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- and much more!

Contributions to the newsletter are always welcome. If you have news that would be of interest to other CEEs or your classmates, please send it to us so it can be included in a future edition.

Tel: (225) 578-8442 Fax: (225) 578-4945

Please contact Dr. George Z. Voyiadjis for more details.

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CIVIL AND ENVIRONMENTAL ENGINEERING

Volume 2 Winter Issue

December 2002

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Message from the Chairman



Dr. George Z. Voyiadjis,
Boyd Professor, Chairman and Bingham C.
Stewart Distinguished Professor

Some of the highlights of our Department Achievements of last fiscal year 2001-2002 include:

- Rated in Top 50 Departments by NSF in funding
- Dr. Van Heerden obtained a \$3.7 million Health Millennia Fund grant for a Center.
- Our Department has the second highest enrollment of graduate students at LSU.
- Two of our Faculty members, Drs. R. R. Avent and V. P. Singh received national Society awards.
- The CEE research expenditures was \$3,581,870.

The Civil and Environmental Engineering Department established last year a Hall of Distinction to recognize individuals who have made sustained contributions to the profession. Five charter members were inducted in 2001. This year three additional new charter members were inducted into this Hall of Distinction.

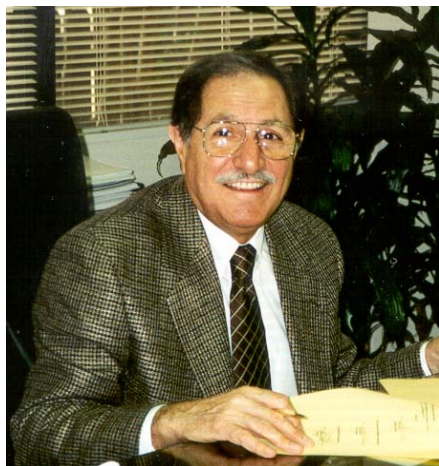
Criteria for election include distinguished professional achievement and service to Civil and Environmental Engineering. Inductees will have made substantial impact in their field and to the Department of Civil and Environmental Engineering. Induction is not limited to Departmental Alumni.

In honoring these individuals, the Department intends through them to recognize all those who contributed to Engineering excellence.

Hall of Distinction

New Hall of Distinction Members

VERDI ADAM



Verdi Adam is presently President and Principal of GEC, Inc., a comprehensive consulting firm based in Baton Rouge, Louisiana with offices in New Orleans, Jacksonville, Florida, Chicago, Illinois, and Lafayette, Louisiana. Since receiving his M.S. in civil engineering degree in 1954 from LSU, Mr. Adam has been involved in all phases of highway and transportation engineering. His career began with the then Louisiana Highway Department. Mr. Adam is an internationally recognized expert in the areas of paving and structural materials and pavement design with particular emphasis on asphalt pavements. He served as Chief Engineer for the Offices of Highways and of Aviation, director of Construction and Maintenance Division, and Materials and Research Engineering of the Department of Transportation of Louisiana.

Mr. Adam, in the 1960s, was one of the lead highway engineers in the country in the development, debugging and implementation of stochastic approach to end-result highway specifications. He has made numerous presentations in the United States and in several foreign countries, and he has assisted transportation departments of a number of states in developing statistically based quality assurance programs while reducing the need for manpower and unnecessary testing.

Mr. Adam also served as the Chief of Paving and Structural Materials Group of the Federal Highway Administration of the U.S. Department of Transportation in Washington, D.C. Mr. Adam in this latter capacity assisted the U.S. Congress, Department of Transportation and various highway and transportation departments in formulating overall transportation policies.

Mr. Adam established the Environmental Division at DOTD in response to the State and Federal environmental regulatory needs of highway design and construction. Beginning in the early sixties until early nineties, with the exception of a two year break when he was in Washington, Mr. Adam taught the highway engineering course for the Department of Civil Engineering at LSU as an Adjunct Assistant and later as an Adjunct Associate Professor. In 1982 he was appointed to the Louisiana Board of

ALUMNI

The Department of Civil and Environmental Engineering wants to know where life has taken you. Who are you working for and what is your title? Have you received any recognition for your work? Are you working on an especially challenging project?

Please complete the following information and attach any additional comments you may have. Space permitting, we would like to use photos of you, your family or your latest project.

