



## APPLIED MECHANICS DIVISION

### Report of the Chair



**Tom Farris**

[www.asme.org/divisions/amd](http://www.asme.org/divisions/amd)

SUMMER NEWS 2007

KENNETH M. LIECHTI, EDITOR

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Tradition dictates that the outgoing Chair of the Division provide a report in the Newsletter. My five-year term on the committee ended June 30, 2007. I was humbled when Dusan Krajcinovic approached me about serving on the Executive Committee. The Applied Mechanics Division has a long history of being one of the strongest and most respected ASME divisions and taking a leadership role within AMD is a great honor that carries tremendous responsibility. It was a great pleasure to share this responsibility with Stelios Kyriakides, Pol Spanos, Mary Boyce, Wing Kam Liu, K Ravi-Chandar, Dan Inman, Zhigang Suo and Tayfun Tezduyar. I assure you that they all work tirelessly on behalf of AMD. I am pleased that Ares Rosakis of the California Institute of Technology agreed to serve on the Executive Committee beginning his term July 1, 2007. These outstanding individuals will continue distinguished, thorough and vibrant leadership of AMD.

AMD continues to be one of the largest contributors to IMECE with 58 sessions in Chicago in 2006. One of the challenges for AMD is the annual request of more sessions at IMECE than are eventually allotted. This issue was particularly acute in Chicago. Thanks to all of the AMD Technical Committee Chairs who worked patiently with Dan Inman, 2006 Program Chair, to get as many sessions as possible by collaborating with other Divisions. The 2007 IMECE will be a transition towards a different format for IMECE. The eventual goal is a less expensive registration fee and more technical sessions.

McMat 2007 was a great success in Austin. There were three and one-half days packed with sessions and stimulating plenary talks. The sessions that I attended were well attended and the discussions lively. Our thanks to the organizing committee in

Austin lead by K. Ravi-Chandar, Stelios Kyriakides and Ken Liechti for providing such a great environment for the 5202 members of AMD as well as the 2024 members of the Materials Division. It is the work of the Technical Committees that make IMECE and the summer meeting a success.

The *Journal of Applied Mechanics* continues to thrive with Prof. Robert M. McMeeking as Technical Editor. The Executive Committee is extremely pleased that he agreed to accept our nomination to a second term as editor.

One of the most rewarding duties of the year as Chair was presiding over the Applied Mechanics Division Banquet in Chicago at which we recognized the following outstanding mechanics. Professor Kenneth Johnson received the 2006 Timoshenko Medal “For his pioneering research in the area of contact and adhesive mechanics; his innovative experiments demonstrating the research; and his contributions to the understanding and practical solutions related to issues pertinent to the railroad industry.” His address is included in this Newsletter. Professor Pierre Suquet received the 2006 Koiter Medal “For his pioneering work in elastoplasticity, homogenization theory and numerical method; and his contributions to the applied mechanics community through various leadership positions.” Professor Lewis T. Wheeler received the 2006 Applied Mechanics Division Award “In recognition of fundamental contributions to elastodynamics and finite elasticity, and his academic and editorial leadership.” Professor Jian Cao received the 2006 Young Investigator Award “In recognition of fundamental contributions to the modeling and simulations of metal forming and understanding of material instabilities in deformation processing.”

The 2006 Drucker Medal was presented to Professor Alan Needleman “For seminal contributions in the area of nonlinear mechanical response and failure of solids, structures, and materials.” The Medal was presented at a Symposium held in honor of Professors Needleman and Viggo Tvergaard entitled “Bridging scales in mechanics—Where are the bottom and the top?” at Brown University on August 17, 2006.

Last year Wing Kam Liu reported on efforts to raise funds for an endowment to establish a permanent award in honor of Professor Thomas K. Caughey, Richard L. and Dorothy M. Hayman Professor of Mechanical Engineering, Emeritus, of the California Institute of Technology. These efforts proved very successful. Additional funds were raised for endowments to establish permanent awards in honor of Professor Ted Belytschko, Walter P. Murphy Professor of Computational Mechanics, of Northwestern University and Professor Thomas J.R. Hughes, Computational and Applied Mathematics Chair III, of the University of Texas. Thanks are due for the effort of Jim Knowles of Caltech, faculty from USC, and J. S. Chen and Woody Ju of UCLA, co-chairs of the fund-raising committee. Their efforts raised more than \$170,000 for the ASME endowment to support these awards. With these funds in hand, the Executive Committee unanimously endorsed the following motion. “The AMD Executive Committee appreciates the effort and generosity of the fundraising committees and donors. Pending approval from the COH to make these Society level awards, the AMD Executive Committee renames the current Young Investigator award as the Thomas J.R. Hughes Young Investigator Award, renames the Applied Mechanics Division Award as the Ted Belytschko Applied Mechanics Award, and accepts the proposal from Caltech and USC to institute the Thomas K. Caughey Dynamics Award for significant contributions in nonlinear dynamics.” We are very grateful to the fund raising committees and donors for their generous support of the Applied Mechanics Division.

This brings me to the pleasure of announcing the 2007 award winners. The 2007 Timoshenko Medal is presented to Professor Thomas J.R. Hughes of the University of Texas at Austin. The 2007 Warner T. Koiter Medal is presented to Professor Chin-Teh (CT) Sun of Purdue University. The 2007 Daniel C. Drucker Medal is presented to Professor Albert S. Kobayashi of the University of Washington. The 2007 Thomas J.R. Hughes Young Investigator Award is presented to Professor Assad A. Oberai of the Rensselaer Polytechnic Institute. The 2007 Ted Belytschko Applied Mechanics Award is presented to Professor Oscar W. Dillon, Jr. of the University of Kentucky. I am also pleased to report that the Basic Engineering Group of ASME has chosen Wing Kam Liu of Northwestern University to deliver the 2007 Robert Henry Thurston Lecture. You are encouraged to nominate worthy individuals for these awards as well as the Caughey Award. The nomination procedure can be found at the ASME website, <http://divisions.asme.org/amd/>.

My time on the Committee has come to an end. The time was made more productive and enjoyable with the help of many. The Committee's work is ably supported by Thao "Vicky" Nguyen who manages to develop coherent minutes from sometimes spirited discussions in her role as recording secretary. Ken Liechti does a thorough job of editing the Newsletter and is reasonably kind in seeking contributions. Richard Ulvila, Manager of Knowledge and Community at ASME Headquarters, calmly provides all of the details of ASME's budgeting process. Jacinta McComie-Cates of ASME Headquarters efficiently handles all of the details from ordering food at the AMD Banquet to ensuring that the medals are inscribed appropriately. Jacinta is one of those unsung heroes that make the rest of us look good. I look forward to seeing all of you at future IMECE and summer meetings.

