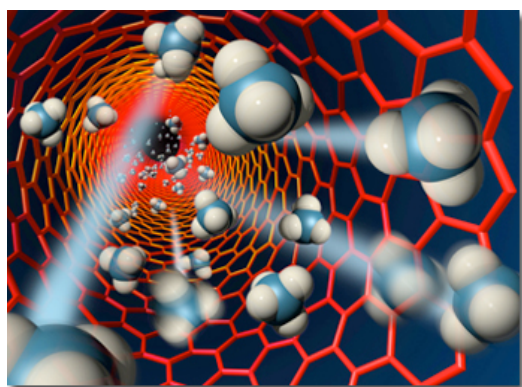


# LAWRENCE LIVERMORE REPORT

**A weekly collection of scientific and technological achievements from Lawrence Livermore National Laboratory: Jan. 19-Jan. 26, 2009.**

**Lab technologies selected for 2009 FLC calendar**



Carbon nanotube membranes and multi-layer reactive foil technologies developed within the Lab's Physical and Life Sciences Directorate were selected to be featured in the 2009 Federal Laboratory Consortium, FLC calendar, for the month of July.

The FLC calendar showcases the outstanding research and development accomplishments across the federal laboratory system. The Federal Laboratory Consortium for Technology Transfer (FLC) is the nationwide network of federal laboratories that provides the forum to develop strategies and opportunities for linking laboratory mission technologies and expertise with the marketplace.

The FLC was formally chartered by the Federal Technology Transfer Act of 1986 and currently consists of more than 250 federal laboratories and centers and their parent departments and agencies.

To receive the 2009 FLC calendar free of charge, contact the FLC Management Support Office at [flcmso@federallabs.org](mailto:flcmso@federallabs.org).

## **LLNL scientist selected as editor for shock wave book**

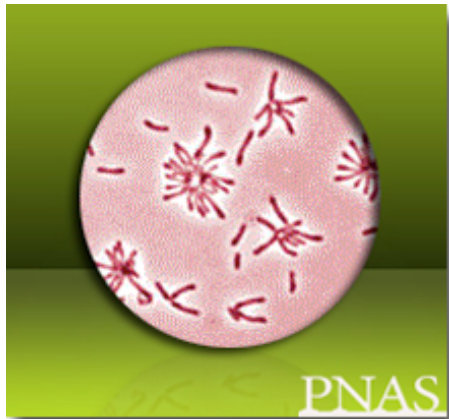


Larry Fried

Lab scientist Larry Fried has been asked to be editor of a book on detonation, which will be one of a series of books within the "Shock Wave Science and Technology Reference Library." The volume will deal mainly with fundamentals of gas and condensed matter detonation with eight chapters including equilibrium detonation, steady detonation structure, detonation instability, dynamic parameters of detonation, multi-scaled cellular detonation, detonation shock dynamics and theory and practice of condensed matter detonation.

The book will serve as a comprehensive handbook for scientists and engineers. For more on the "Shock Wave Science and Technology Reference Library", go to <https://booksxyz.com/viewcover.php?bid=3157113>

## **Looking at diversity reveals origin of microbes' bioenergy potential**



### *Rhodospseudomonas*

Lab scientist Patrick Chain and collaborators at the University of Washington, designed and completed a genomic study of four closely related, yet distinct members of the bacterial genus *Rhodospseudomonas*, which is found in aquatic sediments. The results, published in the *Proceedings of the National Academy of Science* revealed that what had been thought to be metabolic diversity within a single population was, in fact, attributable to the co-existence of genomically-distinct isolates.

The genomic differences provide specialized physiological traits of significant potential interest for bioenergy applications (e.g., solar hydrogen production by day, fermentation hydrogen production by night). Further, this differentiation likely occurred in microenvironments that are too small for "human observation."

Other LLNL contributors include Stephanie Malfatti, Maria Shin, and Lisa Vergez and collaborators from Oak Ridge National Laboratory and the University of British Columbia.