Please e-mail your information with attached photos to ceseal@lsu.edu. Or, you may mail your submission to: Civil and Environmental Engineering, LSU, 3418 CEBA Building, Baton Rouge, LA 70803-6405.

CEE ALUMNI INFORMATION

Name: _____ Degree: _____ Year: _____

Home Address: _____

Home Telephone: _____ Email: _____

Position Title: _____

Firm: _____ Business telephone: _____

Business Address: _____

Your News: _____



Alumni Update is Now Online!



You can now fill out an online version of the Alumni Update form. Through this, you can also submit news to be featured in our Alumni Corner. To access the form, visit www.cee.lsu.edu/~News and click on the "Alumni Update" link on the left. We hope to hear from you soon!

CIVIL AND ENVIRONMENTAL ENGINEERING DEPARTMENTAL CAMPAIGN

The Department of Civil and Environmental Engineering is continuing a fundraising campaign to enrich and enhance programs in the department. Your donation will enhance the Departmental Enhancement Fund supporting new initiatives so that we may continue to produce top-quality engineers.

Our goal is to build an endowment of \$400,000 and an annual \$50,000 supplement to support the purchase of new lab equipment, computers and software, support of students, and support of faculty activities at professional meetings and conferences.

Any amount will be greatly appreciated; however, donors giving \$200 a year for five or more years or over \$1000 initially will receive special recognition in our departmental newsletter and on the Departmental Enhancement Fund plaque displayed in the department. Company matching funds will also be acknowledged. Please consider the CEE department this year in your annual giving.

DONOR INFORMATION:

(please check)

\$10,000 or more \$5,000 to \$9,999 \$1,000 to \$4,999

\$500 or more \$200 to \$499 Less than \$200

I pledge \$_____ per year for the next _____ years to the CEE Departmental Enhancement Fund for a total of \$_____.

Please make your checks payable to the "LSU Foundation" and note 'for CEE Enhancement Fund'.

NAME: _____

ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

TELEPHONE: _____ BUSINESS _____ HOME _____

FAX NUMBER: _____ E-MAIL: _____

GRADUATION DATE: _____ DEGREE: _____

EMPLOYER: _____

Please mail donations to: Civil and Environmental Engineering
Louisiana State University
3418 CEBA Building
Baton Rouge, LA 70803-6405

You will be contacted by our development coordinator to confirm your pledge and support.

THANK YOU

Registration for Professional Engineers and Land Surveyors by Governor Treen for a six year term. He served as a member and Chairman of the Board.

Verdi Adam has won awards such as the Louisiana Highways and Transportation Hall of Honor in 1998. He has also been awarded the Industry Recognition Award, which is given for his outstanding contributions to the asphalt pavement industry during 1970 in recognition of development of statistically based end-result specifications for asphalt pavements, which are now nationally implemented, and development of concepts and specifications for the use of consistency at service temperatures for asphalt cements.

Mr. Adam has been very active in research organizations and professional associations and has written many research papers, reports and articles. He has served as Vice-Chairman of the Highway Transport Subcommittee and Chairman of the Bituminous Materials Technical Section of the American Association of State Highway and Transportation Officials.

DIPAK ROY



Dipak Roy received his PhD in Environmental Engineering at the University of Illinois and joined LSU in 1979. He has 23 years of teaching experience, 28 years of research experience, and has supervised 7 PhD and 50 M.S. students. He has supervised more than 40 research projects worth over three million dollars. In 1995 he joined Polytechnic University in New York to develop their program.

Dr. Roy has received awards and honors as Fulbright Fellow. He was named researcher of the Year in Civil Engineering at LSU in 1992. He received the Halliburton Foundation Faculty Development Award. Roy was also listed in Men & Women of Science in America, Who's Who in Frontiers of Science, Technology, and Personalities of the South. He was awarded the Oak Ridge Associate University Faculty Participation Award. Roy has also been interviewed by ABC, FOX and PBS.

Dipak Roy's research interests include mathematical modeling of natural environmental systems, fate and transport of contaminants, and biotechnology application in environmental engineering. He holds three patents based on his work at LSU.

Dr. Roy is a member of several professional associations, which include the Water Pollution Control Federation, the American Chemical Society, Phi Kappa Pi, and Chi Epsilon. He is also a professional registered engineer in civil and environmental engineering in Louisiana.

