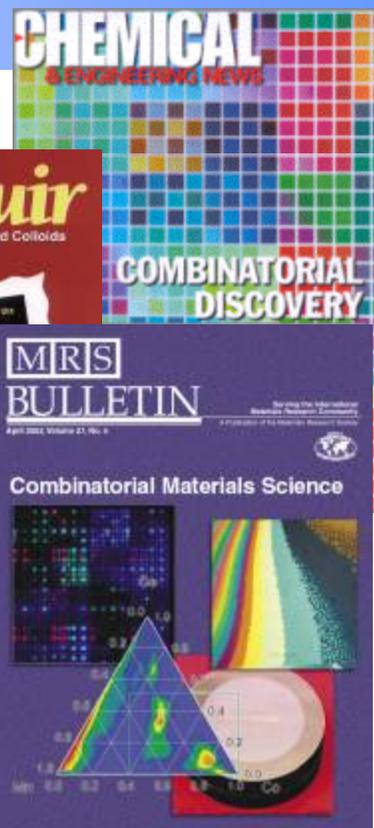


# Growing impact

- Combinatorial methods have revolutionized the process of pharmaceutical discovery.
- Now, materials scientists are applying the same approach to accelerate discovery and application of new materials.
- *Chemical and Engineering News* asks: Are combinatorial methods “Redefining the Scientific Method for Discovery”?



New, more complex materials are increasingly in demand for applications in biotechnology, microelectronics and nanotechnology. The use of combinatorial methods -- which comprise a special set of tools and techniques -- enables scientists to conduct many experiments on many materials at the same time. The National Institute of Standards and Technology is using the this methodology to learn more about materials and their structure, properties and processing, data which can help manufacturers accelerate the development of new materials.

Breaking away from the traditional one-at-a-time testing of materials, combinatorial methods allow researchers to rapidly explore a wide range of characteristics of materials -- in parallel and on a miniaturized scale -- such as the effects of temperature, thickness and composition. Researchers can easily compare these characteristics, screening for what works and what doesn't, and generating data to help construct predictive models.

Two fundamental approaches can characterize NIST's involvement in combinatorial methods. "Combi for NIST" suggests the use of these methods to enhance and accelerate NIST research in areas ranging from polymers and biomaterials to electronic and optical inorganic materials. On the other side, "NIST for Combi" represents a growing effort to use the expertise gained at NIST to develop and validate research tools, establish standards and demonstrate applications of combinatorial methods for industry and academia.