***Tom Farris, AMD Chair***

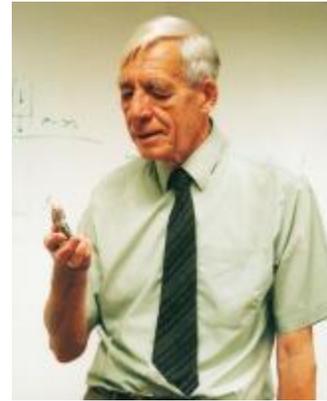
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## TIMOSHENKO MEDAL



The Timoshenko Medal was established in 1957 and is conferred annually in recognition of distinguished contributions to the field of applied mechanics. Instituted by the Applied Mechanics Division, it honors Stephen P. Timoshenko, world-renowned authority in the field, and it commemorates his contributions as author and teacher. This year the medal was awarded to Kenneth Johnson, FRS, FEng and Emeritus Professor of Engineering at the University of Cambridge *for pioneering research and innovative experiments in the area of contact and adhesive mechanics; and for contributions to the understanding of and providing practical solutions for issues pertinent to the railroad industry.*

**Kenneth Johnson**



*The acceptance speech was presented at the Applied Mechanics Dinner of the 2006 Winter Annual Meeting of ASME, Hilton Chicago Hotel, 9 November 2006.*

By Kenneth Johnson

First and foremost, I must acknowledge with gratitude the honour of being selected for the Timoshenko medal for 2006. But since a speech is now expected, I realise that this is not a free lunch. If you know a good pub, this would be a good time to slip away.

When I received Virgil Carter's letter informing me that I had been selected, I could not believe it. There must have been a mistake; after all Johnson is a very common name. I am reminded of my first meeting with Bernie Budianski from Harvard, also a Timoshenko medallist. He asked, "Did you write that book on vibration with Bishop?" "No. That was Dan Johnson"; "Did you edit that British Journal of mechanical sciences?": "No. That was Bill Johnson"; "Who the hell are you!"

I must belong to a shrinking number of Timoshenko medallists who actually met the great man himself, that is if 'met' is the right word. It was at the 1956 IUTAM Congress in Brussels. He was always surrounded by KGB men in long black coats. It was impossible to get near enough to see the white of his beard.

However, I can claim to be a good friend of his side-kick: Norman Goodier, Timoshenko medallist in 1963 and co-author of his famous book on *The Theory of Elasticity*. Goodier graduated in Engineering from Cambridge, (England, that is! ) and came to the United States on a scholarship to the University of Michigan, where he met Timoshenko. Interestingly for me, Goodier's Cambridge PhD Dissertation contained a report of an investigation into corrugation of railway rails, It showed rather more progress on that problem than I managed to make 50 years later.

When Timoshenko emigrated from Russia to the US, he found it an undeveloped country as far as mechanics was concerned, which led to the foundation in 1927 of the Applied Mechanics Division of ASME, with Timoshenko as first chairman. No doubt he was pleased to find an acolyte with a sound Cambridge training in mechanics. Goodier capitalised on the situation in the time honoured way, by 'marrying the boss' daughter'.

I have occasionally been asked how I first got involved in contact mechanics. My first job after graduation, towards the end of World War II, was working in the aircraft industry as a vibration engineer. The company Rotol, designed and manufactured most of the aeroplane propellers in active service. This included the Spitfire fighter, famous from the battle of Britain. The increase during its lifetime of the power of the Merlin engine demanded that the propeller required an increasing number of blades. When I signed on it had reached five, which gave rise to severe vibration. Working on this problem, I found drawing vector diagrams at 72 deg. gave an invaluable training in dividing a cake or a pie equitably for what turned out to be a family of five.

In common with vibration analysts then and since, I worried about assessing the damping. I became convinced that in most practical cases of structural vibration the damping arose principally by slip at clamped joints. On returning to the university I made this the subject of my PhD. This topic brought me into close contact with R.D. Mindlin and his group at Columbia University, who were studying Hertz contact under the action of tangential friction forces. That was the start.

During my time as a Graduate Student I was profoundly influenced by three books: Timoshenko and Goodiers' *Theory of Elasticity*; Den Hartog's *Mechanical Vibrations* and Bowden and Tabor's *Friction and Lubrication of Solids*. I tried to copy the simple and direct style of all three when I came to write my own book on *Contact Mechanics*. I have been fortunate that contact mechanics has become an expanding field. In the early days I had a visit from Don Conway of Cornell, who expressed surprise that any one could fill their time with contact problems!

The IUTAM Congress in Brussels provided another lucky break in my career. A bus trip to the historic city of Bruges had been arranged for the middle Sunday. My wife came out to join me on the Saturday night. Being newly weds, we were late at the departure point on Sunday morning and just managed to catch the bus reserved for late-comers. For whatever reason, the rest of the latecomers comprised a who's who' of applied mechanicians. When we arrived at Bruges a party led by Mindlin and Drucker made for a restaurant in the main square, where Dorothy and I found we could hardly afford a bowl of soup. With very red faces, we extracted ourselves, shortly to be followed by the rest of the party. Sandwiches were acquired to be eaten on a hilarious boat trip round the canals. Sometime later I received an invitation from Dan Drucker to spend a year at Brown in its glory days, which confirms that it's not what you know, but who you know which counts. I shall not forget that happy year, which not only produced a son with an American passport, but also friendships which have stood the test of time. Brown doesn't seem to have forgotten it either. Only the other day I received an invitation to a fund raising event in London.

I must also take this opportunity to acknowledge my debt to David Tabor, who died last year aged 92. He not only invented the word 'tribology', but along with F.P. Bowden in the Cavendish Laboratory in Cambridge, he established the subject as a respected scientific discipline. Many members of ASME look back with pleasure and satisfaction to time spent in that laboratory. It seemed to be my role to use continuum mechanics to show that the results of Tabor's intuition plus simple experiments could hardly be improved upon. It is noteworthy that the word 'tribology' has been accepted throughout the world, even including the US, which tends to oppose fancy new words from Europe, like 'kilogram' and 'centigrade' ; perhaps because they are French!