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WILLIAM SMITH



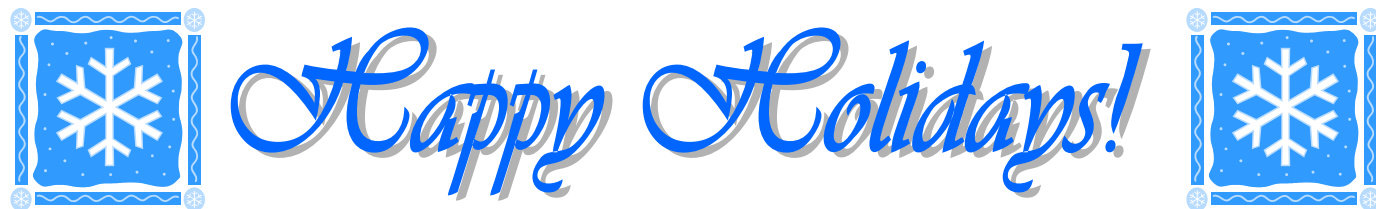
William Clifford Smith was born on April 21, 1935 in New Orleans, Louisiana. His wife is the former Jo-Anne Toups from Schriever, Louisiana, and they have seven children.

William Clifford Smith attended the public school system in Terrebonne Parish and received his Bachelor of Science Degree in Civil Engineering from Louisiana State University in 1958. Since he had grown up in his father's footsteps in the civil engineering field, he immediately became a partner in his father's firm, and the name was changed to T. Baker Smith & Son, to illustrate his formal entrance into the profession.

Following his father's death in 1962, he reorganized and operated the company as President and sole owner. Today, he is Chairman of the Board of the cooperation.

He has been a registered civil engineering and land surveyor in Louisiana since 1958 and a registered civil engineer in Mississippi since 1985. His professional organizations in the engineering field are the American Congress on Surveying and Mapping, American Society of Civil Engineers, National Society of Professional Engineers, Louisiana Engineering Society, Louisiana Society of Professional Surveyors, and National Society of Military Engineers. He also received the A. B. Patterson Medal for Engineer-in-Management on February 7, 1986, presented by the Louisiana Engineering Society.

The social, civic, and business organization of which he is a member include the Houma-Terrebonne Chamber of Commerce, Terrebonne Historical and Cultural Society, Board of Directors of Entergy Corporation, member of the Mississippi River Commission, and member of the Board of Regents.



The Department of Civil & Environmental Engineering wishes you and your family the best this holiday season.

Have You Heard ?

Dr. J. B. Metcalf, Freeport-McMoRan Professor, has been appointed a Member Emeritus to the Transportation Research Board Committee on Low Cost Roads in recognition of his long interest in and service to this aspect of transportation engineering.

Dr. Louay Mohammad was appointed as a Chair of the National Cooperative Highway Research Program (NCHRP) Project Panel D09-36 on the development of Improved Procedure for Laboratory Aging of Asphalt Binders in Pavements. \$500,000 was allocated for this project. He was also selected to serve on NCHRP project panel 1-42 on Top-Down Fatigue Cracking of Hot Mix Asphalt Layer.

Dr. John Sansalone gave a keynote lecture entitled "Advances in Urban Water Quality Modeling" at the 2nd International Conference on New Trends in Water and Environmental Engineering in Italy.

Dr. John Sansalone peer-reviewed paper presentations at the 9th International Conference on Urban Drainage by doctoral students Hong Lin and Chad Cristina and M.S.C.E. student Christopher Dean and part-time student Kim Howerter, all of Department of Civil and Environmental Engineering. Chad, Chris and Kim are graduates of our undergraduate Environmental Engineering program.

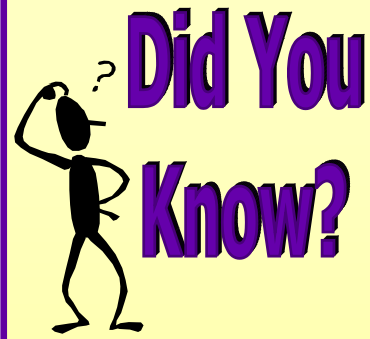
Dr. Vijay Singh was invited to give a keynote paper at the Biennial Italian Hydraulics Conference held September 18-21, 2002, at the University of Basilicata, Potenza, Italy. He was the only keynoter from outside of Italy. His keynote paper was Toward Unification in Water Resources Research. He chaired a session on Watershed Modeling at the Federal Interagency Hydrologic Modeling Conference held August 1-3, 2002, in Las Vegas. He was an invited speaker at the 150th Anniversary Convention of ASCE held November 3-7, 2002, in Washington, D. C. His presentation was Watershed Models.

