

Each physics major at Utah State University is required to complete a Senior Research Project. The project pairs each student with a faculty mentor. Students pursue research under faculty guidance, record their findings and results, and present their results as either a poster at a campus wide *Student Showcase* (right), at conferences (left), or as a published paper. Many physics students have received funding for their projects through the USU Undergraduate Research and Creative Opportunities (URCO) program.



STUDENT SHOWCASE

Ten physics students—20% of the university-wide total—participated in the most recent *Student Showcase*. The showcase highlighted the breadth and depth of student research and creative work at Utah State University. President Kermit L. Hall visited with students at the Taggart Student Center. "We take great pride in the students whose work is displayed at the Student Showcase," said Joyce Kinkead, Vice Provost for Undergraduate Studies at Utah State. "It is but the tip of the iceberg of the innovation and discovery that occurs on the many campuses of Utah State University throughout the state, the region, and the world."



The final goal of student researcher Jerylun Brunson's (above) project is to contribute to the study of spacecraft charging and electrical properties of insulators. Above, she discusses her project, *"Measurement of Electrical Properties of Thin-Film Polymer Insulators,"* with President Hall. Her faculty mentor is J.R. Dennison.



President Hall (above) listens as student researcher Elizabeth Williams explains her *Handbook of Physics 2110 Notes*. The handbook is made from the *Mathcad*TM program as a supplemental study guide/demonstration for the class. Williams's faculty Mentor is Mark Riffe.

Utah State was the first university to send a student payload into space aboard the Space Shuttle in 1982. The Get-Away-Special (GAS) program at USU has provided the opportunity for hundreds of student researchers to gain hands-on experience with real payloads in space. Now more than 20 years later and 11 payloads wiser, the USU GAS team continues this tradition as the university with far and away the most student payloads in space. (Left) The GAS emblem commemorates 20 years of the GAS program. (Right) GAS coordinator Arlynda Wright Jorgensen and Mike Anderson "Puke for Science" during experiments on the NASA KC-137 "Vomit Comet."

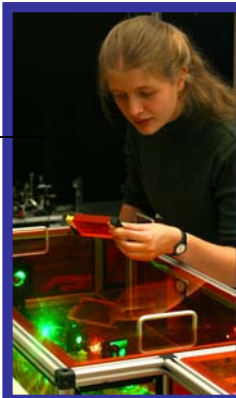


USU Physics Students routinely present their work at regional, national and international conferences. The logos below represent a few of these conferences during 2002-3. At left Marie Westbrook talks with Dean Jim MacMahon about her physics education project on "Playing with Atoms" mentored by Jill Marshall.

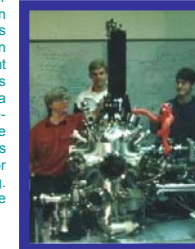
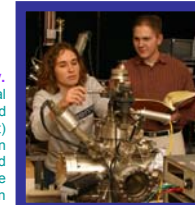
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Photographs of Undergraduate Research in Physics at Utah State University. (Clockwise from top right) 1. Roxanne Dial (left) test electronics of a Get-Away-Special payload in its isogrid framework, while Jamie Jorgensen, GAS coordinator Jason Saunders, and mentor David Peak look on in 1997. 2. GAS coordinator Ragu Tumkur and Casey Hatch (right) pose with a NASA crew at Johnson Space Center during integration of the G-200 Payload in 1994. 3. Glow from the LIDAR Argon laser silhouette Josh Herron, mentor Vince Wickwar, and Angela Bodrero in 2003 tests on the roof of the SER building. Note the Aggie "A" in the background. 4. Jodie Corbridge and Robert Berry conduct energy- and angle-resolved electron scattering experiments using the "Little Boy" ultra-high vacuum test chamber in 2002. 5. Mentor J.R. Dennison, Trevor Willey and Neal Nickles help *VacMAN* search for leaks during construction of the "Fat Man" surface analysis chamber in 1996. 6. Adam Margets conducts experiments on the effects of weightlessness on fluid dynamics and surface tension during a 1997 flight on the NASA KC-137 "Vomit Comet." 7. The GAS team of the 1996 G-254 payload shown in front of the Johnson Space Center Rocket Garden prior to payload integration and launch. At left is GAS mentor Jan Sojka and at center USU GAS co-program founder Gil Moore. 8. Lara Anderson works with a Ti-Sapphire laser in the ultra-fast spectroscopy lab in 2002. The state-of-the-art laser produces pulses of only 10 femtosecond (10^{-14} s) duration. 9. Roxanne Saunders discusses her research poster on upper atmospheric discharge phenomena known as Elves with Assistant Department Head David Peak at the 2000 Student Showcase. Mike Taylor is the faculty mentor. 10. The "Green Beam" projects skyward from the roof of the SER building. Students work with mentors Vince Wickwar and Tom Wilkerson using the LIDAR to measure density, temperature, velocity and species profiles up to 100 km above the Logan night sky.



Dirac Centenary Conference
September 30 - October 2, 2002



Jodie Corbridge (above) traveled to Washington, D.C. with faculty mentor J.R. Dennison to present her work at the 2003 national Posters on the Hill session. Jodie was one of 11 students (right) representing USU - out of the 67 students selected nationally. Richard Datwyler and Paul Simonsen presented their work with mentor David Peak at the 2002 event.

