



BNSL Inaugurates Facility

The Bi-National Sustainability Laboratory inaugurated its new Santa Teresa facility on November 18, 2005. Rich Homans, Secretary of New Mexico's Economic Development Department representing Governor Bill Richardson, described the BNSL as a "unique opportunity to turn emerging technologies into job-creating development strategies that will help to move our economies forward."

The inauguration was an opportunity for the new BNSL Director, Paul Maxwell, to inform the greater border region about the vision and goals of the BNSL, and to acknowledge and thank supporters who have helped to make the BNSL a

reality. Additionally, it was an chance for guests to visit the new BNSL facilities which includes 3,000 sq. ft. of open-bay area, 1,100 sq. ft. of lab space and 900 sq. ft. of office space.

The event included speeches by four individuals who had been key to the current success of the BNSL: Mr. Rick Homans, Dr. Fernando Brambilia from CONACYT where he serves as Director of Mexico's National Research Centers, Mr. Jamie Oaxaca Chairman of the Board of Governors of FUMEC, and Dr. Gerry Yonas of Sandia Na-



Paul Maxwell welcomes guests at the BNSL Inauguration in the High Bay Facility

tional Laboratories.

Over eighty people attended the event, including such dignitaries as Dr. Diana Natalicio, President of UTEP, Dr. Teresa Sullivan, Vice-Chancellor of Academic Affairs of the UT System, Juan Carlos Foncerada, Consul General for Mex-

Executive Director Appointed

In October 2005 the BNSL, a bi-national partnership focused on turning emerging technologies into job-creating development strategies, appointed Dr. Paul Maxwell as its first executive director. Dr. Maxwell is a recognized expert in domestic and international science and technology policy.

New Mexico Economic Devel-

opment Department Secretary, and BNSL board member Rick Homans, stated, "Dr. Maxwell is an ideal choice to lead the Center. He has the drive, experience and connections to make this an important factor in the region's economic growth. As a key founding member and a continuing sponsor, we look forward to partici-

pating in BNSL's further development."

Dr. Maxwell holds a Ph.D. in materials science and engineering from Stanford University. Prior to this position he was Vice President for Research and Sponsored Projects at the University of Texas at El Paso where he was responsible for the policies and directions of

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We want to act as a catalyst for new jobs, new businesses and new ideas.

Inauguration (cont.)

ico in El Paso, Sergio Aviles de la Garza, Director General of the Coahuiliana Institute of Ecology, Leopoldo Rodriguez, Technical VP of ADIAT and Vice-Chair of the FUMEC Board of Directors, Chihuahua's Senator Jeff Jones, Jessica Turnley, President of the BNSLi board, Claude Billings of Verde Group and Michael Orshan, state of New Mexico Director of Science and



Gary Jones and Jessica Turnley

Technology.

The BNSL effort has been many years in the making and came from Sandia National Laboratories concern that uneven economic development on the United States—Mexico border could cause conflict between the countries. Leveling community wealth through sustained economic development was seen as a means to avoid these conflicts. Gerry Yonas one of the visionaries

"BNSL is a unique opportunity to turn emerging technologies into job-creating development strategies that will help to move our economies forward."

behind the original BNSL concept compared the BSNL's task to sherpas who ac-



Dignitaries from the United States and Mexico gather to celebrate the BNSL.



Guests at the BNSL Inauguration in the High Bay Facility

company tourists climbing Mt. Everest, over and over without recognition. "The BSNL's activities will require steady, careful, sherpa mountain-climbing," he said.

Rick Homans acknowledged Dr. Yonas' contribution to the success of the BNSL and praised the significant contribution of the BNSL's partners who have provided

funding for this important endeavor. These partners are the government of Mexico, The United States—Mexico Foundation for Science, the state of New Mexico, and the US

Department of Commerce, Economic Development Administration. Homans stated that the BNSL "looks to bring together the best and brightest business experts, scientists, border-community leaders, social scientists, civil servants, and engineers from Mexico and the United States in an interdisciplinary setting to address critical issues in the border region, including: energy, water and environmental degradation."

Additional inauguration pictures on page 5



Rick Homans addressed the audience.

