Shechtman – Suresh Convocation
&
Honorary Symposium

Aristotle University of Thessaloniki
Nov 30 – Dec 3 2018

- **Coordinator:** ***E. C. Aifantis***
- **Overseeing Committee:** ***P. Mitkas****/Rector,* ***K. Katsifarakis****/Dean,* ***P. Prinos****/Chairman*
- **Organizing Committee:** ***A. Konstantinidis, K. Parisis, A. Tsolakis***

1. Scope & Program Outline

The event is a tribute to material science and mechanics honoring two of its most profound contributors alive today: *Dan Shechtman*/Emeritus of Technion – Nobel Prize in 2011 and *Subra Suresh*/President of NTU – US National Science Foundation Director appointed by Obama in 2010. Shechtman discovered in the TEM the existence of five fold symmetry and quasicrystals. Suresh made it to all three US National Academies of Sciences, Engineering and Medicine through monumental contributions to all these fields. Aristotle would have been delighted to know that AUTh – the only University in the world bearing his name – is bestowing honorary doctorates to those continuing on the legacy he left behind 23 centuries ago.

The convocation ceremony in the morning of Nov 30 in the Amphitheater of Ceremonies/ Karatheodori Building will be followed up by a Honorary Symposium in the nearby Amphitheater of Research Office/ELKE Building. The invited lectures will cover a variety of areas ranging from physics and engineering to biology and medicine.

Special topics will be presented on deformation and fracture across scales, materials and disciplines; micro/nano objects with pentagonal symmetry (decahedrals, icosahedrals); high energy density storage materials/devices; and modeling analogies between living and nonliving systems. These are research areas of common interest to US/NSF – DOE, EU/RISE, Russia/MegaGrant and Greek/ESPA participants.

The technical program will be enriched with panel/round table sessions on University leadership and actions to be taken for promoting science/technology/art – economy/culture/society interactions: Innovation and Entrepreneurship will be the 1st one of them where scientists and technologists will meet ambassadors and government representatives to discuss measures for facilitating mobility and transfer of knowledge across the world. A 2nd two-part one will be on philosophy/theology – science/technology and music/art interactions to fertilize interdisciplinary intellectual growth of societies. A 3rd one will be an advanced research training networking across states, nations and countries. A 4th one will be on Hellenism of Diaspora and the role of the Academy of Athens to establish closer ties between the scientists/scholars abroad and those at their home country.

The program will also be enhanced with music from ancient Greek to contemporary electronic and acousmatic sounds, along with commentaries on synergistic math–sound–cultural developments through time.

2. List of Invited Participants – Technical Sessions

Israel*: **D. Shechtman** (**Technion**), **E. Rabkin (Technion)***

Singapore*: **S. Suresh** (NTU), **J. Hsia** (*NTU*)*

EU*: **A. Chattopadhyay** (*Aston Univ*), **F. Chmelik** (*Charles Univ/Prague*), **K. Dervenis** (*Trasys/Brussels*), **J. Dijksman** (*Wageningen Univ/ Netherlands*), **D. de Domenico** (*Univ Messina*) , **V. Eremeyev** (*Gdansk Univ Tech*), **A. Fokas** (*Univ Cambridge/Academy of Athens*), **S. Forest** (*Ecole des Mines/Paris*), **A. Fox** (*Univ Cambridge*), **I. Gitman** (*Univ Sheffield*), **P. Isaksson** (*Uppsala Univ*), **P. Kelires** (*Cyprus Univ Tech/Limassol*), **E./S. Ortekus** (*Univ Strathclyde/Glasgow*), **S.M.J. Razavi** (*NTNU/Norway*), **B. Schrefler** (*Univ Padua*), **L. Toth** (*Univ Lorraine*), **T. Turna** (*TES Energy Co*), **S. Wang** (*BOKU/Vienna*), **M. Zaiser** (*FAU/Erlangen*)*

US*: **K. Aifantis** (*UFL/Gaisenville*), **M. Dao** (*MIT*), **F. Kongoli** (*FLOGEN Tech*), **E. Madenci** (*Univ Arizona*), **F. Marquis** (*State Univ San Diego*), **S. Pantelides** (*Vanderbilt Univ*), **C. Tasan** (*MIT*)*

Russia*: **M. Dorogov** (*Togliatti State Univ*), **A. Ganeev** (*Ufa State Aviation Tech Univ*), **E. Lomakin** (*Moscow State Univ*), **A. Krasnitskii** (*ITMO Univ/St. Petersburg*)*