About the time I formally retired from teaching in '92, microprobe instruments such as the Atomic Force Microscope and the Surface Force Apparatus were being developed

mainly in physics departments and used to study friction on the atomic scale. Irwin Singer of the Naval Research lab, in Washington, observed that this activity was going on in complete isolation from the traditional world of engineering tribology. He organised a NATO ISA in Braunschweig to bring the two communities together. It was an eye opener for both sides. My activities changed quite dramatically from wheel/rail contacts, whose diameters are about 10 mm, to contacts of a few micro-metres or less. At this scale molecular adhesion between the surfaces becomes a major effect. This meant that I had to make friends with physicists, for whom friction has suddenly become a fashionable subject. Maybe they will be able to explain the question that so exercised Bowden and Tabor 60 years ago: the relation between adhesion and friction. They picked up paper of mine on adhesion in Hertz contacts, written in '71 with two graduate students: Kevin Kendall and Alan Roberts which suddenly became famous as the 'JKR theory'. To bask in this celebrity my co-author Alan Roberts recently entered JKR into Google was rewarded by pages and pages of citations...to J.K.Rowling, the author of Harry Potter.

A few years ago I was nominated for an award in tribology to be presented by the Duke of Edinburgh. At the time his youngest son Prince Edward, was a final year undergraduate at my College. It was a case of, "Please God, may that boy pass his exams. I have to face his father next week!" At the presentation the citation mentioned 'shakedown in rolling contact'. The Duke asked me to explain 'shakedown'. I mumbled something about repeated loads on structures doing damage at first, but improving with time. He looked at my wife and said, "Just like married life". Well, I suppose it depends who you are married to.

One of the pleasurable features of living and working in Cambridge is its attraction for distinguished visitors, who find it a convenient base camp for the 'Grand Tour of Europe'. Some even do some work. I felt a warm glow towards Tom Farris when he began a conference talk by saying: "This idea originated in the coffee room at Cambridge". Of course the reverse also applies. My wife and I have received wonderful hospitality and acquired firm and lasting friendships on our trips around the world, particularly the U,S, We thank you all.

#### **DANIEL C. DRUCKER MEDAL**

The Daniel C. Drucker Medal, established in 1997, is conferred in recognition of distinguished contributions to the field of applied mechanics and mechanical engineering through research, teaching and service to the community over a substantial period of time. This year it was awarded to **Alan Needleman**, Ph.D., professor, of Engineering at Brown University, *for seminal contributions in the area of nonlinear mechanical response and failure of solids, structures, and materials*



#### **Alan Needleman**



#### **WARNER T. KOITER MEDAL**

The Warner T. Koiter Medal was established in 1996 to recognize distinguished contributions to the field of solid mechanics with special emphasis on the effective blending of theoretical and applied elements, and on a high degree of leadership in the international solid mechanics community. The medal honors the late Dr. Warner T. Koiter (1914-1997), world-renowned authority in the field of solid

#### **Pierre Suquet**



mechanics, and it commemorates his vast contributions as research engineer and teacher. The medal was funded by the Technical University of Delft, the Netherlands. This year, it was awarded to **Pierre Suquet, Ph.D.**, Professor at Ecole Polytechnique for *his pioneering work in elastoplasticity, homogenization theory and numerical method; and his contributions to the applied mechanics community through various leadership positions.*

### **THE APPLIED MECHANICS DIVISION AWARD**

**Lewis T. Wheeler**

The Applied Mechanics Division Award was made to **Lewis T. Wheeler**, Professor of Mechanical Engineering at the University of Houston. The Applied Mechanics Award was made *in recognition of his fundamental contributions to elastodynamics and finite elasticity, and his academic and editorial leadership.*



### **YOUNG INVESTIGATOR AWARD**

**Jian Cao**

This year's award was made to Professor Jian Cao, Associate Professor of Mechanical Engineering Northwestern University *in recognition of her fundamental contributions to the modeling and simulations of metal forming and understanding of material instabilities in deformation processing.*



### **JOURNAL OF APPLIED MECHANICS**

The Journal of Applied Mechanics, edited by Bob McMeeking, is once more the leading comprehensive publication in the area of applied mechanics, with articles in all relevant areas, including solid mechanics, dynamics and fluid mechanics. JAM now publishes special issues in topical areas, and it encourages researchers in applied mechanics to come forward with proposals for such editions. The Journal's team of Associate Editors has worked hard to improve the handling of papers, to ensure that JAM attracts the best papers in the field. Thus the Journal of Applied Mechanics is an excellent vehicle for your manuscripts, and we ask you to encourage your colleagues and students to submit their best work to the Journal

**Bob McMeeking, Editor**

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### **NEWS FROM THE TECHNICAL COMMITTEES**

The reports that follow are from the Chairs of the Technical Committees of the Division of Applied Mechanics. If you are interested in the activities of a particular committee, please feel free to contact the Chair.

#### **Mechanics in Biology and Medicine**

The new Technical Committee on Mechanics of Biology and Medicine in the Applied Mechanics Division of ASME organized a very successful biomechanics symposium at the 2007 ASME Applied Mechanics and Materials Conference (McMat

2007), held June 3-6, 2007 at the University of Texas in Austin. Co-organized by Dr. Phil LeDuc at Carnegie Mellon University, Dr. Jerry Qi at the University of Colorado, Boulder and myself, this symposium had four sessions: Tissue Mechanics, Cell Mechanics, Molecular Biomechanics, and Mechanics of Biomaterials, with a total of 14 presentations. Overall, this symposium was well attended and the presentations were well received.

Two very distinguished researchers in the mechanics of biology and medicine field, Dr. Sheldon Weinbaum of the Department of Biomedical Engineering, The City College of New York, and Dr. Michael P. Sheetz of the Department of Biological Sciences, Columbia University, gave excellent keynote lectures, one on a new model for vulnerable plaque rupture and the other on local force and geometry sensing in living cells. Both keynote lectures were extremely well received by the attendees of McMat 2007. Dr. Weinbaum is one of six living individuals who are members of all three National Academies: Engineering, Science, and Medicine. A well-known pioneer in biomechanics, he has examined a wide variety of biomechanics problems that have arisen in biologically motivated applications. Dr. Sheetz is among the most distinguished biologists working on cell mechanics. He has made seminal contributions to biology, especially mechanical biology, including force-dependent signaling, cell spreading and force generation, cell adhesion, and organelle traffic in neurons.

Other presentations at the Symposium of Mechanics in Biology and Medicine covered a broad range of topics, including constitutive modeling of biological tissues, numerical simulations in tissue mechanics, cell adhesion, mechanical properties of single cells, constitutive modeling of cells, cell cytoskeleton, protein mechanics, mechanics of subcellular structures and organelles, mechanics of biopolymers, mechanical strength of scaffolding materials, and mechanical testing and modeling of biomaterials.

The goals of this new TC are: (1) to bring together bioengineers, biologists and researchers in applied mechanics to develop cutting-edge research in biomechanics and its application in biology and medicine, (2) to identify critical issues and challenges in mechanics of biology and medicine, (3) to help researchers in applied mechanics enter this very promising field, and (4) to facilitate interdisciplinary studies. We plan to organize symposia for the 2008 IMECE Congress, and a high-level workshop in 2009 focusing on current issues and challenges in cell and molecular biomechanics. I would welcome the participation of the applied mechanics community in the activities of this new TC, and appreciate your suggestions, support and help.

