



# CSMATE Receives Hewlett-Packard Wireless Mobile Classroom

In August the Center for Science, Mathematics and Technology Education (CSMATE) was awarded a \$428,000 grant of equipment and cash from the Hewlett-Packard Company. This grant will enhance CSMATE's teaching facilities and the work of the CLTW project.

The HP grant program is targeted at organizations engaged in innovative training and professional development of mathematics and science teachers in K-12 public schools. A overarching goal of the program is to increase access to high quality resources and training for fostering improvements in science and mathematics learning to low-income, underserved students in rural and urban schools.

Equipment and cash provided

through the HP grant program will provide an incentive for teachers in the targeted schools to participate in both onsite and online professional development.

One of the unique gifts provided by the award is a HP Mobile Wireless Classroom consisting of 30 HP Omnibook laptop computers housed in a motorized cart. The mobile classroom contains a wireless Internet connection servicing all the laptops and comes equipped with a printer, fax, scanner, copier and digital camera. This cutting edge technology allows laptops to be used in any classroom or even in multiple classrooms.

CSMATE will be conducting research on how this technology can be effectively integrated with other teaching, learning and assessment

strategies to enhance student achievement in mathematics and science.

*"The wireless classroom will help us learn how technology can improve the teaching and learning of core mathematics and science concepts."*

Ed Geary, Director of CSMATE

## CLT West Program To Benefit From HP Technology Grant

In addition to the wireless classroom, 112 HP Pavilion notebook computers, 14 digital projectors and 40 inkjet printers have been distributed to Oregon, Montana and Colorado schools and teachers participating in CLTW program.

Laptops and other HP equipment will enable the Center for Learning and Teaching in the West program to deliver online graduate coursework in science & mathematics education to rural and urban audiences, and to connect teacher leaders and researchers working throughout a large geo-

graphic area.

Professional development opportunities and online courses will benefit teachers and students in high need schools by promoting greater access to quality resources and developing a new generation of teacher leaders.

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CLTW teacher cohort participants display the new HP laptops.

# New CLTW Fellows Join CSMATE to Aid in Science & Mathematics Professional Development

A warm welcome to Marc Winokur, graduate fellow for the CLTW program. Marc's work will involve data collection, quantitative analysis and reporting in the area of professional development and educational leadership for K-16 mathematics and science educators.

Marc is a current doctoral candidate at Colorado State University's School of Education in the Education and Human Resource Studies Program with a specialization in Educational Leadership. His dissertation *Using Three-Level Hierarchical Linear Modeling to Measure School Effects on the Colorado Student Assessment Program* is testament to his research interests.

Previously, Marc taught EDCC192 a seminar on teaching & learning, for CSU and developed a community gardening and youth

entrepreneurship program with two public housing communities in New Jersey.

**"Some benefits of the CLTW program are in raising content knowledge; recognizing teachers leadership qualities and supporting their profession; increasing communication among the program participants thereby reducing isolation."**

**Sharon Sikora, Ph.D.**

Welcome also to Dr. Sharon Sikora, a post-doctoral fellow for the CLTW grant. Sharon will mentor CLTW high school teachers to help them understand what the Colorado Student Assessment Program (CSAP) standards involve, and how they can use CSAP data to improve classroom practices through enhanced teacher's understanding of what the most important things are for students to know, it will allow students to be guided and encouraged in an appropriate fashion, and provide teachers the tools to raise CSAP test scores.

Sharon's many professional accomplishments include the distinction of being a 1998 finalist for *Colorado Teacher of the Year*. In addition, Sharon was one of two representatives at the National Teacher Forum in the same year.

## 32 Colorado 6-12 Teachers Benefit From The First CLTW Cohort Science and Mathematics Workshops

The first CLTW science and mathematics cohort teachers participated in a successful summer program for the promotion of professional development that encompassed content, pedagogy, assessment and technology.

Two groups of 16 teachers in science and mathematics were involved in summer workshop sessions as well as school year assignments. Instrumental to the program is the use of online activities and sharing of resources,

ideas and expertise among the three states of Colorado, Montana and Oregon.

As part of the National Science Foundation grant requirements, each participant must complete at least 120 hours of contact time. The first program was designed to deliver nine graduate-level credits. Participants will receive \$900 as part of their involvement in CLTW upon completion of the program.

Cohort 2 (scheduled for summer, 2003) informational meetings for grade 6-12 teachers are currently being held in the Greeley and Longmont areas. Please contact Dr. Sharon Sikora, CLTW Outreach Fellow for further information on this program at: (970) 491-1700.

CLTW is funded in part by the National Science Foundation Award ESI-0119786.

## Counterdiffusional Reactions Studied By Master's Candidate Tim Lenczycki

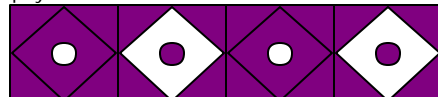
Tim Lenczycki is a current chemistry master's candidate at CSU. Tim will be defending his thesis *Oscillations in Gas-Phases Periodic Precipitation Systems: the NH<sub>3</sub>-HCl Story* in the near future. Tim was awarded the Christa McAuliffe Fellowship in 1999-2000 allowing a year long sabbatical to begin his graduate studies in chemistry.

