

# BCST Quarterly Newsletter

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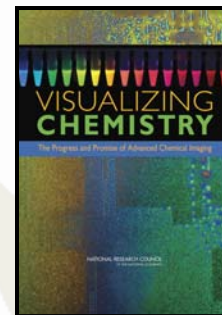
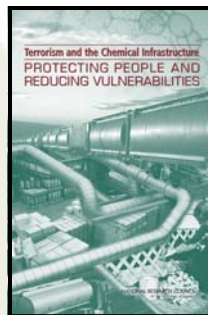
**Report Release**

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**Report Release**

**[Terrorism and the Chemical Infrastructure: Protecting People and Reducing Vulnerabilities](#)**

The Board on Chemical Sciences and Technology has issued a report, *Terrorism and the Chemical Infrastructure: Protecting People and Reducing Vulnerabilities* for the U.S. Department of Homeland Security (DHS). This report identifies where science and technology investments can best be made to prevent, protect, and mitigate against catastrophic consequences of an attack on the nation's chemical infrastructure. The report recommends that DHS pursue research to improve emergency response, strengthen chemical storage and monitoring, foster the use of safer chemical processes, and better understand likely public reaction to an attack. If you would like a copy of this report please visit The National Academies Press website by clicking the title link above or by simply clicking [here](#).

**[Visualizing Chemistry: The Progress and Promise of Advanced Chemical Imaging](#)**

Scientists and engineers have long relied on the power of imaging techniques to help see objects invisible to the naked eye, and thus, to advance scientific knowledge. These experts are constantly pushing the limits of technology in pursuit of chemical imaging--the ability to visualize molecular structures and chemical composition in time and space as actual events unfold--from the smallest dimension of a biological system to the widest expanse of a distant galaxy. Chemical imaging has a variety of applications for almost every facet of our daily lives, ranging from medical diagnosis and treatment to the study and design of material properties in new products. To continue receiving benefits from these technologies, sustained efforts are needed to facilitate understanding and manipulation of complex chemical structures and processes. By linking technological advances in chemical imaging with a science-based approach to using these new capabilities, it is likely that fundamental breakthroughs in our understanding of basic chemical processes in biology, the environment, and human creations will be achieved. This report reviews the current state of chemical imaging technology, identifies promising future developments and their applications, and suggests a research and educational agenda to enable breakthrough improvements. The report highlights advances in chemical imaging that could have the greatest impact on critical problems in science and technology. If you would like a copy, please click the link above to be directed to the NAP website.

**New BCST Studies**

**Protecting Occupants of DOD Buildings from Chemical or Biological Release**

The Board on Chemical Sciences and Technology is assisting the Defense Threat Reduction Agency (DTRA) in its capacity to plan, design, construct, and operate future chemical and biological resistant facilities for the Department of Defense. This review will analyze existing studies, both military and civilian, on preventing and mitigating the effects of a chemical or biological release or infiltration into a built structure, providing general principles that can be derived from these studies and existing testbeds, and discussing the cost/benefit and risk of possible protection schemes.

**Membership News**

We'd like to take this opportunity to thank our out-going members for their hard work and support:

**A. Welford Castleman, Jr. (Co-Chair)**, Pennsylvania State University

**Denise Barnes**, ITECS-Innovative

**Mark E. Davis**, California Institute of Technology

**Catherine Fenselau**, University of Maryland

**William A. Lester, Jr.**, University of California

**Mark E. Davis**, California Institute of Technology  
**Catherine Fenselau**, University of Maryland  
**William A. Lester, Jr.**, University of California  
**Gregory O. Nelson**, Eastman Chemical Company

We'd also like to welcome some new members to the Board on Chemical Sciences and Technology:

**F. Fleming Crim (Co-Chair)**, University of Wisconsin  
**Gary S. Calabrese**, Rohm & Haas Company  
**Pablo G. Debenedetti**, Princeton University  
**Paula T. Hammond**, Massachusetts Institute of Technology  
**Scott J. Miller**, Yale University

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### **Corporate Sponsor Program**

For 2006, the BCST is focusing their efforts on seeking funds to update the 1995 published report titled *Prudent Practices in the Laboratory: Handling and Disposal of Chemicals*. This report updated two earlier volumes on safe laboratory use of chemicals, and became the de facto bible for chemical safety professionals. Over 16,000 volumes have been disseminated, and the volume is now in its sixth printing. While the 1995 volume has served the community well, feedback from users confirms that it is time to update this volume to reflect new technologies, practices, and changes in regulation that have occurred since the previous publication. The BCST would like to thank the financial support of Air Products and Chemical Company and Eastman Chemical Company for their recent contribution to this effort.

We would also like to send our continued thanks to the 3M Corporation for their support with general BCST activities. As a BCST Corporate Sponsor they, along with others, provide a flexible source of funding for costs not covered by federal or foundation funds. Strong corporate support can enhance BCST's ability to identify issues, develop new study ideas, and bring them to the attention of federal policy makers. If you are interested in obtaining information on the Corporate Sponsors Program, please contact Sybil Paige at [spaige@nas.edu](mailto:spaige@nas.edu).

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### **[Christine Mirzayan Science & Technology Policy Graduate Fellow](#)**

The Board on Chemical Sciences and Technology would like to thank José Zambrana, a Christine Mirzayan Science & Technology Policy Graduate Fellow, for his hard work and dedication. We wish José the best of luck in all of his future endeavors.

#### **[Board on Chemical Sciences and Technology](#)**

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