***Gang Bao, Chair***

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### **Composite Materials**

Professor Anthony N. Palazotto has recently been elected (2006) a Fellow in the American Academy of Mechanics and AIAA.

Professor Isaac M. Daniel received in June two awards from the Society for Experimental Mechanics. He was elected Honorary Member of SEM. The total number of honorary members is limited to 10. He also received the P. S. Theocaris Award. This is a new award sponsored by the Theocaris Foundation and is given every two years to a senior member of the society for outstanding lifetime achievements.

***Mina Pelegri, Chair***

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### **Computing in Applied Mechanics**

J. S. Chen reported that for 2006 ASME IMECE, CONCAM requested 10 sessions for 4 Symposia, and was approved 4 sessions total. Among them, 2 sessions were allocated to “Multi-scale, Multi-physics, and Multi-processor Computations” Organized by Yozo Mikata, 1 session was allocated to “Symposium on Stabilized and Multi-scale Methods” organized by A. Masud, T. Tezduyar and T.J.R. Hughes, and 1 session was allocated to “Simulation and Experimentation on Novel Energetic Materials” organized by A. M. Sastry. The symposium "Multiscale Modeling of Structural Damage" originally proposed by E. Anagnostou and M. Taya was cancelled later. Symposium organizers Yozo Mikata (Multi-scale, Multi-physics, and Multi-processor Computations) and Arif Masud and Tayfun Tezduyar (Symposium on Stabilized and Multi-scale Methods) reported that they were able to obtain additional sessions from other committees and their session organization and presentation at 2006 IMECE went well.

Eliot Fang and J. S. Chen stated that ASME will implement a new format of track and symposium organization for 2007 IMECE. The number of sessions assigned to each proposed symposium will be based on the number of abstract and paper submission. Details of the new format of track and symposium organization are yet to be announced by ASME.

Proposed sessions for 2007 ASME IMECE (Nov 11 2007 - Nov 16 2007, Seattle, Washington):

1. “Advances in Computational Techniques for Fluid Mechanics and Fluid-Structure Interactions” organized by Arif Masud, Tayfun Tezduyar, Yoichiro Matsumoto, and Thomas Hughes
2. “Symposium on Multi-scale, Multi-physics, and Multi-processor Computations” Organized by Yozo Mikata
3. “Symposium on Discrete and Continuum Modeling of Granular Materials, Powders, and Soils” organized by Florin Bobaru and J. S. Chen
4. “Advances in Computational Nanomechanics of Fracture and Plasticity” organized by Sulin Zhang and Ting Zhu
5. “Modeling and Simulation of Multifunctional Materials” organized by Hanqing Jiang and Gang Li
6. “Multiscale Multiphysics Modeling and Simulation of Nanomaterials and Nanostructures” organized by Gang Li and Hanqing Jiang

Place and date of the next committee meeting: 2007 ASME IMECE (Nov 11 2007 - Nov 16 2007, Seattle, Washington)

Somnath Gosh took over as chair of the TC in June 2007.

*J. S. Chen, Chair*

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### **Joint Committee on Constitutive Equations, Applied Mechanics Division-Materials Division**

The Technical Joint Committee (TJC) on Constitutive Equations (CE) of the Applied Mechanics Division (AMD) and Materials Division (MD) of the American Society of Mechanical Engineers (ASME) exists to promote, support, and advance the state of the art and science of Applied Mechanics and Materials in the area of modeling the mechanical and physical behavior of materials and structures. The committee's interests pertain to the understanding and the prediction of physical phenomena and material behavior through modeling and experiments that span scales from the nano to

the macro levels. The committee held its annual meeting during IMECE 2006 in Chicago, Illinois.

In that meeting, which was chaired by Mohammed Zikry, the committee discussed proposed symposia for the forthcoming IMECE2006 and approved the three proposals: 1) Modeling and Experiments in Nanomechanics and Nanomaterials, Organizer: Dr. Yozo Mikata, Lockheed Martin, [aquarius\\_ym@hotmail.com](mailto:aquarius_ym@hotmail.com), and Jeffrey Kysar, Columbia University, [jk2079@columbia.edu](mailto:jk2079@columbia.edu), 2) A Symposium on Recent Advances in Damage and Fracture of Engineering Materials: Chi L. Chow, University of Michigan-Dearborn, [clchow@umich.edu](mailto:clchow@umich.edu), Xin Wu, Wayne State University, [xwu@eng.wayne.edu](mailto:xwu@eng.wayne.edu), Cedric Xia, Ford Motor Company, [zxia@ford.com](mailto:zxia@ford.com), Ming Li, Alcoa Technical Center, , [Ming.Li@alcoa.com](mailto:Ming.Li@alcoa.com), 3) Bridging the Length Scales, Organizers: George Voyiadjis, [voyiadjis@eng.lsu.edu](mailto:voyiadjis@eng.lsu.edu), Cemal Basran, University of Buffalo, [cjb@eng.buffalo.edu](mailto:cjb@eng.buffalo.edu), Mohammed Zikry, North Carolina State University, [zikry@ncsu.edu](mailto:zikry@ncsu.edu).

Mohammed Zikry's term as committee chair has ended, and George Voyiadjis, Louisiana State University, will be the chair, for a three year term that ends in 2010.

**Mohammed A. Zikry, Chair,**  
[zikry@ncsu.edu](mailto:zikry@ncsu.edu)

### **Dynamics and Control of Systems and Structures**

No report

**B. Balachandran, Chair**  
[balab@eng.umd.edu](mailto:balab@eng.umd.edu)

### **Dynamic Response of Materials**

The Dynamic Response of Materials (DRM) Technical Committee met on November 8, 2006, during 2006 ASME International Mechanical Engineering Congress in Chicago. Eight sessions, ranging from the dynamic response of tissues to that of MEMS and composites, were sponsored by the DRM Technical Committee at that meeting. A total of eleven DRM-sponsored sessions will take place at IMECE 2007 in Seattle, with more than half of these sessions devoted to the experimental, analytical and numerical study of blast and fragmentation. This symposium is co-organized by G. Subhash, B. LaMattina and Y. Rajapakse. Other DRM-related mini-symposia to be organized in Seattle include the dynamic response of composites, asphalts, metals and other media.

The current officers of the committee are Philippe Geubelle (University of Illinois) – Chair, and Ghatu Subbhash (University of Florida) – Secretary.

