



CSMATE NEWSLETTER

The Center for Science, Mathematics and Technology Education

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.



Colorado Science Fair News

The 2002 Colorado Science and Engineering Fair (CSEF) will be held April 11-13, 2002 in Fort Collins at Colorado State University's Lory Student Center. Formed in 1955, the science fair is the annual state-wide competition for Colorado students. A goal of the fair is to stimulate student's interest and encourage continued studies in science and engineering by recognizing ability and achievement. More than 2,000 students participate every year from the school, district, regional and state levels. Over 500 observers and family attend along with approximately 200 judges and 100 volunteers!

Ryan Patterson (pictured at left), is a 17-year-old twelfth grader from Central High School, Grand Junction, Colorado. Ryan received the CSEF 2001 first place award for his entry, *The Sign Translator*. Ryan designed a specialized glove that translates American Sign Language alphabet into text displayed on a screen. The idea for the glove evolved from observing a teenager at a Burger King restaurant sign his food order through an adult interpreter. The resulting glove

became his 2001 CSEF entry. Ryan also won the *Glenn T. Seaborg Nobel Prize Visit Award* at the 2001 Intel International Science and Engineering Fair (ISEF).

35 schools with 260 exhibits will participate in the upcoming state science fair at Colorado State University.

For the upcoming fair 291 finalists and 260 exhibits are registered. Of this group, 115 are in the junior division and 176 are in the senior division representing 35 Colorado schools. Entry categories include: Botany, Earth & Space Sciences, Engineering, Environmental Sciences, Health & Behavioral Sciences, Mathematics and Computer Sciences, Microbiology, Physical Sciences, Zoology, and an interdisciplinary team.



To learn more about the Colorado Science and Engineering Fair contact Courtney Butler, CSEF Director at (970) 491-1700, or visit the Web site (www.csef.colostate.edu).

Rural Teacher Preparation Initiative (RTPI) and Conference

A partnership of four Colorado community colleges, CSU's School of Education and CSMATE are working collaboratively through the Rural Teacher Preparation Initiative (RTPI) for bolstering the recruitment and retention of mathematics, science and technology teachers.

Spring Conference
April 11, 2002

An estimated 100 participants and 20 presenters composed of teachers and administrators, students and faculty from the community colleges and four-year institutions will meet at Aims Community College, Greeley, Colorado on April 11, 2002. The conference is entitled "*Partnerships and Best Practices in Science, Mathematics and Technology Education, K-16.*"



Funded in part through a grant by the National Science Foundation, conference objectives endeavor to:

- ❖ discuss and explore teacher preparation and content issues in the targeted subjects
- ❖ attract and retain a greater number of underrepresented students
- ❖ improve the preparation and current pedagogy of K-16 mathematics, science and technology teachers and pre-service providers

RTPI contact: Dr. Christine Jones (970) 491-1700, or (www.colostate.edu/Depts/EdLicense/NoCORuralTeacherPrepInitiative.html).

CSU Chemistry Students Talk about Learning and Small-Scale Chemistry

Recent conversations with students of chemistry professor Dr. Stephen Thompson exhibited great enthusiasm about their second semester of General Chemistry at Colorado State University. Taught in CSMATE's Experiential Learning Studios, the course has an energetic feel.



Freshman PhuognAhn Nguyen offers "this class is as different as it's exciting, and always interesting and active." In high school PhuognAhn took advanced placement chemistry courses. She finds the Small-Scale approach explains things in more detail and steers away from straight memorization. PhuognAhn is planning to major in chemistry. Students Erin Finsley, a Zoology Major, and Natasha Stuckey, a Health and Exercise Science major, noted that the integrated lab/lecture format allows Dr. Thompson to go more in-depth. "You learn and retain more by incorporating everyday examples." "Also, the Small-Scale chemistry micro-burets are more efficient so

you can do more and varied experiments in less time than standard chemistry class setting." On a different note, Erin and Natasha feel good that the Small-Scale approach is better for the environment by using less chemicals for conducting the experiments--they also feel safer by having less exposure to chemicals.

