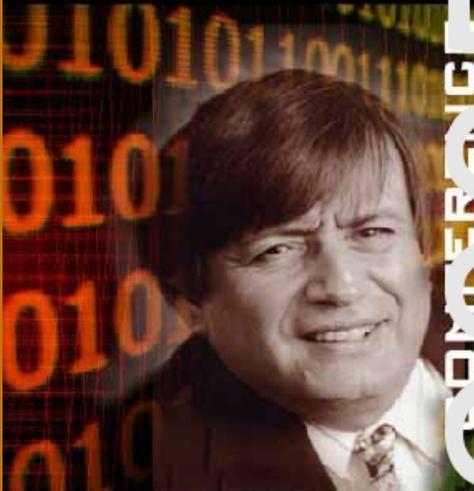# R I C H A R D   T A P I A
CELEBRATION OF DIVERSITY IN COMPUTING CONFERENCE

October 19 - 22, 2005
Albuquerque, New Mexico

A DIVERSITY OF SCHOLARS
A TAPESTRY OF DISCOVERY

http://www.ncsa.uiuc.edu/Conferences/Tapia2005/

R I C H A R D   T A P I A

CELEBRATION OF DIVERSITY IN COMPUTING CONFERENCE 2005

OCTOBER 19-22, 2005 • ALBUQUERQUE, NEW MEXICO

Celebrating the technical contributions and career interests of diverse people throughout computing

acm

IEEE
COMPUTER
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In cooperation with:

COMPUTING RESEARCH ASSOCIATION
• CRA •

Program Highlights

Wednesday, 8:00 AM – 7:30 PM
Enchantment Ballroom A-B

Doctoral Consortium
Sponsored by NSF

Ph.D. Students Discuss Research and Career Objectives with Experts

Wednesday, 6:30 PM - 8:00 PM
Enchantment Ballroom C-F

Student and Scholarship Recipient Orientation

Students Learn to Maximize their Tapia 2005 Experience

Wednesday, 8:00 PM - 10:00 PM
Fiesta Room

Opening Reception
Hosted by Google

Meet Richard Tapia, Speakers, Panelists, Organizers and Sponsors

Thursday, 7:00 PM – 10:00 PM
Pavilion Court and Landing

Poster Session and Reception

Chat with Researchers about Latest Research Results

Friday, 7:00 PM – 10:00 PM
Sendero Ballroom

Banquet and Award Ceremony

Best Poster Award
Richard Tapia Achievement Award
Entertainment and Dancing

Saturday, 12:00 PM - 1:30 PM
Sendero Ballroom

Lunch and Town Hall Meeting

Make Suggestions for the 2007 Conference and Join Efforts to Diversify Computing

RICHARD TAPIA
CELEBRATION OF DIVERSITY IN COMPUTING CONFERENCE

October 19 - 22, 2005
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A DIVERSITY OF SCHOLARS
A TAPESTRY OF DISCOVERY

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The 2005 Richard Tapia Celebration of Diversity in Computing Conference, co-sponsored by **ACM** and **IEEE-CS**, in cooperation with **CRA**, will celebrate the technical contributions and career interests of diverse people in diverse computing fields. The theme of this year's conference is "**A Diversity of Scholars – A Tapestry of Discovery**." In honor of Richard A. Tapia, this conference, the third event in a biennial conference series, will highlight innovative research and applications in computing sciences. Researchers will present in a number of areas, and particularly in collaborative and emerging technologies, computational mathematics and science, and multidisciplinary activities in computer science. The conference presenters are leaders in their respective fields, representing academic, industrial and government communities. Current research on leading-edge topics will be presented by invited speakers, during technical talks, panel discussions, workshops and a poster session. In addition to its technical content, the conference includes presentations on initiatives to increase the number of individuals from underrepresented groups succeeding in computing-based careers. The conference aims to provide an educational and supportive networking environment for underrepresented groups across the broad range of computing and information technology, from science to business to the arts to infrastructure.