Philippe Geubelle, Chair  
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### **Mechanics Education**

The Applied Mechanics Education Technical Committee has sponsored three technical sessions on “Problem Based Learning in Engineering Education” for the 2007 ASME Conference under the track 12 – Engineering and Technology Education. One of these sessions features invited presentations from two experts in the field of problem based learning

**Sanjeev Khanna, Chair**  
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## **Elasticity**

The Committee met on November 9<sup>th</sup>, 2006 during the Chicago IMECE meeting.

Present at the meeting were Emmanuel Ayorinde, Xin-Lin Gao, Chad Korach, Dimitri Lagoudas, Gang Li, Yichao Chen, Pradeep Sharma, Harley Johnson, Yanfei Gao, Pradeep Guduru, Jerry Qi, Dimitrios Sotiropoulos, Yozo Mikata, Mehrdad Negahban, and Demitris Kouris.

The Committee Members reviewed the two symposia sponsored at the 2006 IMECE. They were:

### **(a) Surface and Interfacial Phenomena in the Micro- and Nanomechanical Behavior of Materials**, organized by:

Prof. Wei Cai, Department of Mechanical Engineering, Stanford University  
[caiwei@stanford.edu](mailto:caiwei@stanford.edu)

Prof. Robert V. Kukta, and Chad S. Korach, Department of Mechanical Engineering, State University of New York at Stony Brook, [robert.kukta@sunysb.edu](mailto:robert.kukta@sunysb.edu)  
[chad.korach@stonybrook.edu](mailto:chad.korach@stonybrook.edu)

### **(b) Mechanics of Nano-, Biological and Cellular Materials**, organized by:

Dr. Emmanuel Ayorinde, Department of Mechanical Engineering, Wayne State University Detroit, MI 48202, Ph: (313) 577-5548, e-mail: [ayorinde@eng.wayne.edu](mailto:ayorinde@eng.wayne.edu)

Dr. Xin-Lin Gao, Department of Mechanical Engi A&M University, College Station, Texas 77843, Ph. 979-845-4835, e-mail: [xlgao@tamu.edu](mailto:xlgao@tamu.edu)

Dr. Valeria La Saponara, University of California, Davis, e-mail: [vlasaponara@ucdavis.edu](mailto:vlasaponara@ucdavis.edu)

The Committee discussed nominations for ASME awards and the proposed symposia for the 2007 IMECE meeting in Seattle. It was decided to establish an Awards Subcommittee, consisting of Dimitri Lagoudas, Harley Johnson, and Demitris Kouris.

The Committee requested six sessions for three symposia. The three symposia are described below.

### **Symposium on Nanoscale, Biological, Cellular and Nonlinear Materials**

The objective of this mini-symposium is to review recent advances in mechanics of nanoscale, biological, cellular and nonlinear materials and to identify future research opportunities in the subject areas. Innovative theoretical, computational and experimental approaches will be discussed.

Topics of interest include, but are not limited to, the following:

- Nanocomposites reinforced by carbon nanotubes or other nanoparticles
- Processing-structure-property relations for micro- and nanostructured materials
- Modeling of biomaterials and living tissues
- Simulation and design of new bio-sensing materials
- Cellular materials and structures, including honeycombs, auxetic foams, truss core and frame structures, and sandwich composites with foam cores
- Multifunctional behavior and failure of foamed materials
- Modeling and constitutive behavior of nonlinear materials
- Size effects and nano-indentation techniques
- Nonlinear elasticity and biomechanics
- Plasticity and deformation in materials
- Non-local and higher-order strain gradient continuum theories

**Organizers:** Dr. Emmanuel Ayorinde, Wayne State University, Detroit; E-mail: [ayorinde@eng.wayne.edu](mailto:ayorinde@eng.wayne.edu), Dr. Xin-Lin Gao, Texas A&M University, College Station, TX; E-mail: [xlgao@tamu.edu](mailto:xlgao@tamu.edu), Dr. Valeria La Saponara, University of California-Davis,

CA; E-mail: vlasaponara@ucdavis.edu

### **Symposium on Mechanics of Nanofabrication and Nanostructure Growth**

Mechanics has been playing a critical role in understanding the fabrication and reliability of nanostructured material systems, such as the self-assembly of quantum dots during heteroepitaxial thin film growth. Sponsored by the Elasticity Committee of Applied Mechanics Division, this symposium will identify opportunities and challenges in mechanics of materials that are motivated from a variety of novel and emerging nanofabrication and nanostructure growth methods. Presentations in experimental, theoretical, and computational studies are solicited in the following areas (but not limited to):

- Novel self-assembly methods and systems, such as templated/guided self-assembly, self-organization in ceramic and other systems, and supramolecular self-assembly
- The role of small-scale fracture (and adhesion) mechanics in nano-imprinting lithography, nano-welding, chemical mechanical planarization, peeling-induced pattern formation, etc
- The role of phase transformation and long-range elastic interaction in the growth mechanisms and domain structures of nano-belts, nano-springs, and others
- Defect formation and controllability in nanofabrication methodologies
- Stress/strain assisted micro- and nano-structural evolution
- Growth mechanisms of multi-ferroic and shape-memory thin-films
- Periodic, multi-frequency, or random structures
- Strain engineering in pattern formation with enhanced long-range order
- Multiscale modeling and simulation methodologies and applications in nanofabrication and nanostructure growth
- Material system design and identification of the processing-structure relationship

**Organizers:** Yanfei Gao, Department of Materials Science and Engineering, University of Tennessee, Knoxville, TN 37996. Tel: 865-974-2350; Email: [ygao7@utk.edu](mailto:ygao7@utk.edu) or [gaoy@ornl.gov](mailto:gaoy@ornl.gov), Claus Daniel, Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN 37831. Tel: 865-241-9521; Email: [danielc@ornl.gov](mailto:danielc@ornl.gov)

### **Symposium on Mechanics of Biological & Biologically Inspired Systems**

This symposium focuses on the mechanical principles behind the solutions found in biological organisms to address a variety of issues such as adhesion, friction, strength, stiffness, toughness, flaw tolerance, adaptability to harsh environments, self-healing, weight optimization, water repellency, etc. An important part of the symposium is also on how to design, build and optimize synthetic systems, which follow nature's design principles and to develop practical bio-inspired technologies. Of particular interest will be mechanics of active systems, both biological and bio-inspired, which adapt to changing environment (eg. the ability of a gecko to achieve strong adhesion along with a quick release mechanism; actuation of a Venus fly trap; adhesion and friction control through anisotropy, etc.). The examples mentioned here are meant to be illustrative, not exhaustive. Any observations and/or analyses of novel biological phenomena at all scales from cells to macro-organisms are welcome.