Paso del Norte MEMS Packaging Cluster

The Paso Del Norte Regional MEMS Packaging Cluster is a unique endeavor focused on research, product development, and commercialization opportunities in MEMS packaging, for potential applications in automotive systems, bio-med and telecommunications. Other concentrations are design and development of hardware and software, and technology commercialization for economic development of the Paso del Norte region. The long term intent of

the Cluster is to establish an international MEMS Packaging Cluster, beginning in the Americas, with the end result being research, innovation, product development, technology commercialization, and economic development.

Current Cluster partners includes the University of Texas at El Paso, New Mexico State University, Universidad Autonoma de Ciudad Juarez, the Tecnologico de Monterrey - Juarez Campus, New Mexico Institute

of Technology, El Paso Community College, TVI College – Albuquerque, NM, Sandia National Laboratories, Centro de Investigacion de Materiales Avanzados (CIMAV), White Sands Missile Range, Delphi, and the Bi-National Sustainability Laboratory. The FUMEC Border Office located at UTEP is the lead organization for the PDN MEMS Cluster and Mike Acosta, Director of the FUMEC Border Office, is the Chair of the PDN MEMS Cluster Steer-

BNSL Partners with Refinery Sciences Corporation

At a time when everyone has felt the sting of rising gas and energy prices, Refinery Science, a start-up nanotechnology company whose mantra is “energy independence now,” seeks to ease America’s pain at the gasoline pump. The firm was formed at the University of Texas at El Paso in 2004 after technology commercialization entrepreneur David Rendina joined forces with world-class materials science researcher Dr. Russell Chianelli.

Refinery Science’s technology includes catalysts and specialized refinery machinery which makes refining “heavy” and “sour” crude oil economically competitive with the “light, sweet” crude oil abundant in the Middle East. Although at present,

such “heavy” and “sour crude oil is abundant in the Western Hemisphere, particularly Canada, almost all refineries utilize the more expensive “light, sweet” crude due to a lack of technology such as that developed by Refinery Science. In addition, oil processed with the company’s catalysts reduces waste products and also yields end products such as gasoline and diesel which burn far more cleanly than with current methods.

Refinery Science recently achieved a significant milestone in completing a merger with Nanoforce Technologies, a publicly traded nanotechnology company based in Florida. The UTEP spin-off received a \$1.7 million cash investment and because

of the merger, is now being traded on the Over-the-Counter (OTC) market as well (symbol nnfc). This infusion of capital and status as a publicly traded company coupled with recent successful tests of its catalyst technology has positioned Refinery Science to begin construction of a pilot production plant in partnership with an independent refinery, several of which have expressed interest.

The BNSL and Refinery Science Corporation have signed a Letter of Intent in which the company will be incubated at the BNSL, which will allow for additional research and development activities related to technology and prototype development of the catalytic material.

MEMs (cont.)

ing Committee.

The PDN MEMS Packaging Cluster will be an integral part of the BNSL. The Cluster will utilize the BNSL’s MEMS packaging technical support facility and BNSL will provide assistance to the Cluster’s commercialization activities. In addition to laboratory space, the BNSL will have available a range of specialized services directly aimed at bridging the “Valley of Death” between the development and demonstration of a concept and its commercial success. These services potentially include: technology

and product development; mentoring and consultation services for new business startups; incubation and business acceleration “flex” space; access to venture capital, seed funding, and other financing strategies; and identification of regional, national, and international private-sector part-

BNSL will help bridge the “Valley of Death” between the development and demonstration of a concept and its commercial success.

ners. Rather than rely on “push” from the academic community of the technologies created the BNSL will be looking for technology “pull” from the business and private sector communities to drive commercialization activities.

The BNSL and its major stakeholders and partners on both sides of the border will be instrumental in helping move MEM technology created and developed by the cluster into commercial and economic development enterprises.

Executive Director Appointed (cont.)

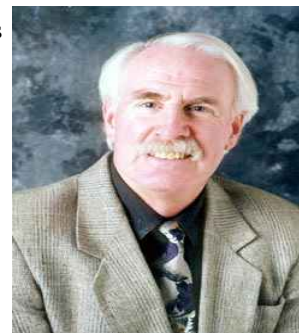
the University’s diverse research portfolio of more than \$185 million

Previous to that Dr. Maxwell worked for the U.S. State Department as an Environment, Science and Technology Counselor at various embassies around the world. From 1996-98 he was assigned to the U.S. Embassy in Mexico City, where he acted as the Embassy’s principal liaison between the

Mexican scientific and technological community and their U.S. counterparts.

