

Introduction to German–American Frontiers of Science

Since 1989, the National Academy of Sciences (NAS) has organized annual symposia on frontiers of science. The goal of these symposia is to bring together some of the very best young scientists to discuss exciting advances and opportunities in their fields in a format that encourages informal discussions among participants, both in groups and one-on-one. Speakers present talks on current cutting-edge research in their disciplines to colleagues outside of their fields and address questions such as, “What are the major research problems and distinctive tools of your field?” “What are the current limitations in advancing your field?” and “How might insight derived from other fields contribute to overcoming these limitations?” Formulating and answering such questions involves surmounting the barriers imposed by the specialized terminologies and techniques that characterize different branches of science. This poses formidable challenges that these symposia are addressing with success.

The U.S. Frontiers Symposium series has spawned similar programs, including the German–American Frontiers of Science symposia, under the auspices of the German–American Academic Council and in coordination with the Alexander von Humboldt Foundation.

These symposia are attended by approximately 70 scholars under 45 years of age (half from the U.S. and half from Germany), up to a dozen senior colleagues, and several science writers. At each symposium, some 25 young scientists report on current research within their disciplines to an academically trained and scientifically diverse audience. They highlight major research challenges, methodologies, and limitations to progress at the frontiers of their respective fields. All attendees partici-

pate actively in a general discussion period, during which they learn from and form collaborative relationships with other young scientists in different fields.

Frontiers of Science symposia also are organized with Japan and China. Thus, the Frontiers of Science symposia have become a major instrument in bringing together the best young researchers—the next generation of leaders—in the natural sciences and engineering in the United States, and, increasingly, in other countries.

The *Proceedings of the National Academy of Sciences* (PNAS) publishes collected summaries of the talks presented at these symposia, as part of the “From the Academy” series that is designed to inform PNAS readers about the workings of the National Academy of Sciences. Summaries of presentations from the 1990 U.S. symposium (1), and the 1991 and 1992 U.S. symposia (2) have been published by the National Academy Press. Starting with the 1995 U.S. Frontiers of Science symposium (3–7), these collected summaries, including the German–American Frontiers of Science (8–10), the Japanese–American Frontiers of Science (11, 12), and the Chinese–American Frontiers of Science (13, 14), have been published in PNAS. The following papers summarize sessions of the sixth annual German–American Frontiers of Science symposium held June 8–10, 2000, at the Arnold and Mabel Beckman Center of the National Academies of Science and Engineering in Irvine, CA.

The German–American Frontiers of Science symposium series is sponsored by the German–American Academic Council and supported, in part, with funding from the National Science Foundation.

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