Dr. Mehmet T. Tumay will be recognized by the National Academies, Transportation Research Board at the 82nd Annual Meeting in Washington, DC, January 15, 2003, as an Emeritus Member of the Committee A2L02 – Soil and Rock Properties. Dr. Tumay served on the Committee A2L02 from 1982 – 1997, and chaired it 1989- 1995. He also was the Chair of Section A2L00 – Geology and Properties of Earth Materials, 1996 – 2002, directing six Committees including A2L02. He was a member of Council A2000 – Design and Construction of Transportation Facilities 1996 – 2002 and Chaired the Scope, Organization and Function Committee of the Council 1999 – 2002.

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Congratulations...

Mr. William M. Tanner, graduate student in Geotechnical Engineering, received the Board of Regents Graduate Fellowship. This award consists of \$14,000 for living expenses and free tuition.

Mr. Keith N. Hoffman, graduate student in Geotechnical Engineering, received the Louisiana Engineering Foundation LES Vincent A. Forte Graduate Fellowship. He will be recognized at a banquet during the 7th Louisiana Joint Engineering Societies Meeting in Lafayette, on Thursday, January 23rd, 2003. Keith received \$2,000 toward educational expenses.



Did you know that you can read the CEE Newsletter online? Visit the Civil & Environmental Engineering Newsletter website at www.cee.lsu.edu/~News. You can read the most recent newsletter online as well as some past issues. You can now also fill out the Alumni Update form online, submit alumni news, and submit your own comments or suggestions for this newsletter. So be sure to check out our new, updated website for the CEE Newsletters!

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Dr. Suresh Moorthy: Dr. Moorthy works in computational mechanics and material characterization of damage in metal-matrix and nano-composites. He recently organized a minisymposium with Dr. George Z. Voyiadjis on "Computational Multiscale Nanomechanics: Bridging the Length Scales" at the World Congress of Computational Mechanics at Vienna, Austria. He has one graduate student working under him.

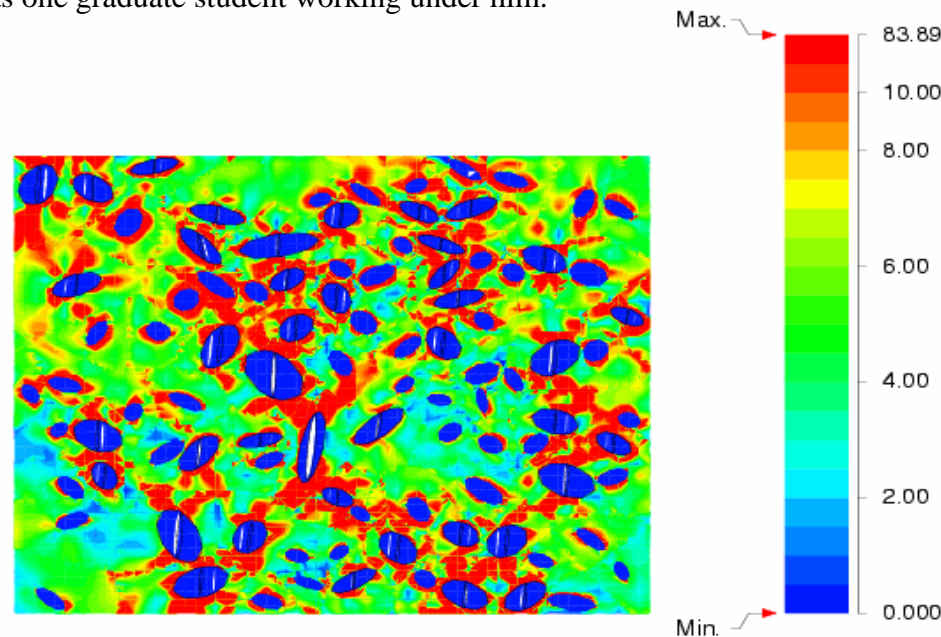


Figure 3 Illustration of some research of Dr. Moorthy (Distribution of microstructural effective plastic strain % in a fractured Al-SiC MMC)