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Featured Speakers

Keynote Speaker
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Dr. Mark E. Dean
IBM Fellow and Vice President
IBM Almaden Research Center

Plenary Session
Thursday, 3:30 PM – 4:30 PM
Grand Pavilion I-III

Data and the Next Generation

Dr. Francine Berman
Director
San Diego Supercomputer Center
Professor and HPC Endowed Chair
University of California, San Diego

Plenary Session
Friday, 9:00 AM - 10:00 AM
Grand Pavilion I-III

Changing the Places Where We Work: Diversifying Computing

Dr. Janice Cuny
Program Director
Broadening Participation in Computing (BPC)
National Science Foundation

Plenary Session
Friday, 3:30 PM – 4:30 PM
Grand Pavilion I-III

The Development of Dynamic Ventilation Imaging

Dr. Thomas M. Guerrero
Assistant Professor
University of Texas
M. D. Anderson Cancer Center

Banquet Presentation
Friday, 7:00 PM – 10:00 PM
Sendero Ballroom

Walking in Beauty on an Ever-Changing Path, A Native Woman Engineer's Perspective

Sandra Begay-Campbell
Principal Member of the Technical Staff
Sandia National Laboratories

Welcome to the Tapia Conference 2005

Pamela Williams is a senior member of the technical staff in the Computational Sciences and Mathematics Research Department at Sandia National Laboratories. Her research interests include optimization, machine learning and mathematical software design.

Dr. Williams earned a B.S. in mathematics from the University of Kentucky, and a M.A. and Ph.D. in Computational Applied Mathematics from Rice University. Williams' honors and awards include an Otis A. Singletary Scholarship, National Society of Black Engineers Fellow, AT&T Cooperative Research Fellowship, and Lawrence Livermore National Laboratory Education Outreach Award. She is a member of ACM, NAM, and SIAM. In addition, Dr. Williams was recently elected to a three-year term on the University of Kentucky Alumni Association's Board of Directors.

Welcome to the 2005 Richard Tapia Celebration of Diversity in Computing Conference, the third in a biennial series, that celebrates diversity in the field of computing. Celebrating diversity means just that - appreciating the rich variation in our experiences, expertise, and cultural backgrounds. This year's theme is "A Diversity of Scholars - A Tapestry of Discovery." The conference seeks to weave together these unique threads to create a tapestry of discovery and achievement.

The theme conjures up memories of my participation in Rice's Spend A Summer With a Scientist program, precursor to Rice-Houston AGEP. At the beginning of the summer, Tapia brought together students of different genders and cultural backgrounds with research interests ranging from sociology to physics to applied mathematics. By the end of the summer, we, the students, discovered that outward differences masked common goals, fears, and obstacles encountered in life and graduate school. From these experiences, we formed lasting bonds throughout graduate school and beyond.

Mark Friedman, Technical Program Chair, has developed a strong and exciting program consisting of contributed papers from leading-edge researchers, workshops, and panels on various technical issues as well as diversity and outreach activities, posters, Birds-of-a-Feather sessions, and a doctoral consortium. Whether you are an established researcher, mid-career professional or student exploring your options in computing, we think you will find a session or topic that is useful and informative.

I hope the conference provides an opportunity to network and establish connections beyond your institution's walls. In addition, I challenge you to discover and appreciate the diversity among your fellow conference attendees.
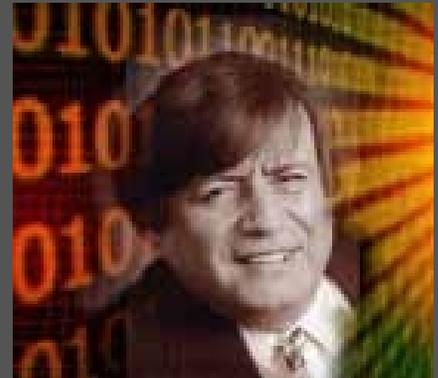
Pamela J. Williams
Sandia National Laboratories
Tapia 2005 Conference Chair
pwillia@sandia.gov