"Tell me, I'll forget. Show me, I may remember. But involve me and I'll understand."

(Chinese Proverb)

Dr. Thompson, who has taught at CSU for over 30 years, is a quick study on engaging students with the hands-on approach to learning. Based on these students' words, the founding premise of CSMATE--to develop ways to improve and reform curriculum while creating new approaches to teaching and learning science, mathematics and technology, is clearly being realized.

Visiting Faculty Highlight

A warm welcome to Dr. Ron Takata, visiting faculty from Honolulu Community College, University of Hawaii. Ron is on sabbatical with CSMATE "for an experience of a totally different type of paradise." As a professor-in-residence on the Powerful Pictures project, Ron is working on concept based curriculum to show chemistry, pictorially, at the molecular and subatomic level. The graphics and images being produced through this U.S. Department of Education FIPSE grant will be implemented in a supplemental publication for first-year chemistry students.



Ron first heard of CSMATE five years ago after reading an article on CSMATE's Small-Scale Chemistry Program. Ron's commitment to student's education--how students learn and experience chemistry, is founded on the premise that undergraduates are as important as masters and doctoral students.

One of Ron's goals for chemistry education is to transmit the "relevance of chemistry and make it alive for them." Chemistry is a never ending experience for Ron, both as an educator and life-long learner, and credits the infectious enthusiasm and dedication of Chemistry Professor Dr. Stephen Thompson for much of his Small-Scale chemistry experience.

Center for Learning and Teaching in the West (CLT West) Update



CLT West Current Actives Include:

- ❖ Planning of Professional Development activities in mathematics and science for Summer and Fall, 2002
- ❖ Recruiting graduate and post-doctoral fellows for 2002-2003
- ❖ Developing a course outline for the first Ph.D. science and mathematics education "policy" course
- ❖ Submitting CLT West related proposals to NSF, Xcel Energy, and Hewlett-Packard
- ❖ Inviting CSU School of Education faculty to collaborate on CLT West science and mathematics education research and teacher preparation activities

CLT-West is a consortium of five universities collaborating with tribal colleges and public school systems in Montana, Colorado and Oregon. The Center will bring the varied expertise of scientists, mathematicians and educators to address current challenges in understanding and improving student learning and achievement in science and mathematics from middle school through college.

CSMATE CONTACT INFORMATION

B301 NESB Building
Colorado State University
Fort Collins, CO 80523-1802
Phone: (970) 491-1700
Fax: (970) 491-2005

Web address: (www.csmate.colostate.edu)
for more information about our programs
and listing of faculty affiliates and program
partners.

Director:
Dr. Ed Geary

Assistant Director:
Dr. Christine Jones

Associate Director:
Dr. Stephen Thompson

Assistant to the Director:
Ms. Courtney Butler

Program Coordinator:
Ms. Barry Carroll

Research Associates:
Dr. Andrew Warnock

Ms. Mary Peacock

Computer Graphics Specialist:
Mr. Joe Staley

Laboratory Coordinator:
Ms. Lynne Judish

Administrative Assistant:
Ms. Emily Thurston-Moench

Assistant Professor of Mathematics:
Dr. Kelly Chappell

Department of Earth Resources:
Dr. Judith Hannah

Professor of Physics:
Dr. Sandy Kern

Assistant Professor of Chemistry:
Dr. Dawn Rickey

Physics Program Director:
(Little Shop of Physics)
Mr. Brian Jones

Small-Scale Chemistry Specialist:
Mr. Tom Creegan

Student Assistants:

Mark Windyka

Alison Cofer



Knowledge to Go Places

The Center for Science, Mathematics
and Technology Education
Fort Collins, CO 80523-1802

APRIL, 2002 INSIDE THIS ISSUE

[Colorado Science & Engineering Fair
\(CSEF\) page 1](#)

[Rural Teacher Preparation Initiative page 2](#)

[Chemistry Students on
Small-Scale Learning page 2](#)

[Visiting Faculty Welcome page 3](#)

[CLT West Update page 3](#)

[CSMATE Contact information page 4](#)