Two Students Receive Honors at Conference

Chad Cristina received 2nd place in the Oral Paper Presentation for "Highway Storm Water Hydrograph Attenuation in Louisiana Using a Linearly Extended Partial Exfiltration Reactor" by Cristina and Sansalone at the 7th Environmental State of the State Conference in Lafayette, Louisiana. Chad is a graduate from our Environmental Engineering Undergraduate Program (May 1999). He completed his M.S.C.E. in December 2000 from our department and is currently a doctoral candidate in our department.

Kim Howerter received 3rd place in the Oral Paper Presentation for "Gradation-Based Distribution of Contaminated Highway Sediments Generated in South Louisiana" by Howerter, Glenn, Tribouillard and Sansalone at the 7th Environmental State of the State Conference in Lafayette, Louisiana. Kim is a graduate of our Environmental Engineering Undergraduate Program (May 2001) and is currently working toward her M.S.C.E. part-time in our department.

New Faces

CEE Welcomes Two New Faculty Members

The department of Civil & Environmental Engineering welcomed two new members to its faculty this semester. Dr. Chung R. Song joined the department in August, while Dr. Jannette Frandsen was welcomed in October. We are honored to receive these new members.

Dr. Chung R. Song joined the Civil and Environmental Engineering Department as a Professional in Residence. He received his doctoral degree from Louisiana State University, specializing in the area of Geotechnical Engineering/Modeling and Calibration Chamber Testing. Before this, Dr. Song obtained a master in civil engineering from the University of Texas at Austin.

His research interests include geotechnical testing, micro geomechanics, high strain behavior of geo-materials, behavior analysis and safety evaluation of earth structures, evaluating consolidation and hydraulic characteristics of geo-materials, and improvement of soft soils.

Dr. Song's experience includes serving as Vice President of Sambo Engineering Co. Ltd in Seoul, Korea and as a Research Associate at Louisiana State University. He worked six years as the senior engineer at Daewoo Engineering in Seoul, Korea. He has over sixteen publications and, in September of 2000, Dr. Song received the Distinguished Dissertation Award from LSU. Dr. Song is a member of the Korean Geotechnical Society, the Korean Tunneling Society, and the Korean Geo-Environmental Society. He is also a Professional Engineer and an APEC Engineer.

Dr. Jannette Frandsen has recently been employed as an Assistant Professor in the Department of Civil and Environmental Engineering at Louisiana State University. Before joining LSU, Dr. Frandsen was a Departmental Lecturer at Oxford University, Department of Engineering Science (U.K.). She concurrently held a Junior Research Fellowship at Oriel College, Oxford, U.K. Prior to this, she was at Cambridge University Engineering Department, U.K., where she got her doctorate in computational fluid-structure interaction modeling. Dr. Frandsen also spent a year at Imperial College (London, U.K.) obtaining a masters in steel structures. Dr. Frandsen has been teaching at Oxford and Cambridge University in England.

Her main research interest involves experimental and computational modeling of fluid-structure interaction processes with a focus on wave mechanics, aerodynamics and biomechanics. She has published 10 articles in this field of engineering. She has more than 5 years experience working with computational highly nonlinear coupled problems involving fluid-structure interaction modeling with application to long-span bridges and offshore platforms. Physical experiments include both model- and full-scale-measurements of long-span bridges. Underpinning her academic career, she has more than 7 years industrial experience in civil and mechanical engineering which includes conceptual and detailed design of approximately 20 fixed offshore platforms (25-150m deep water) and several semi-submersibles in deep water. She has also been involved in static and dynamic designs of various other structures such as buildings and bridges.