**Organizers:** Pradeep Guduru, Brown University, [Pradeep\\_Guduru@brown.edu](mailto:Pradeep_Guduru@brown.edu)  
Chad Korach, SUNY at Stonybrook, [ckorach@notes.cc.sunysb.edu](mailto:ckorach@notes.cc.sunysb.edu)

The Committee sponsored four symposia at the McMAT 2007 meeting in Austin, Texas. They were:

(a) **Nanomechanics of Solids**, organized by:

Pradeep Sharma, University of Houston, [psharma@uh.edu](mailto:psharma@uh.edu)

Dimitris Lagoudas, Texas A & M University, [lagoudas@tamu.edu](mailto:lagoudas@tamu.edu)

(b) **Mechanics of Nano-, Biological and Cellular Materials**, organized by:

Dr. Xin-Lin Gao, Texas A&M University, [xlgao@tamu.edu](mailto:xlgao@tamu.edu).

Dr. Ghatu Subhash, Michigan Technological University, [subhash@mtu.edu](mailto:subhash@mtu.edu).

Dr. J. N. Reddy, Texas A&M University, [jnreddy@tamu.edu](mailto:jnreddy@tamu.edu).

(c) **Mechanics of Biological & Biologically Inspired Systems**, organized by:

Pradeep Guduru, Brown University, [Pradeep\\_Guduru@brown.edu](mailto:Pradeep_Guduru@brown.edu)

Chad S. Korach, SUNY at Stony Brook, [chad.korach@stonybrook.edu](mailto:chad.korach@stonybrook.edu)

(d) **Contact Mechanics**, organized by:

Thomas Farris, Purdue University, [farrist@purdue.edu](mailto:farrist@purdue.edu)

We hope to see all of you in Seattle at the IMECE 2007!

**Demitris Kouris, Chair**

[kouris@uwyo.edu](mailto:kouris@uwyo.edu)

## **Experimental Mechanics**

The 2006-2007 Committee Chair, Ruqiang Feng chaired the committee meeting at IMECE 2006. Ruqiang Feng is from University of Nebraska-Lincoln and the Committee Secretary (to become the Committee Chair in July 2007) is Ioannis Chasiotis from the University of Illinois at Urbana-Champaign.

Ruqiang Feng reported the status of the following sessions sponsored or co-sponsored by the Committee at this Conference (of the 9 sessions requested, 4 sessions were provided):

a) *Modeling and Experiments in Nanomechanics and Nanomaterials*

AMD-9C: Friday, November 10, 9:30 a.m.-11:00 a.m.

Organizers: Yozo Milkata (Lockheed Martin)

Jeffrey W. Kysar (Columbia University)

Number of sessions requested: Two

Number of sessions provided: One

Co-sponsorship with AMD-MD joint committee on constitutive equations

b) *Characterization of Nanomaterials for Biomedical Applications*

AMD-8E: Friday, November 10, 7:45 a.m.-9:00 a.m.

Organizers: Sanjeev Khanna (University of Missouri-Columbia)

H. Jerry Qi, (University of Colorado at Boulder)

Number of sessions requested: One

Number of sessions provided: One

Co-sponsorship with the Fracture and Failure Technical Committee

c) *Dynamic Behavior of Composite Materials*

AMD-12B: Friday, November 10, 3:45 p.m. - 5:15 p.m.

Organizers: L. Roy Xu (Vanderbilt University)

Bazle Gama (Boeing Company)

Number of sessions requested: Two

Number of sessions provided: One

Co-sponsorship with the Dynamic Response of Materials Technical Committee, Composite Materials Technical Committee

d) *Multiscale Indentation*

AMD-10B: Friday, November 10, 11:15 a.m. - 12:45 a.m.

Organizers: Bruce S. Kang (West Virginia University)

Jack Beuth (Carnegie Mellon University)

Number of sessions requested: Two

Number of sessions provided: One

Session was moved to Fracture and Failure Technical Committee and created a session on *Recent advances in Experimental Mechanics*

Ruqiang Feng worked closely with John Lambros of FFTC in arranging two sessions in the two committees and created two sessions.

Proposals were invited for organizing symposia at IMECE'07 in Seattle, WA. The following three proposals were discussed, and endorsed by the Committee:

a) *Modeling and Experiments in Nanomechanics and Nanomaterials*

Organizers: Yozo Mikata (Lockheed Martin)

Jeff W. Kysar (Columbia University)

Number of sessions requested: Two

b) *Static and Dynamic Mechanical Behavior of Biomaterials*

Organizers: Roy Xu (Vanderbilt U.)

K.T. Ramesh (JHU)

Number of sessions requested: Two

Co-sponsorship with Dynamic Behavior of Materials Committee (two more sessions)

c) *In situ Experiments for Micro and Nanomaterials*

Organizers: Aman Haque (Penn State)

Number of sessions requested: Two

Co-sponsorship with MEMS Committee (two more sessions)

Sanjeev Khana (University of Missouri-Columbia) was elected as the new Committee Secretary. His 2-year term began in July 2007. Ioannis Chasiotis is the new Committee Chair starting in July 2007.

***Ioannis Chasiotis, Chair***

[chasioti@uiuc.edu](mailto:chasioti@uiuc.edu)

## **Fluid Mechanics**

The committee welcomes Professor Alvaro Coutinho (Federal University of Rio de Janeiro) as a new member. The attendance and quality of the FMTC-sponsored IMECE 2006 sessions were very good.

The committee endorsed the request for 5 sessions for the mini-symposium titled "Stabilized, Multiscale and Multiphysics Methods", with lead organizer Arif Masud (UIUC). The title of the mini-symposium was later updated by the organizers to "Advances in Computational Techniques for Fluid Mechanics and Fluid-Structure Interactions". The committee also endorsed the request for one session for the mini-symposium titled "Symposium on Gas-Liquid and Phase- Change Flows at Macro- and Micro-Scales", with lead organizer Amitabh Narain (Michigan Tech). The bulk of the sessions for this mini-symposium will be requested through the Fluids Engineering and Heat Transfer divisions.

Several committee members commented that the ASME was in the process of changing significantly the way the IMECE meetings are organized, starting with IMECE

2007. One of the disconcerting changes is the planned reduction in the number of oral-presentation sessions by converting a significant portion of the oral-presentation sessions to poster sessions. Several committee members and guests expressed concern about this, especially the way the change would impact the speakers traveling long way from outside the United States. These planned changes seem to be still in their design stages, and it is expected that the situation will become clearer as time passes.