Tim gives much of the credit for his approach to work and learning to Dr. Steve Thompson of CSMATE. Together, they have taken a closer look at the counterdiffusional NH<sub>3</sub>-HCl

reaction that many teachers erroneously interpret as a demonstration of *Graham's Law of Diffusion*. They discovered the system to be a uniquely rich platform for studying heterogeneous and homogeneous nucleation, chemical oscillations, chaos, chemical feedback and periodic precipitation. Correctly interpreted, they found the NH<sub>3</sub>-HCl system became an observational platform to study heterogeneous and homogeneous nucleation as spatially and temporally separate events.

Dr. Thompson and Tim's CSMATE collabora-

tion dates back to 1991 when Tim became a teaching assistant for the Small-Scale Science summer program. In addition to his work at CSMATE, Tim is a full-time chemistry and physics instructor at Poudre High School in Fort Collins, teaching courses in advanced placement and international baccalaureate physics.



## 60 Korean Chemistry, Earth Science and Physics Teachers Attend Educational Immersion Science Program At CSU

Sixty teachers from South Korea participated in in-depth professional development chemistry, Earth Science and physics programs held at CSMATE this past August.

The four week program was sponsored by CSU's Office of International Programs in conjunction with CSMATE and The Little Shop of Physics. A \$203,000 grant from the Korean National Institute for International Education Development (NIIED) provided funding for the program.

***"The purpose of the professional development course is to provide Korean teachers with the latest information about science education in the United States and also with opportunities to witness innovative science teaching in American schools."*** -Jerome Bookin-Weiner, Executive Director, International Programs, CSU.

Student interpreters from CSU's Korean Students Association provided invaluable English to Korean translation and assisted with many aspects of the program's operation.

From the office of CSMATE, Ms. Barry Carroll oversaw the academic residency portion while Dr. Stephen Thompson led the chemistry section while Dr. Andrew Warnock led the Earth Science portion. Mr. Brian Jones from the Department of Physics conducted the physics studies.

Dr. Christine Jones, Assistant Director of CSMATE, oversaw the public school site visits for the teachers to 16 schools in Fort. Collins, Loveland and Fort Morgan during the third and fourth weeks of the program.



Korean teachers participated in a Earth Science experiment led by Dr. Andrew Warnock of CSMATE.

## Field Trips Enhanced Educational Program Cultural Exchange for Participants and Leaders



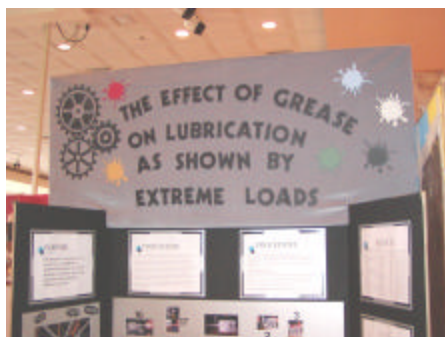
Colorado State University student interpreter Kwang Ho Baek assists with a Grand Canyon tour presentation.

Educational and cultural visits included site visits to 16 public schools with 34 teachers participating; a weekend field trip to Rocky Mountain National Park; the Discovery Center Museum, Lory State Park, the Environmental Learning Center and the Grand Canyon.



High School science teacher Darell Speer instructs Korean teachers on how sensitive waves travel through the earth's interior.

## Intel Grant To Support Colorado Science Fair (CSEF)



Pictured above: a 2002 CSEF exhibit.

CSMATE has been awarded a \$30,000 *Enhancing Involvement in Colorado Science and Engineering Fair* grant from the Intel Foundation. A primary goal of the grant is to enhance the involvement of students and teachers in the Arkansas Valley and southern Colorado regional science fairs.

Teachers in the targeted areas will have the opportunity to attend a workshop on inquiry science and gain knowledge on the benefits to

students in creating projects for the science fair competitions. Understanding the international rules for pre-college science research is an additional feature of the program.

Formed in 1955, the science fair is the annual state-wide competition for Colorado students. More than 2,000 students participate annually from the school, district, regional and state levels.

# CSMATE Faculty and Staff

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Dr. Christine Jones, Assistant Director

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Ms. Courtney Butler, Assistant to the Director

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Dr. Andrew Warnock, Research Scientist/CLTW Senior Fellow

Ms. Mary Peacock, Research Associate

Mr. Joe Staley, Computer Graphic Specialist

Ms. Lynne Judish, Laboratory Coordinator

Ms. Emily Thurston-Moench, Administrative Assistant  
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## **AFFILIATED FACULTY/STAFF:**

Dr. Kelly Chappell, Assistant Professor of Mathematics

Dr. Judith Hannah, Professor of Earth Resources

Dr. Sandy Kern, Professor of Physics

Mr. Brian Jones, Physics Program Coordinator

Dr. Michael De Miranda, Associate Professor, Manufacturing Technology & Construction Management

Mr. Tom Creegan, Small-Scale Chemistry Specialist

Dr. Rick Ginsberg, Director, School of Education

Dr. Brian Cobb, Director, School of Education Research & Development Center

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Dr. Bill Timpson, Director, Center for Teaching and Learning



*Knowledge to Go Places*

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*The Mission of CSMATE is to serve as the focal point for program development and research aimed at fostering improvements, innovations and reforms in science, mathematics and technology instruction and curriculum at all levels, K-16.*

[www.csmate.colostate.edu](http://www.csmate.colostate.edu)