Academic/Research Group on Material Modeling and Visualization

The group is primarily involved in modeling of material behavior and bridging the length scales through computational/experimental simulation of microstructural material phenomena and its link to structural deformations. It is also involved in visualization and modeling of damage and fracture in materials using synchrotron and X-ray tomography. Students in the group work out of the Computational and Solid Mechanics Lab and the Visualization & Material modeling lab. The group consists of the following faculty:

Dr. George Z. Voyiadjis: Dr. Voyiadjis' primary research interest is in damage mechanics of metals, metal matrix composites, and ceramics with emphasis on the theoretical modeling, numerical simulation of material behavior, and experimental correlation. Research activities of particular interest encompass macromechanical/micromechanical constitutive modeling, experimental procedure for quantification of crack densities, inelastic behavior, thermal effects, interfaces, damage, failure, fracture, and numerical modeling. His experience also includes work on modeling of cyclic plasticity for metals, refined theory of shells, and modeling of in-situ testing in geomechanics. Voyiadjis has been extremely successful in securing more than \$7.0 million in research funds as a principal investigator from the National Science Foundation, the Department of Defense, the Air Force Office of Scientific Research, the Department of Transportation, and major companies such as IBM, and Martin Marietta. He has also been invited to give theme presentations and lectures in many countries around the world. There are 7 graduate students under his supervision.

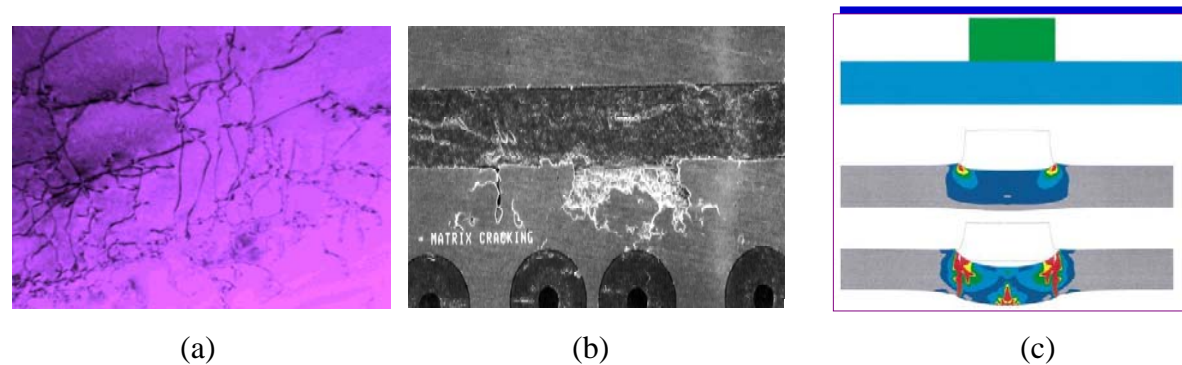


Figure 1 Illustration of some research of Dr. Voyiadjis
(a&b) Account for long-range microstructural interaction in metal matrix composites by bridging the length scales (c) Perforation of a plate by blunt projectile.

Dr. Khalid Alshibli: Dr. Alshibli is involved in modeling the Mechanics of Granular Materials (MGM). He is collaborating with Prof. Stein Sture of University of Colorado at Boulder to investigate the constitutive behavior of Ottawa sand under very low effective stresses in microgravity environment. MGM has been flown twice aboard the STS-79 and STS-89 NASA Space Shuttle missions. The project is sponsored by NASA/ Marshall Space Flight Center. Dr Alshibli is also involved in the study for the assessment of In-Situ Test technology for construction control of base courses and embankments. The main objective of this project is to assess the use of non-destructive in-situ tests [Dynamic Cone Penetrometer (DCP), Light Falling Weight Deflectometer (LFD), and Geo-gauge] to evaluate strength/stiffness characteristics of highway materials for application in the quality control/ quality assurance (QC/QA) procedures during construction of pavement layers (base course) and embankments.

The project is sponsored by Louisiana DOTD. Dr. Alshibli has six graduate students working under his supervision.

Dr. Dante Fratta: Topics of research interest for Dr. Fratta include, (a) Assessment of the near-surface testing of rocks using non-invasive tomographic studies. (b) Non-destructive detection of low velocity anomalies in civil engineering infrastructure. (c) Coupling of seismic and electromagnetic waves in soils and rocks. (d) Study of low strain stiffness in rock masses with P- and S-waves. He currently has four graduate and three undergraduate students working under his supervision.

Dr. John B Metcalf: Dr. Metcalf is the Freeport-McMoRan Professor of Civil Engineering. Some of his research interests include highway construction - material and quality control, stabilization, use of non-standard materials including wastes and recycled products, and low volume roads. A current interest is in modeling the behavior of asphalt/concrete as an assembly of stone/asphalt plus filter.