Information on Richard Tapia

Richard A. Tapia
North Harding Professor of Computational and Applied Mathematics
Rice University

The symposium honors the significant contributions of Dr. Richard A. Tapia, a mathematician and professor in the Department of Computational and Applied Mathematics at Rice University in Houston, Texas. He is internationally known for his research in computational and mathematical sciences and is a national leader in education and outreach programs. Dr. Tapia has authored or co-authored two books and more than 80 mathematical research papers. His current positions at Rice are Noah Harding Professor of Computational and Applied Mathematics; Associate Director of Graduate Studies, Office of Graduate Studies; and Director of the Center for Excellence and Equity in Education.

Richard Tapia was born in Los Angeles to parents who separately emigrated from Mexico as young teenagers in search of educational opportunities for themselves and for future generations. Richard was the first in his family to attend college, earning his B.A., M.A., and Ph.D. degrees in mathematics from the University of California, Los Angeles. Due to his efforts, Rice University has received national recognition for its educational outreach programs and the Rice Computational and Applied Mathematics Department has become a national leader in producing women and underrepresented minority Ph.D.'s in the mathematical sciences. Some of Dr. Tapia's honors include: election to the National Academy of Engineering (1992) for his seminal work in interior point methods; the first recipient of the A. Nico Habermann Award from the Computing Research Association (1994) for outstanding contribution to aiding members of underrepresented groups within the computing community; the Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring from President Clinton (1996); appointment by President Clinton to the National Science Board (1996), the governing body of the National Science Foundation; and the establishment of a lecture series to honor Dr. Tapia and African American mathematician David Blackwell at Cornell University (2000). Dr. Tapia also received the Hispanic Engineer of the Year Award from Hispanic Engineer Magazine in 1996, and was inducted into the Hispanic Engineer National Achievement Awards Conference Hall of Fame in 1997. Dr. Tapia was inducted into the Texas Science Hall of Fame in 2004. Hispanic Engineer & Information Technology Magazine also selected him as one of the 50 Most Important Hispanics in Technology and Business for 2004.

Honoring the contributions of Richard Tapia and celebrating the technical contributions and career interests of diverse people throughout computing

Wednesday, October 19, 2005

Doctoral Consortium
Sponsored by the National Science Foundation
Enchantment A-B
8:00 AM – 7:30 PM
Doctoral Consortium Chair: Nina Berry,
Sandia National Laboratories

Student and Scholarship Recipient Orientation
Enchantment C-F
6:30 PM – 8:00 PM
Program Chair:
Mark A. Friedman, The Richard J. Roman Institute
Scholarships Chair: Stephenie A. McLean,
Texas Advanced Computing Center,
University of Texas at Austin

Tapia Conference Alum Presentation:
Moving toward Future Objectives
Dr. Jeffrey Forbes
Duke University

Opening Reception
Hosted by Google
Fiesta Room
8:00 PM – 10:00 PM

Thursday, October 20, 2005

Time	
8:00 AM	**Buffet Breakfast:** Foyer, Atrium, Pavilion I-III
8:45 AM	**Welcome and Opening Remarks** Pavilion I-III Conference Chair: Pamela J. Williams, Sandia National Laboratories
9:00 AM	**Keynote Address: Pavilion I-III** **Opportunities in the 21st Century Computing Industry** **Dr. Mark E. Dean** IBM Fellow and Vice President, IBM Almaden Research Center
10:00 AM	Coffee Break: Foyer, Atrium