“My vision for BNSL is an inclusive one,” said Dr. Maxwell. “I want the Center to bring together a diverse culture of academics, economic development specialists, business strategists and government policy makers to drive the application of advanced technologies to real-life development. We

want to act as a catalyst for new jobs, new businesses and new ideas particularly in the border region.”



A Message from the Director

“The World is Flat”

In Tom Friedman’s best selling book, “The World Is Flat”¹, he explores the critical changes that have taken place in the past twenty years to move us from the Post-Industrial Revolution era to what he refers to as “Globalization 3.0”—a convergence of technologies and world events that occurred around 2000 and continues today. Friedman argues that the world (still quite spherical in it’s planetary reality!) has been “flattened” by creating a “level playing field” for commercial and social interaction through the concurrent events of: the creation of the world wide web of the internet and browser technology, the fall of the Berlin wall (and with it the fall of the Soviet Union and controlled economies in Asia, Southeast Asia and Latin America), standardized, compatible software for major business applications available to all, whole new methods for gathering info, finding customers and selling products (Google, Amazon, e-bay, etc), global interconnectivity provided by increasingly cheaper fiber optic infrastructure and new paradigms for business (in-sourcing, global out-sourcing, open sourcing and supply-chaining). In today’s world we see customers ordering take-out fast food through an order center hundreds (if not thousands) of miles from the restaurant able to relay the order electronically to the cook and ultimately deliver the food to the customer more accurately and more efficiently than taking the order locally. To quote Friedman:

“The net result of this convergence was the creation of a global, Web-enabled playing field that allows for multiple forms of collaboration—the sharing of knowledge and work—in real time, without regard to geography, distance, or, in the near future, even language”.

The BNSL also represents a paradigm shift at work in this newly flattened world. The core mission of the BNSL may be best stated by it’s mantra, “Building Border Businesses”. While there is nothing particularly new or unique in “building businesses” what is unique is that we are doing it collaboratively, bi-nationally, inter-

regionally, and “dispersed”, using the strengths and opportunities of institutions and entities spread along the length of the two thousand miles of the United States - Mexico border stretching from the Gulf of Mexico to the Pacific Ocean. We are challenged not only by differences in language and culture but by the obstacles and barriers (physical and political) that make up the reality of our international and inter-state borders. Due to increased security and the volumes of people and goods wanting to reach their home or work on one side or the other, we live in a world where it can literally take hours to cross the hundreds of yards that constitute our border crossings. How can we hope to accomplish our mission?

One answer (certainly not a “magic bullet”) lies in the unique technological infrastructure recently established between the University of Texas at El Paso (UTEP) and the Autonomous University of Ciudad Juarez (UACJ)—a high speed, optical fiber link for advanced internet communication. This link, consisting of 48 optical fiber strands provides the potential for moving more than 480 Gigabytes per second of information and data between the two Universities. More importantly, due to its connectivity to each of their national research internet backbones, this optic fiber link provides connectivity to the rest of their countries and the world. This link as currently configured is large enough to carry all of the current digital data originating and passing between the U.S. and all of Latin America.

The U.S., Mexico and much of the rest of

the world has been taking advantage of the tremendous amounts of optical fiber laid down in the late 90’s by the telecom industry intent on reaping the profits promised by the then “dot.com revolution”. When the dot.com bubble burst, U.S. university and public sector consortia were able to buy up this “dark fiber” for pennies on the dollar to establish the National Light Rail²—an optical fiber internet back bone able to operate at levels 1,000 to 10,000 times faster than your grandmother’s internet (if she had had one). Since most of this fiber follows the original railroad right of ways established in the 19th century it covers much of both sides of the border region. Unknown to most there exists literally under their feet internet “superhighways” ready to move mountains of data and information and level the rocky playing field of the border region. The link in El Paso-Juarez provided the final connection bringing the two countries’ advanced internet backbones together. In essence we now have in both countries advanced internet infrastructures that can support secure communication and data transfers that will allow for the type of international and inter-regional technological and commercial development which is the foundation of the BNSL. Welcome to our new, “flat” world.

1. “The World Is Flat—A Brief History of the 21st Century”, authored by Thomas L. Friedman; Farrar, Straus and Giroux Publishers, New York, 2005.
2. www.intenet2.org

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Inauguration Pictures

