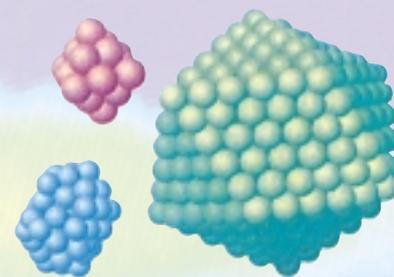
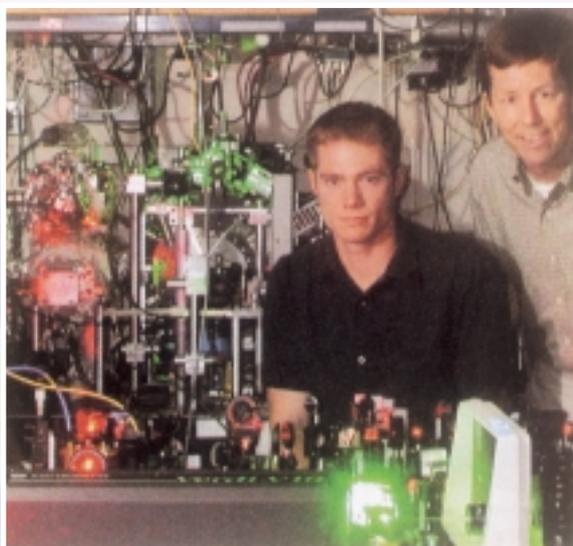


GERMAN-ISRAELI JAMES FRANCK PROGRAM PROBES LASER-MATTER INTERACTIONS



The photons (light particles) in a laser beam travel in phase, spawning additional colleagues as they speed through an excited medium. The result of this replication process is a light beam of unparalleled intensity, purity and coherence, which can be focused in both time and space to create light pulses of incredible shortness and power densities. When they interact with matter, such laser beams can both elucidate important new chemical, physical and biological phenomena at the quantum level and provide the basis for a wide variety of novel applications.



Program is set by a seven-person binational committee, the *Beirat*, chaired by Prof. K. L. Kompa of the MPI/QO.

Program-supported scientists are engaged in world-class experimental and theoretical research at the frontiers. From its inception, the program has focused its efforts on five main research areas: the spectroscopy and dynamics of clusters, charge separation and ionization, condensed phase dynamics, advanced analytic interrogation techniques and laser-based nanotechnologies. The *Beirat* deliberately favors groundbreaking experimental work, such as chemical dynamics research using ultra-short femtosecond (one-

thousandth billionth of a second) or shorter laser pulses, and research on the photoelectron spectroscopy of neutral molecules and negatively charged clusters. Proposed new directions include laser nanoscale information technologies, quantum control and laser bioelectrooptics.

German and Israeli scientists have long been at the forefront of this exciting new field; and, in 1989, Profs. Joshua Jortner and Rafael D. Levine of Israel and Prof. E. W. Schlag of Germany approached the German MINERVA Foundation to help establish a new binational "Program in Laser-Matter Interaction." The program was named after James Franck, a Jewish-German physicist and Nobel laureate (1925), who made seminal contributions to atomic physics, spectroscopy, photochemistry and photosynthesis. The program was funded by the fluctuating interest on the original MINERVA endowment of one million Deutsch Marks (DM) each for Tel Aviv University and the Hebrew University and a fixed 7% matching contribution from the recipient institutions.

The James Franck Program also directly funds several other international activities, such as visits of German scientists to Israeli laboratories, and vice versa. An annual 3-day James Franck Symposium is held alternately, in Israel and Germany, on a single scientific topic of widespread interest. Attendance is usually limited to promote intensive, intimate discussions between the participants, who often include world-class experts from other countries. A James Franck Memorial Lecture is held annually at the Israel Academy of Sciences and Humanities in Jerusalem.

Although no satisfactory framework was found for funding German researchers, the exciting science and binational cooperation fostered by the program led to its expansion. In 1995 MINERVA increased its endowments for the first two universities by DM 800,000 each; and created new endowments for the Technion-IIT (DM 800,000), Weizmann Institute (DM 500,000) and Ben-Gurion University (DM 800,000). German institutions involved in active joint laser research with Israeli partners under the program include the Max Born Institute for Laser and Short-time Spectroscopy (Berlin), the Max Planck Institute for Quantum Optics (MPI/QO, Garching), the Technical University of Munich and the University of Heidelberg. The scientific agenda of the James Franck

This forward-looking atmosphere of scientific excitement and close binational cooperation is, perhaps, the best guarantee of the continuing vitality, coherence and contributions of this important international program.