10:30 AM / 11:15 AM	T1: Sage **Computational Math I** Session Chair Illya Hicks, Texas A&M University	T2: Fiesta Room **Collaborative Environments** Session Chair: Jeffrey Forbes, Duke University	P1: Enchantmt C-F **Leadership: A Diverse Perspective** Organizer: Valerie E. Taylor, Texas A&M University
12:00 PM	Lunch: Pavilion I-III		
1:30 PM / 2:15 PM	T3: Sage **Programming Languages** Session Chair: Andrea Lawrence, Spelman College P3: Sage **Beware of False Prophets: Which Initiatives ... Work?** Organizer: Wanda J. Smith, Virginia Tech	P2: Fiesta Room **Grid Computing: The Promise and the Challenges** Organizer: Charles Koelbel, Rice University	W1: Enchantmt C-F **Introduction to Cyberinfrastructure I** Organizers: Donald Frederick, San Diego Supercomputer Center, UCSD and Sandie Kappes, National Center for Supercomputing Applications, UIUC
3:00 PM	Coffee Break and Poster Setup: Foyer, Atrium		
3:30 PM	**Plenary Session: Pavilion I-III** **Data and the Next Generation** **Dr. Francine Berman** Director, San Diego Supercomputer Center, Univ. of Cal. San Diego		
4:45 PM	BoF1: Sage **Sharing Experience on ... Multicultural Bridge Programs** Organizer: Manuel Penaloza, et. al, South Dakota School of Mines and Tech	BoF2: Fiesta Room **Career Strategies for Computing Professionals ...** Org: Mark A. Friedman, The Richard J. Roman Institute	W2: Enchantmt C-F **Introduction to Cyberinfrastructure II** Organizers: Donald Frederick, San Diego Supercomputer Center, UCSD and Sandie Kappes, National Center for Supercomputing Applications, UIUC
5:45 PM / 6:15 PM		**Break** Foyer, Atrium	
7:00 PM / 10:00 PM	**Poster Session and Reception** Pavilion Court and Landing		

Friday, October 21, 2005

Buffet Breakfast: **Foyer, Atrium, Pavilion I-III**

Announcements:
Pavilion I-III
Program Chair: Mark A. Friedman, The Richard J. Roman Institute

Plenary Session: Pavilion I-III
Changing the Places Where We Work: Diversifying Computing
Dr. Janice Cuny
Program Director, Broadening Participation in Computing, NSF

Coffee Break: **Foyer, Atrium**

T4: Pavilion V	T5: Pavilion I-III	P4: Enchantmt C-F
Computational Math II Session Chair: Monica Martinez-Canales, Sandia National Laboratories	**Systems** Session Chair: Demetrios Kazakos, University of Idaho	**Next Generation Computing – Preparing the Future Workforce: An Industry Perspective** Organizer: John S. Hurley, The Boeing Company

Lunch: **Sendero Ballroom**

T6: Pavilion V	P5: Pavilion I-III	P6: Enchantmt C-F
Diversity Session Chair: Nina Berry, Sandia National Laboratories	**Research Opportunities in Bioinformatics** Organizer: Tiffani L. Williams, Texas A&M University	**Making the Journey of Graduate School Your Own** Org: Jamika Burge, et al., Virginia Tech
		P7: Enchantmt C-F **The Computer Science Academic Job Search** Org: Juan Gilbert, et al., Auburn University

Coffee Break: **Foyer, Atrium**

Plenary Session: Pavilion I-III
The Development of Dynamic Ventilation Imaging
Dr. Thomas M. Guerrero
Assistant Professor, Univ. of Texas M. D. Anderson Cancer Center

BoF3: Pavilion V	BoF4: Pavilion I-III	W3: Enchantmt C-F
Widening the Pipeline for All Minority Students Organizer: Anja Remshagen, et. al, University of West Georgia	**Six Sigma and IT** Organizer: Rodi Tountcheva, The Ohio State University	**Are They Really Listening? Effective Presentations in Science Settings** Organizer: Tiffani L. Williams, Texas A&M University

Break
Foyer, Atrium

Banquet and Award Ceremony
Sendero Ballroom
Banquet Presentation:
Walking in Beauty on an Ever-Changing Path, A Native Woman Engineer's Perspective
Sandra Begay-Campbell
Principal Member of the Technical Staff, Sandia National Laboratories