Dr. Louay N. Mohammad: Dr. Mohammad is the director of Engineering Materials Characterization Research Facility at the Louisiana Transportation Research Center (LTRC). His research interests include (a) Construction Material Research/Pavement Engineering (b) Pavement Design and Analysis (c) Experimental Mechanics and (d) Instrumentation. He has six graduate students under his supervision.

Dr. Linbing Wang: Dr Wang. holds a joint appointment with LSU and Southern University and has four graduate students working under him. His research interests include (a) use of x-ray tomography, optical and infrared imaging for the characterization of pavement materials and geomaterials (b) microstructure and damage quantification and visualization (c) numerical simulation of material behavior and (d) accelerated pavement materials testing. Figure 2 presents some currently funded research on the visualization of materials microstructure through x-ray tomography imaging, and numerical simulation of material behavior using Finite Element Method (FEM) and Discrete Element Method (DEM).

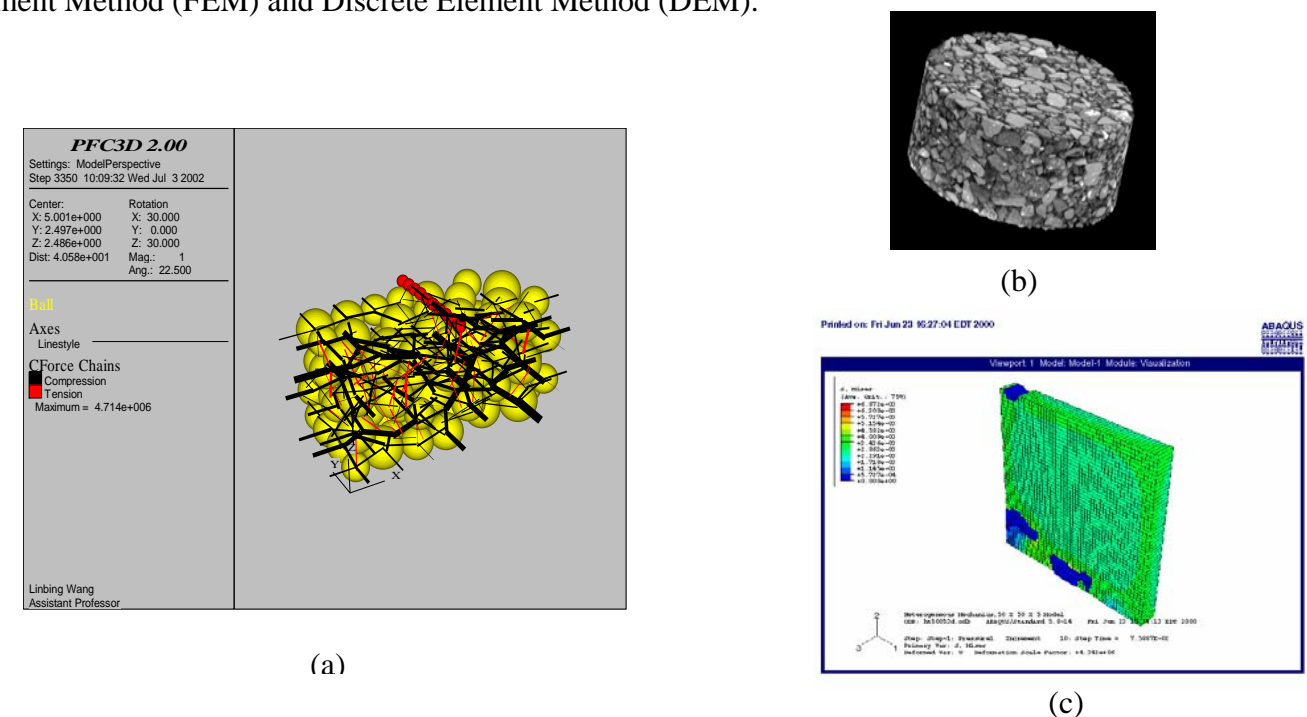


Figure 2 Illustration of Some Currently Funded Research of Dr. Wang
(a) DEM Simulation of Geomaterials; (b) Characterization and Visualization; and (c) FEM Simulation of Asphalt Concrete with Measured Void Structure