Computational Science Research Center & ACSESS
(Applied Computational Science and Engineering Student Support)

Dr. Jose Castillo, Director
Computational Science Research Center
San Diego State University

March 3, 2008
Agenda

- About SDSU
- Computational Science Research Center (CSRC)
- Basic Skills set
- Curriculum Core Areas
- Multi-disciplinary/Interdisciplinary Training
- PhD Program in Numbers
- Summary
About SDSU

- San Diego State University: (34K+ students), 1 of 23 campuses in the California State University system, founded in 1897
- Designated a Doctoral/Research Intensive University by the Carnegie Foundation
- Ranked # 1 nationwide among universities with less than 15 PhD programs
- 5,918 current masters and doctoral students
Computational Science Research Center (CSRC)

- Established in 1999 to address growing need for interdisciplinary and computational research.
- Interdisciplinary mechanism for the Computational Science & Engineering Graduate programs
- First Computational Science PhD program in California
- The CSRC represents a consortium of key faculty from Engineering and Science Colleges, with access to faculty throughout the campus
Our Team

Dr. Jose Castillo
Director

Gordon Brown
Coordinator
Industry Projects

James Otto, Ph.D.
Coordinator
Computational Resources

Vacant
Coordinator
Scientific Visualization

Paul Paolini, Ph.D.
Dept. of Biology
Associate Director

Scientific Advisory Board:

Steve F. Ashby, Ph.D.
Lawrence Livermore National Laboratory

Gene Golub, Ph.D.
Stanford University (Honorary, Deceased)

Victor Pereyra, Ph.D.
Weidlinger Associates

Antonio Redondo, Ph.D.
Los Alamos National Laboratory

Andrew Cooksy, Ph.D.
Dept. of Chemistry
Associate Director

Eugene Olevsky, Ph.D.
College of Engineering
Associate Director

Industry Advisory Board:

Victor Pereyra, Chair
Weidlinger Associates

John Newsam
fqubed, Inc.

Richard Greenblatt
Source Signal Imaging, Inc.

Antonio Redondo
Los Alamos National Laboratory

Horst Simon, Ph.D.
Lawrence Berkeley National Laboratory

In addition to the many SDSU faculty and administrators contributing on various levels and capacities to the CSRC effort, we have 58 research affiliated faculty from industry, the national labs and other universities that support our goals.
Degree Programs

- Certificate
- Advanced Certificate in Computational Science
- Master of Science Program
- Master of Science with a Concentration in Professional Studies
- PhD in Computational Science
- PhD in Computational Science with a Concentration in Statistics
Areas of Research

- Fluid Dynamics
- Materials Science
- Biophysics
- Nonlinear Dynamics
- Environmental Science
- Scientific Databases & Data Mining
- Bioinformatics
- Computational Algebra
- Nuclear Physics

- Astrophysics
- Scientific Visualization
- Image Processing
- Structural Mechanics
- … and more
### The Numbers

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<tr>
<th>Degree</th>
<th># of Students</th>
<th>Female</th>
<th>Male</th>
<th># Graduated</th>
<th># Graduating This Year</th>
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**Number of scientific publications by students:** 74
Basic Skills Set

- Team Projects
- Interdisciplinary
- Scientific Computing
- Software
- Planning
- Communications
Curriculum Core Areas

- Numerical Analysis
- Scientific Visualization
- High Performance Computing
- Scientific Data Base Techniques
- Statistics
Multi-disciplinary/Interdisciplinary Training

- Discovery Teams
  Science Driven
  Faculty/Postdocs/PhD/MS/BS

Comp 670  Problems in Computational Science
Industry Interaction

- ACSESS
- Curriculum Forum
- Poster Session
- Summer Projects
- Consortium
Applied Computational Science & Engineering Student Support

- Collaboration between Industry and Academia
- Benefits for Industry
  - Qualified & trained student employee
  - Specialized faculty mentor and advisors
  - Utilization of CSRC resources
  - Joint grant submissions
- Benefits for CSRC & Students
  - Real-world experience
  - Education funding
Summary

We are training the next generation of Computational Scientist of the 21st Century and we need your help providing real world problems for our students