Saturday, October 22, 2005

Buffet Breakfast: **Foyer, Atrium, Pavilion I-III**

Announcements:
Pavilion I-III
Conference Chair: Pamela J. Williams, Sandia National Laboratories

P8: Pavilion I-III
Tapping Technology to Develop Diversity: Building the MentorNet Network
Organizer: Carol B. Muller, MentorNet

Coffee Break and Poster Breakdown: **Foyer, Atrium**

T7: Pavilion V	P9: Pavilion I-III	W4: Enchantmt C-F
Applications Session Chair: Patricia Teller, University of Texas-El Paso	**Engaging People in Cyberinfra-structure** Organizer: Ann Redelfs, EPIC	**Fostering IT Career Resilience** Organizer: Wanda J. Smith, Virginia Tech
	P10: Pavilion I-III **... Use of the Access Grid at MSIs for HPC Collaborations** Org: Susan Brown, et. al, Univ of Hawaii	

Lunch and Town Hall Meeting
Sendero Ballroom

Conference Adjourns at 1:30 PM

Legend:

T# = Technical Presentation
P# = Panel Discussion
W# = Workshop
BoF# = Birds-of-a-Feather Discussion

Schedule at a Glance

Program Highlights

Doctoral Consortium

Wednesday, October 19, 2005
8:00 AM – 7:30 PM
Enchantment Ballroom A-B

Supported by the National Science Foundation

The Doctoral Consortium provides an opportunity for Ph.D. students to discuss and explore their research interests and career objectives with a panel of established researchers in computing and in computational mathematics, science and engineering.

Student and Scholarship Recipient Orientation

Wednesday, October 19, 2005
6:30 PM – 8:00 PM
Enchantment Ballroom C-F

At the Student and Scholarship Recipient Orientation, experience and suggestions will be offered to students towards maximizing the benefits of their participation in the Tapia 2005 conference and future professional activities. Students will learn of programs and opportunities to support their education and career offered by the Coalition to Diversify Computing (CDC) and our sponsors, ACM, IEEE-CS and CRA. Jeffrey Forbes, an assistant professor at Duke University and Tapia Conference alum, will share his past Tapia Conference and CDC program experiences and their influences on his career. The orientation will provide valuable information and professional networking opportunities.

Tapia Scholarship recipients are required to attend the orientation to learn of procedures that must be followed for reimbursement of expenses. Doctoral Consortium participants must attend the later portion of the orientation starting at 7:30pm.

Opening Reception

Wednesday, October 19, 2005
8:00 PM – 10:00 PM
Fiesta Room

Hosted by Google

The Opening Reception offers an opportune time to network with your colleagues, leaders in the field and potential future collaborators. Conference participants will have an opportunity to meet honoree Richard Tapia, a host of speakers and panelists, representatives from our sponsors and supporters, conference organizers and other conference participants. The Career Information Center will be open during the reception.

Keynote and Plenary Sessions

True to the conference theme, "A Diversity of Scholars – A Tapestry of Discovery," Tapia 2005 plenary sessions feature presentations on wide ranging topics by diverse leaders in the computing sciences from academia, industry and government agencies.

Opportunities in the 21st Century Computing Industry
Dr. Mark E. Dean
IBM Fellow and Vice President
IBM Almaden Research Center
Thursday, October 20, 2005
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The Development of Dynamic Ventilation Imaging
Dr. Thomas M. Guerrero
Assistant Professor
University of Texas M. D. Anderson Cancer Center
Friday, October 21, 2005
3:30 PM – 4:30 PM
Grand Pavilion I-III

Poster Session and Reception

Thursday, October 20, 2005
7:00 PM – 10:00 PM
Pavilion Court and Landing

The Poster Session and Reception presents an opportunity to learn about the research featured on more than 20 posters authored by undergraduate and graduate students, post-doctorates and faculty. The topics include collaborative and emerging technologies, computational mathematics and science, and multidisciplinary activities in computer science. Poster judges will talk to presenters at their poster during the session.