*Arif Masud, Chair*  
[amasud@uiuc.edu](mailto:amasud@uiuc.edu)

### **Fracture and Failure**

The Committee held its yearly meeting on Tuesday, November 9, 2006 during IMECE 2006 in Chicago, IL. Since each committee member serves a two year term that starts in July, this was the last IMECE meeting for John Lambros (University of Illinois, Urbana-Champaign), the outgoing Chair. As is customary, Vice-Chair Mark Walter (The Ohio State University) was promoted to Chair starting July 1<sup>st</sup>, 2007. Ashraf Bastawros (Iowa State University) was elected Secretary. However, since the current Secretary, Jean-Francois Molinari (EPFL, Zurich, Switzerland), retired this year, Ashraf was subsequently promoted to Vice-Chair. The Secretary position is currently vacant, but it will be filled by the beginning of our Committee's scheduled meeting at IMECE 2007 in Seattle, WA.

For all his efforts during the past six years that he has been involved in Committee administration, the entire committee wishes to express its sincere appreciation to outgoing Chair John Lambros. During these six years, and especially during the last two years ASME has been changing the way it organizes the IMECE meeting. As a consequence, John has had to put in significant extra time to make sure that the committee's symposia run smoothly. His actions have resulted in a strong, active committee, and John has earned a well deserved break from all "the action." Thanks John!

The committee has been and continues to be active in organizing sessions. For IMECE 2006, we received approximately 1/2 of the number of session requested, and the following sessions were sponsored (and co-sponsored) through our committee:

- AMD-8 D The failure of polymer coated metals and interfaces (Ken Liechti)
- AMD-9 D Multi-scale Indentation I (Bruce Kang and Jack Beuth)
- AMD-10 C Multi-scale Indentation II (Co-Sponsored by Experimental Mechanics)
- AMD-11 C Nanoscale Mechanics and Materials (Yozo Mikata and Jeffrey Kysar)
- AMD-12 D Recent Advances in Fracture and Fatigue (John Lambros)

For IMECE 2007, within the Mechanics of Solids and Structures Track, three Topics/Symposia have discussed by our committee. They (and their organizers) are as follows: Small Scale Fracture: Modeling and Experiment (Ting Zhu); Analyses of Fracture in Bones and Bone-Like Materials At Multiple Length-Scales (Vikas Tomar and Glen Niebur), and Discrete and Continuum Modeling and Experiments on Granular Materials, Powders, and Soils (Jiun-Shyan (JS) Chen, Florin Bobaru, Joseph A. Turner). Since sessions are now allocated by demand, we expect several session for each of these very interesting topics. Given the broad range of applications and techniques that fracture and failure mechanics encompasses, we expect to also have a few "over-flow" sessions.

One of the Committee's goals for the coming year is to establish a better web presence. Our current web site is located here: <http://amd-ffmtc.blogspot.com>. Please

visit this site to learn more about the Committee's work and its membership. We would like to migrate some of this material to <http://imechanica.org>. As you can see from the compilation of lecture notes at <http://imechanica.org/node/1551>, some imechanica members have already posted course materials relevant to our Committee's work. We would like to continue and expand this effort as a service to each other and to the greater mechanics community.

Last but not least, I would like to thank the many individuals (committee members, symposia organizers, chairs and co-chairs, symposia participants, *etc.*) who have volunteered their time and work to bring the Committee's efforts to fruition. Membership in the Committee is open and I encourage anyone interested to participate in the IMECE 2007 Committee meeting or to contact the Committee officials with any comments.

**Mark Walter, Chair**  
[walter.80@osu.edu](mailto:walter.80@osu.edu)

### **Geomechanics**

The last two Geomechanics Committee meetings were held on June 29, 2006 at the 15<sup>th</sup> US National Congress of Theoretical and Applied Mechanics at University of Colorado, Boulder, and on November 9, 2006 at the Chicago 2006 ASME International Mechanical Engineering Congress. Because of the time clash of ASCE Engineering Mechanics Conference at Blacksburg with the ASME Summer Mechanics Meeting at Austin, committee members were split among these two meetings. Thus, no committee meeting was held in the summer of 2007. However, the Committee did co-sponsor 3 technical sessions together with the Granular Committee of ASCE at the Blacksburg Conference. The Committee also sponsored the "International Workshop on constitutive modeling- Development, Implementation, and Application" held at Hong Kong China on January 12-13, 2007. Another symposium being sponsored by the Committee is the "Discrete and Continuum Modeling and Experiments on Granular Materials, Powders, and Soils" to be held at the ASME's IMECE 2007 in Seattle on November 11-16, 2007. The symposium is organized by F. Bobaru, J.S. Chen and J.A. Turner.

**K.T. Chau, Chair**  
[cektchau@polyu.edu.hk](mailto:cektchau@polyu.edu.hk)

### **Instabilities in Solids and Structures**

This year the committee participated in the 2007 ASME Applied Mechanics and Materials Conference held in June in Austin, Texas. A symposium with seven sessions was organized by E. Corona and S. Kyriakides that included presentations on instabilities at the material and structural scales. The organizers would like to thank all participants for their participation. This November the committee will participate at the ASME Congress in Seattle with a six-session symposium. The program looks strong with presentations on static and dynamic instabilities in a range of areas including cellular materials, shape memory alloys, composite materials, structural shells, etc. Colleagues interested in participating in future activities of the committee may contact the chair for more information.

**Edmundo Corona, Chair**  
[ecorona@nd.edu](mailto:ecorona@nd.edu)

### **Integrated Structures:**

The committee organized three technical sessions at the 2006 IMECE, featuring 15 speakers (6 industrial and 9 academic) under the theme of Mechanics and Materials of Integrated Structures in Advanced Technologies. This was the first mini-symposium organized by this technical committee, which was established by the AMD Executive Committee in 2005. The first committee meeting was also held at the 2006 IMECE, chaired by Jun He of Intel. At the meeting, eight committee members discussed research topics of interest to the committee and organization of two symposia in 2007. As an outcome, the committee successfully organized a relatively large symposium at 2007 ASME Mechanics and Materials Conference (McMat 2007), with 46 presentations (9 keynotes) in 11 sessions. Meanwhile, another symposium is being organized by the committee for the 2007 ASME IMECE to be held at Seattle, Washington. The activities of this technical committee have been posted on *iMechanica*, a weblog of mechanics and mechanicians, under the keywords “asme” and “Integrated Structures”:  
<http://imechanica.org/taxonomy/term/286>.