Japan: **K. Saitoh** (*Tohoku Univ*)*

Greece*: **S. Anastasiadis** (*Univ Crete/FORTH*), **M. Avlonitis** (*Ionian Univ/Corfu*), **G. Efremidis** (*Univ Thessaly/Volos*), **C. Galiotis** (*Univ Patras*), **A. Giannakopoulos** (*NTU- Athens*), **I. Karapanagiotis** (*UEA/Thessaloniki*), **S. Kourkoulis** (*NTU- Athens*), **K. Lazopoulos** (*NTU-Athens*), **G. Pavlos** (*DUTh/ Xanthi*), **G. Petekidis** (*Univ Crete/FORTH*), **P. Rosakis** (*Univ Crete/FORTH*), **C. Siettos** (*NTU- Athens & University of Naples Federico II/Italy*), **N. Tavernarakis** (*Univ Crete/FORTH*), **C. Vayenas** (*Univ Patras/Academy of Athens*)*

AUTh*: **P. Bamidis** (*Medicine*), **P. Komninou** (*Physics*), **A. Konstantinidis** (*Civil Eng*), **C. Kiparissides** (*Chem Eng*), **N. Michailidis** (*Mech Eng*), **S. Natsiavas** (*Mech Eng*), **P. Patsalas** (*Physics*), **T. Yioultsis** (*Electr Eng*), **G. Stefanou** (*Civil Eng*)*

3. Final Program

3A. Program Summary

Friday Nov 30

Amphitheater of Ceremonies/Aithousa Teleton – Karatheodoris Building

10:00 – 12:00 ***Welcome*** (City-Government-Embassy Officials) **&** ***Convocation*** */* Chairs - *Mitkas/Prinos*

12:00 – 13:00 Reception

13:00 – 14:00 Session 1: ***Shechtman, Suresh*** */* Chair - *Aifantis*

14:00 – 15:30 ***RTP**1*** *on Innovation & Entrepreneurship /* Chair - *Tavernarakis*
Panelists: ***Shechtman/Suresh***, ***Ambassadors*** *(Israel/India)*, ***General Consuls*** *(Germany/Russia)*

15:30 – 16:00 Break

**** RTP*: *Round Table Panel***

Amphitheater of Research Office/Epitropi Erevnon – ELKE (KEDEA) Building

16:00 – 17:30 Session 2: ***Pantelides, Tavernarakis, Vayenas*** */* Chair - *Kiparissides*

17:30 – 18:30 Session 3: ***Kiparissides, Bamidis, Komnimou*** */* Chair - *Natsiavas*

18:30 – 19:00 Break

19:00 – 20:00 Session 4: ***Michailidis, Yioultsis, Natsiavas, Aifantis (E)*** */* Chair - *Galiotis*

Saturday Dec 1

9:00 – 11:00 Session 5: ***Rabkin, Dao, Madenci, de Domenico*** */* Chair - *Toth*

11:00 – 11:30 Break

11:30 – 13:00 Session 6: ***Toth, Ganeev, Aifantis (K)*** */* Chair - *Rabkin*

13:00 – 14:00 Lunch

14:00 – 15:30 Session 7: ***Galiotis, Anastasiadis, Kelires, Petekidis*** */ Chair - Giannakopoulos*

15:30 – 16:00 Break

16:00 – 18:00 Session 8:***Giannakopoulos,Rosakis,Kourkoulis,Lazopoulos,Karapanagiotis,Pavlos***/Chair-*Anastasiadis*

18:00 – 18:30 Break

18:30 – 20:00 ***RTP 2A*** *on Philosophy – Science - Music & Humanity* / Chair - *Baloyannis*
Panelists: ***Baloyannis, Pavlos, Sfendoni-Mentzou, Sfendonis***

Sunday Dec 2

9:00 – 11:00 Session 9: ***Hsia, Schrefler, Lomakin, Tasan*** */* Chair - *Dao*

11:00 – 11:30 Break

11:30 – 13:00 Session 10: ***Kongoli, Marquis, Fox, Turna*** */* Chair - *Hsia*

13:00 – 14:00 Lunch

14:00 – 16:00 ***RTP 2B*** *on Technology – Arts – Music & Society /* Chair - *Kongoli*
Panelists: ***Kongoli, Tsolaki, Lefakis, Lescanne-Toth, Dervenis***
Archeological/Byzantine Museum – Music