To read more, go to <http://www.pnas.org/content/105/47/18543.full.pdf+html>

**Lab integrates its communications office**



**From left: Bill Bruner, Scott Kopple and James Bono.**

In an effort to integrate communications, LLNL has created a new office of Government and External Relations, overseeing the Lab's offices of Congressional Affairs, Public Affairs and Protocol.

Bill Bruner, formerly of NASA, has been selected as director of Government and External Relations; James Bono, formerly of Cold Spring Harbor Laboratory, has been named director of the Public Affairs Office; and Scott Kopple, formerly of the National Nuclear Security Administration, joins the Laboratory as congressional liaison.

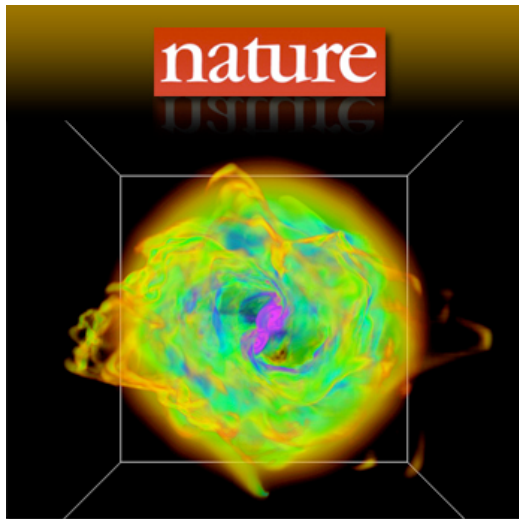
Bruner will be responsible for strengthening Laboratory relations with all levels of government, the public and other stakeholders. He also will oversee the Laboratory's Public Affairs and Protocol offices. Bruner will report to Laboratory Director George Miller and will be a member of the Laboratory's senior management team.

Bono will report to the director of Government and External Relations and serve as a key adviser to Laboratory senior management. Bono will oversee the Lab's Media and Employee Communications, as well as its Community Relations and Education Outreach programs.

Kopple will join Christie Schomer, LLNL's director of Congressional Affairs, to support the Laboratory's efforts in strengthening effective congressional communications in coordination with the U.S. Department of Energy, and will provide subject matter expertise and analysis in responding to congressional interest in LLNL's programmatic activities. He will be based in Washington D.C.

For more, go to [https://publicaffairs.llnl.gov/news/news\\_releases/2009/NR-09-01-06.html](https://publicaffairs.llnl.gov/news/news_releases/2009/NR-09-01-06.html)

## ***Nature* features massive star formation research**



A recent *Nature* article explains how Lab astrophysicists have solved the riddle of how the heaviest stars form, with the help of a computer program adapted from the nation's nuclear weapons complex.

The new simulations of the formation of massive stars show that they can grow to a potentially unlimited size and are often accompanied by a smaller companion.

The program, known as ORION, originated at LLNL and was originally developed to model nuclear blasts. It has been adapted for more benign scientific uses. In this particular case, ORION was brought to bear on a "massive" problem for astronomers -- the birth of super-heavy stars,

To read the *Nature* story, go to

<http://www.nature.com/news/2009/090115/full/news.2009.29.html>

**Photo of the week**



**Sniff it out:** LLNL chemist Brad Hart, former Laboratory chemist Timothy Ratto and LLNL physicist Albert Loui created a compact low-power, polymer-coated microcantilever, or "electronic nose," that responds to the presence of a chemical vapor by swelling and bending. The pattern of deflection across the array indicates a unique chemical signature.

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LLNL applies and advances science and technology to help ensure national security and global stability. Through multi-disciplinary research and development, with particular expertise in high-energy-density physics, laser science, high-performance computing and science/engineering at the nanometer/subpicosecond scale, LLNL innovations improve security, meet energy and environmental needs and strengthen U.S. economic competitiveness. The Laboratory also partners with other research institutions, universities and industry to bring the full weight of the nation's science and technology community to bear on solving problems of national importance.

To send input to the Livermore Lab Report, send e-mail <mailto:labreport@llnl.gov>.

The Livermore Lab Report archive is available at:  
[https://publicaffairs.llnl.gov/news/lab\\_report/2009index.html](https://publicaffairs.llnl.gov/news/lab_report/2009index.html)