**Rui Huang, co-chair**

[ruihuang@mail.utexas.edu](mailto:ruihuang@mail.utexas.edu)

### **Materials Processing and Manufacturing**

The AMD-MPM committee held its regularly scheduled meeting on November 8, 2006 during the IMECE 2006 in Chicago, IL. The 2005-2006 MPM Chair, Antoinette Maniatty of Rensselaer Polytechnic Institute, conducted the meeting. The incoming 2007-2008 Chair Somnath Ghosh of the Ohio State University and the 2007-2008 Vice-Chair Xin Wu of Wayne State University were also in attendance. Various award nominations were made in 2006. Ronald Smelser was successfully nominated by S. Ghosh to the ASME Fellow grade. During the 2006 IMECE three mini-symposia were organized and sponsored or co-sponsored by AMD-MPM committee. These included: (a) Multi-Scale Simulations and Experiments in Materials Processes, organized by A. Maniatty, S. Ghosh and M. Li; (b) Deformation Process, Mechanics and Failure Characterization, organized by C. Chow, X. Wu, C. Xia and M. Li (co-sponsored by AMD-MD Constitutive Equations Committee); and (c) Processing of Advanced Composite Materials, organized by H. Bruck and M. Hosur (co-sponsored by MD). For IMECE 2007, a number of mini-symposia have been sponsored by the AMD-MPM committee, under the new track system. These include: (a) Recent Advances in Damage and Fracture of Engineering Materials, organized by C. Chow, X. Wu, C. Xia and M. Li (co-sponsored by AMD-MD Constitutive Equations); (b) Materials Processing and Manufacturing, organized by A. Maniatty, C. Chow, X. Wu, S. Ghosh, M. Li, C. Xia, H. Bruck, M. V. Hosur, D. Yao, A. Yi, B. Kinsey, Z. Li, R. Ivester. I would like to thank all the contributing members of the committee. I would especially like to thank the previous Chair, Professor Antoinette Maniatty for her active role and hard work in increasing the visibility of the committee and its members. The committee expects to grow in the coming years with renewed interest in special areas of MPM, e.g. micro/nano-fabrication, forming and machining for different materials. Membership in AMD-MPM is open, and I invite all interested professionals to participate in the IMECE 2007 AMD-MPM committee meeting. Also, I would like to solicit ideas from current and potential members for the successful functioning of this important committee.

**Somnath Ghosh, [ghosh.5@osu](mailto:ghosh.5@osu)**

Chair, AMD-MPM (2007-2008)

## **Uncertainty and Probabilistics**

The Committee on Uncertainty and Probabilistics has spent much of its effort in the past year on building membership and defining major goals for the committee. A significant achievement has been the development of connections to committees with a similar theme within other engineering societies. Our committee organized a session with the AIAA Non-deterministic Approaches committee at the AIAA/ASME/ASCE/AHS/ACS Structures, Structural Dynamics, and Materials Conference/AIAA Non-deterministic Approached Conference, in Newport, RI, initiating a positive relationship with the AIAA community. Activities sponsored jointly with the ASCE EMD Probabilistic Methods Committee continued with joint sessions held at the ASCE Engineering Mechanics Conference in Blacksburg, VA. The committee also participated in the ASME Mechanics and Materials conference in Austin, TX. We are always looking for new members, so if you are interested in joining, please contact Mohammad Noori at [mnoori@calpoly.edu](mailto:mnoori@calpoly.edu).

***Lori Graham-Brady, Chair***

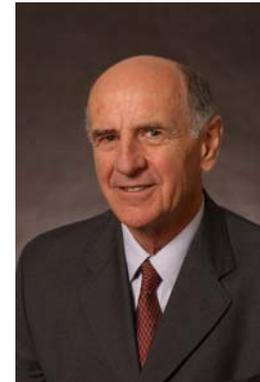
[lori@jhu.edu](mailto:lori@jhu.edu)

## IN MEMORIAM:

### Professor Dusan Krajcinovic

Dusan Krajcinovic received his Bachelor's and Master's degrees in Civil Engineering from the University of Belgrade (1958, 1966) and his PhD in Civil Engineering from Northwestern University in 1968, working with Prof. George Hermann.

Dusan's brilliant and successful career focused on mechanics of materials, and structural analysis and design. He worked at Ingersoll Rand Research Inc. (1969) and Argonne National Laboratory (1973), before becoming Professor of Civil Engineering at University of Illinois, Chicago, IL (1973-1989) and then Professor of Mechanical and Aerospace Engineering at Arizona State University (ASU), until retiring as Professor Emeritus in 2004.



He pursued and inspired research with the discipline and passion typical of a professional athlete (when a youth, was a soccer player in Yugoslavia). A prolific writer, he co-authored over 200 publications, and published a book on damage mechanics, which is a comprehensive reference on the subject of continuum and discrete theories of damage mechanics (with over 700 pages).

As an educator, Dusan organized short courses and symposia in damage mechanics worldwide, and received a number of awards, including the October Prize for Mathematical, Physical and Engineering Science (Belgrade, Yugoslavia, 1990), the Gold Medal for achievements in Science and Technology (Crete, 1999), and Laurea Honoris Causa (Milan Italy, 2001).

Dusan was involved with professional societies, such as ASME (Fellow and Chair of AMD Executive Committee 2001-2002), American Academy of Mechanics (Fellow and President 1999-2001), Stability Research Council, International Association for Structural Engineering in Reactor Technology, and ASCE (non-member advisor of the Committee for Inelastic Behavior of Materials). Dusan was on the editorial boards of Applied Mechanics Reviews and Mechanics of Materials, and was one of the chief editors of the International Journal of Damage Mechanics.

Dusan was an intellectual and a true gentleman who cultivated life-long friendships and remained committed to humanitarian causes. His multifaceted career reflects his remarkable personality, ability, and versatility, including both professional and academic achievements.

Dusan passed away on Friday, August 10, 2007 after a long illness. He is survived by his wife Tanya and his daughters, Ivana and Maya, whose encouragement, understanding and patience Dusan had always acknowledged.

Contributed by

Sia Nemat-Nasser, University of California, San Diego

George Z. Voyiadjis, Louisiana State University

Antonio Rinaldi, University "Tor Vergata"

For a complete description of Dusan Krajcinovic's intellectual contributions, see the special volume of [International Journal of Plasticity](#) dedicated to him.

### **Professor Liviu Librescu**

The Memorial Web page that was established to honor those who died in the shooting incident at Virginia Polytechnic and State University starts: “The revelation that Dr. Liviu Librescu blocked the door of his classroom in Norris Hall on the morning of April 16 so that his students could escape through the windows came as no surprise to his family, friends, and colleagues. The renowned aeronautical engineering educator and researcher had demonstrated profound courage throughout the 76 years of his life.” The rest of the biography can be seen at:

[http://www.vt.edu/remember/biographies/liviu\\_librescu.html](http://www.vt.edu/remember/biographies/liviu_librescu.html)

