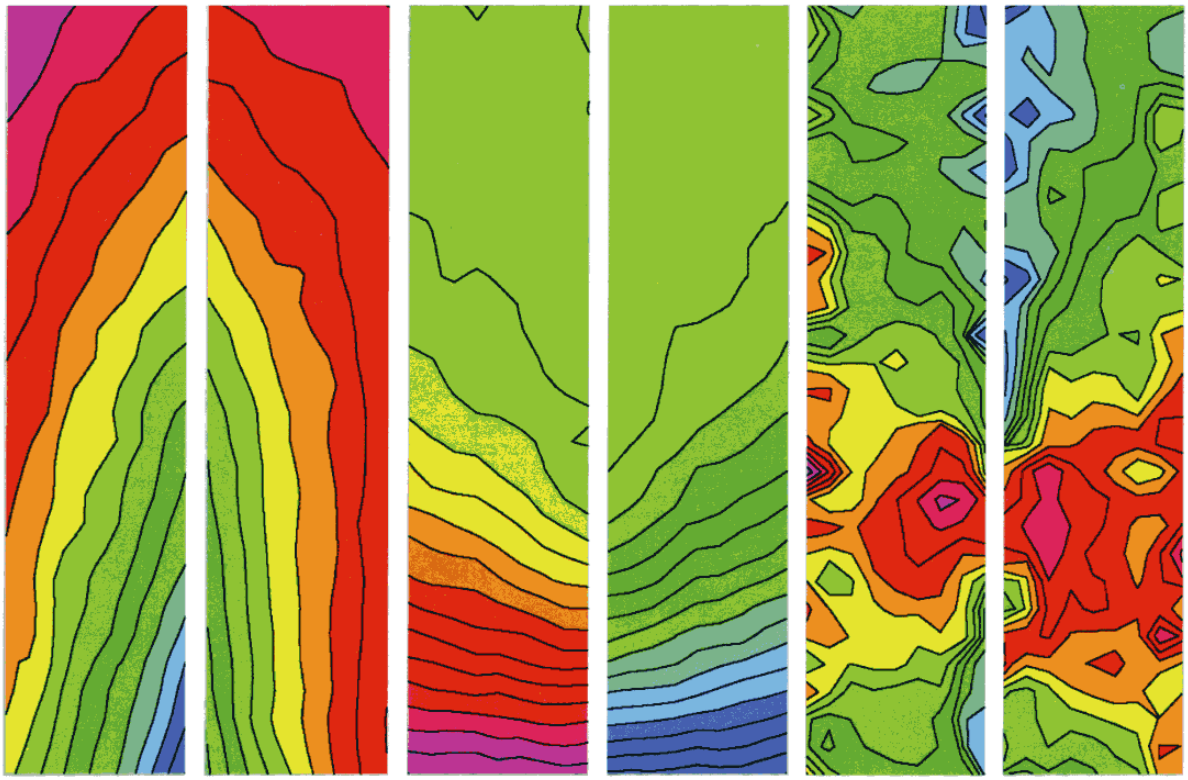
nuclear weapons journal



Spring 2004

- PBX 9501 Fracture
- NWE Initiative
- Superhard Warheads
- Polymer Characterization
- S5370 Replacement Testing
- ICF Experiments

Los Alamos
NATIONAL LABORATORY
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The World's Greatest Science Protecting America

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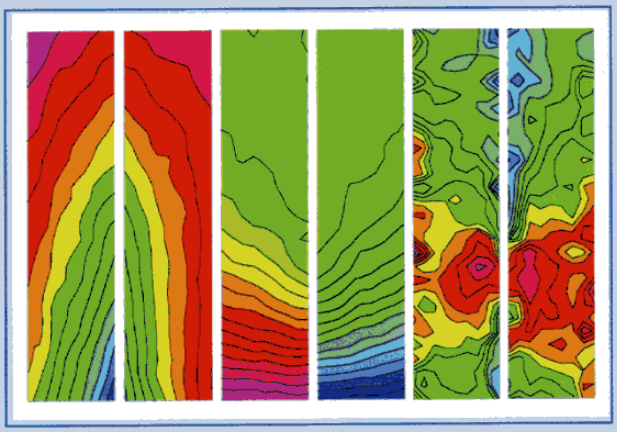