16:00 – 17:30 Session 11: ***Eremeyev, Ortekus, Dijksman, Saitoh*** */* Chair - *Lomakin*

17:30 – 19:30 Session 12: ***Siettos, Patsalas, Avlonitis, Efremidis, Stefanou, Konstantinidis*** */* Chair – *Zaiser*

19:30 – 20:00 Break

20:00 – 21:00 ***RTP 3*** *on International Research Training Networking /* Chair - *Schrefler*
Panelists: ***Schrefler, Hsia, Lomakin***

Monday Dec 3

10:00 – 11:00 Session 13: ***Fokas: Parts I & II*** */* Chair - *Aifantis (K)*

11:00 – 13:00 Session 14: ***Zaiser, Forest, Chmelik, Razavi*** */* Chair - *Isaksson*

13:00 – 14:00 Lunch

14:00 – 16:00 Session 15: ***Isaksson, Chattopadhyay, Gitman, Dorogov, Krasnitckii, Wang*** */* Chair - *Forest*

16:00 – 17:00 ***Fokas/Pantelides/Vayenas****-Chairs:* ***RTP 4*** *on Hellenism Abroad & the Academy of Athens*

PS: Tuesday Dec 4*: FRAMED – Mid Term Review Meeting & ESPA Session*

3B. Lecture Titles

Friday Nov 30

Session 1: **13:00 – 14:00** / Chair – Elias Aifantis

- ***Dan Shechtman****,* Technion Israel Institute of Technology, Haifa/Israel : *Quasi-periodic crystals – A paradigm shift in crystallography*
- ***Subra Suresh,*** Nanyang Technological University/Singapore: *Materials science and human diseases*

Session 2: **16:00 – 17:30** / Chair – Costas Kiparissides

- ***Sokrates Pantelides****,* Vanderbilt University, Nashville/US*: Novel states of matter*
- ***Nektarios Tavernarakis****,* Foundation for Research and Technology & University of Crete, Heraklion/Greece: *Cellular energy dynamics and homeostasis in neurodegeneration and ageing*
- ***Constantinos Vayenas,*** University of Patras & Academy of Athens/Greece: *Rotating lepton model for the structure and thermodynamics of hadrons and bosons*

Session 3: **17:30 – 18:30** / Chair – Sotirios Natsiavas

- ***Costas Kiparissides****,Centre for Research and Technology Hellas* & Aristotle University of Thessaloniki/Greece*: A system approach to nose-to-brain delivery of biopharmaceutics*
- ***Panagiotis Bamidis,*** Aristotle University of Thessaloniki/Greece*: Multiscale modelling and networks in healthcare: from brain function to citizen science and social innovation*
- ***Philomela Komninou*** Aristotle University of Thessaloniki/Greece*: Advanced transmission electron microscopy of nanostructured materials*

Session 4: **19:00 – 20:00** / Chair – Costas Galiotis

- ***Nikolaos Michailidis,*** Aristotle University of Thessaloniki/Greece: *Advanced modeling and testing of porous structures and human vertebra by FEM and nanoindentation*
- ***Traianos* Yioultsis,** Aristotle University of Thessaloniki/Greece*:* Multiscale analysis and design of radio frequency and photonic devices
- ***Sotirios Natsiavas,*** Aristotle University of Thessaloniki/Greece*: Application of boundary layer theory to multibody systems involving impact and friction*
- ***Elias Aifantis,*** Aristotle University of Thessaloniki/Greece*: Gradient theory across materials and scales, processes and disciplines*

Saturday Dec 1

Session 5: **9:00 – 11:00** / Chair – Laszlo Toth

- ***Eugen Rabkin,*** Technion Israel Institute of Technology, Haifa/Israel : *Metal nanoparticles are super-strong and intelligent*
- ***Ming Dao,*** Massachusetts Institute of Technology, Cambridge/USA: *In-situ characterization of nanostructured crystal behaviors under monotonic and cyclic loading*
- ***Erdogan Madenci,*** University of Arizona, Tucson/USA: *Peridynamic differential operator for numerical analysis*
- ***Dario De Domenico*****,** University of Messina/Italy: *Modelling wave dispersion and long-range interactions in microstructured media and heterogeneous materials: gradient elasticity, nonlocal elasticity, and unified approaches*