Banquet and Award Ceremony

Friday, October 21, 2005
7:00 PM – 10:00 PM
Sendero Ballroom

At the celebratory banquet, good food, music, entertainment, dancing and an awards ceremony will be accompanied by a talk from Sandra Begay-Campbell. At the banquet, in addition to networking with a diverse group of students, faculty, researchers and practitioners from many areas, you will be able to socialize with a number of leaders in the field of computing in an informal setting.

Best Student Poster Award

An award of $1000 will be given for the best student poster.

The Richard A. Tapia Achievement Award for Scientific Scholarship, Civic Science and Diversifying Computing

A highlight of the evening will be the presentation of the bi-annual "Richard A. Tapia Achievement Award for Scientific Scholarship, Civic Science and Diversifying Computing." The award honors Richard Tapia's lifetime work as a "civic scientist" – a scientist who recognizes that at the very center of our highly complex technological and scientific world are people. Recipients are distinguished computational or computer scientists or computer engineers who are also making significant contributions to quality of life matters such as teaching, mentoring, advising, building and serving communities, or affecting local or national policy on human resource issues. Awardees will be recognized as those who demonstrate extraordinary leadership in increasing the participation of those groups who are underrepresented in the sciences.

Banquet and Presentation:
Walking in Beauty on an Ever-Changing Path,
A Native Woman Engineer's Perspective
Sandra Begay-Campbell
Principal Member of the Technical Staff
Sandia National laboratories

Sandra Begay-Campbell, a Principle Member of the Technical Staff at Sandia National Laboratories and a member of the Navajo Nation, will share her perspective which combines her cultural values into a technical environment as she leads Sandia's efforts in the Renewable Energy Program to assist tribes with renewable energy development.

Conversation, Native American Entertainment, Music and Dancing

Finish the evening with great conversation, entertainment by a troop of Native American dancers, music and dancing. Join the Tapia Conference 2005 attendees for a social and entertainment as you meet new friends and renew old friendships.

Lunch and Town Hall Meeting

Saturday, October 22, 2005
12:00 PM – 1:30 PM
Sendero Ballroom

Your help is needed with the planning of future events and programs related to increasing diversity in the field of computing. Voice your ideas or suggestions at the Town Hall Meeting which will provide an open forum for discussions about future Tapia events as well as possible programs that can be undertaken by the Coalition to Diversify Computing, a joint organization of the ACM, CRA and IEEE-CS, which is open to ideas for new projects that aid in increasing the diversity in the field of computing, especially within graduate programs in computing.

Your feedback is important!
Please fill out the survey!

During the conference, we will be surveying the participants to get your feedback on the appropriateness of the sessions, what you found most useful, and your suggestions for future Tapia Conferences. In addition, we would like to find out how the conference benefits you, and whether you intend to follow up with any of the speakers, panelists, committee members or others you have met while you were here. We cannot stress enough how important your feedback is – we want to be sure we continue to offer quality sessions that entice you to return again and again, to participate fully in future events, as well as proudly encourage your colleagues to attend in 2007 and beyond.

4TH STREET MALL

STAIRWELL TO SECOND FLOOR

TELEPHONES

SENDERO LOBBY

SENDERO BALLROOM

SENDERO FOYER-PREFUNCTION

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FOYER

1   4

BOARDROOM NORTH

BOARDROOM ALCOVE

FIESTA ROOM

SECOND FLOOR

ELEVATORS

PHONES

RESTROOMS

ATRIUM

BOARDROOM EAST

A   B

FOYER 1

C   D

FOYER 2

E   F

ENCHANTMENT BALLROOM

STAIRWELL TO SENDERO

PAVILION LANDING

STAIRS

SALES & CATERING OFFICES

RESTROOMS

PAVILION COURT -PREFUNCTION

FREIGHT ELEVATOR

IV

FOYER

I

VI

GRAND PAVILION

II

V

III

BOLOS

SAGE

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