About the cover: Contour plots of measured displacement and strain fields in a sample of PBX 9501 high explosive. The sample is a modified double-cantilever beam, where opposing loads are applied to cause the PBX 9501 to crack. The plots are shown at the moment when the applied loads reach peak value. Such studies of the failure resistance of high-explosive materials are essential to the Laboratory's stockpile stewardship mission because high explosives are critical components of the nuclear weapons in the stockpile.

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NNSA
National Nuclear Security Administration

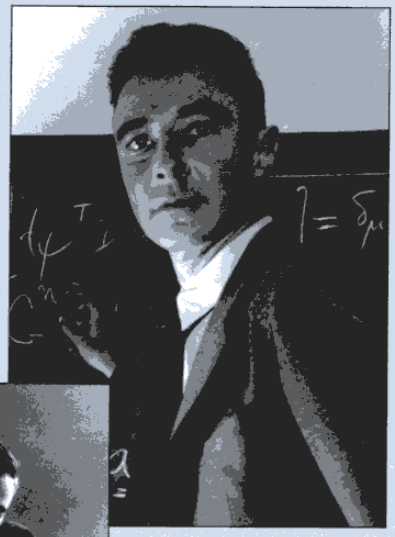
A BACKWARD GLANCE

Oppenheimer: Unique in the Scientific World

April 22, 2004, marked the 100th anniversary of the birthday of J. Robert Oppenheimer, the first Director of Los Alamos National Laboratory and the man who led a group of blue ribbon scientists to produce the world's first atomic bombs. Los Alamos proudly pays tribute to this remarkable man through the words of people who knew him.

"Oppenheimer's fascinating personality played a major part in his unique powers as a teacher. His course was an inspirational, as well as an educational, achievement. He transmitted to his students a feeling of beauty of the logical structure of physics and an excitement in the development of science."

—*Robert Serber,* Manhattan Project physicist and student of Oppenheimer at the University of California, Berkeley



"A less likely choice on the basis of personality and experience could hardly be imagined.... Yet he constructed that laboratory [Los Alamos] from the ground up and made it into a most effective and deadly instrument for the application of science to destruction. At the same time, he created an atmosphere of excitement, enthusiasm, and high intellectual and moral purpose that still remains with those who participated."

—*I. I. Rabi,* Nobel laureate in physics and consultant to Los Alamos in the 1940s

"It was a marvelous choice. Los Alamos might have succeeded without him, but certainly only with much greater strain, less enthusiasm, and less speed. As it was, it was an unforgettable experience."

—*Hans Bethe,* Nobel laureate in physics and Los Alamos Theoretical Division director in the Oppenheimer years

"He was naïve in politics. If he hadn't been, his career would have been quite different."

—*Dorothy McKibbin,* official receptionist and welcome officer for Los Alamos during the Oppenheimer years

"Any single one of the following contributions would have marked Oppenheimer as a preeminent scientist: his own research work in physics; his influence as a teacher; his leadership at Los Alamos; the growth of the Institute of Advanced Study as a leading center of theoretical physics under his directorship; and his efforts to promote a more common understanding of science. When all is combined, we honor Oppenheimer as a great leader of science. When all is interwoven with the dramatic events that centered around him, we remember Oppenheimer as one of the most remarkable personalities of this [20th] century."

—*Abraham Pais,* physicist, historian, and colleague of Oppenheimer at Princeton University's Institute for Advanced Study

"Dr. Oppenheimer, ...your contributions to our basic knowledge make your achievements unique in the scientific world."

—*Lyndon B. Johnson,* President of the United States, on awarding the Atomic Energy Commission's Enrico Fermi Award in 1963

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