Session 6: **11:30 – 13:00** / Chair – Eugen Rabkin

- ***Laszlo Toth,*** University of Lorraine, Metz/France: *Nanomaterials by severe plastic deformation*

- ***Artur Ganeev,*** Ufa State Aviation Technical University, Ufa/Russia: *Superstrength and hardening mechanisms in nanostructured steels*
- ***Katerina Aifantis,*** University of Florida, Gainesville/USA: *Nanomaterials and their applications in engineering materials, energy systems and biomedicine*

Session 7: **14:00 – 15:30** / Chair – Antonios Giannakopoulos

- ***Costas Galiotis,*** University of Patras, Patra/Greece: *Mechanics of monolayer graphene at suspended and embedded states*
- ***Spiros Anastasiadis,*** Foundation for Research and Technology & University of Crete, Heraklion/Greece: *Polymer structure and dynamics under confinement: the case of polymer nanocomposites*
- ***Pantelis Kelires,*** Cyprus University of Technology, Limassol/Cyprus: *Modelling nanomaterials properties at the atomic level*
- ***George Petekidis*****,** Foundation for Research and Technology & University of Crete, Heraklion/Greece: Tunning of soft colloidal systems by shear and flow

Session 8: **16:00 – 18:00** / Chair – Spiros Anastasiadis

- ***Antonios Giannakopoulos****,* National Technical University of Athens/Greece: *Instrumented indentation of elastomers*
- ***Phoebus Rosakis****,* Foundation for Research and Technology & University of Crete, Heraklion/Greece: *Biological cells use a phase transition to find each other in a fibrous extracellular matrix*
- ***Stavros Kourkoulis,*** National Technical University of Athens/Greece: *Experimental mechanics of materials in the service of biomechanics*
- ***Konstantinos Lazopoulos,*** National Technical University of Athens/Greece: *Substrate stretching and reorganization of stress fibers as a finite elasticity problem*
- ***Ioannis Karapanagiotis,*** University Ecclesiastical Academy of Thessaloniki/Greece: *Tuning the wetting properties of polysiloxane-nanoparticle coatings: from superomniphobicity to superhydrophilicity*
- ***George Pavlos,*** Democritus University of Thrace, Xanthi/Greece: *Complexity theory, time series analysis and Tsallis q-entropy principle*

Sunday Dec 2

Session 9: **9:00 – 11:00** / Chair – Ming Dao

- ***Jimmy Hsia,*** Nanyang Technological University/Singapore: What happens when *soft materials* meet *mechanics*
- ***Bernhard Schrefler,*** University of Padua, Padua/Italy & Institute for Advanced Study, Munich/Germany: *Tumor growth and drug delivery modeling within transport oncophysics*
- ***Evgeny Lomakin,*** Moscow State Lomonosov University & Moscow Aviation Institute/Russia: *Unified approach to the characterization of nonlinear deformation and failure of composite materials*
- ***Cem Tasan,*** Massachusetts Institute of Technology, Cambridge/USA: *New challenges in alloy design: Exploring the limits of damage-resistance*

Session 10: **11:30 – 13:00** / Chair – Jimmy Hsia

- ***Florian Kongoli,*** FLOGEN Technologies Inc, Montreal/Canada: Science and technology – The grand disruptors and solution providers
- ***Fernand Marquis,*** San Diego State University, San Diego/USA: *Nano and nanostructured hybrid materials systems for multifunctional applications*
- ***Athan Fox,*** University of Cambridge/UK: *Out of the furnace and into the leaching tank*
- ***Tamer Turna,*** TES Energy Consulting LTD, Istanbul/Turkey: *Is it worth it? Socio economic pathways and their guidance towards a renewable power generation dominated market*

Session 11: **15:30 – 17:00** / Chair – Evgeny Lomakin

- ***Victor Eremeyev,*** Gdansk University of Technology, Gdansk/Poland: *On isolated linear defects considering surface energy: strain-gradient elasticity vs. surface elasticity*
- ***Erkan/Selda Ortekus****,* University of Strathclyde, Glasgow/UK: *Peridynamics and its applications*
- ***Joshua Dijksman***, Wageningen University/Netherlands: *Non-local effects in structured fluids*
- ***Kuniyasu Saitoh,*** Tohoku University/Japan: *Stress relaxation above and below the jamming transition*

Session 12: **17:00 – 19:00** / Chair – Michael Zaiser

- ***Constantinos Siettos,***National Technical University of Athens/Greece & University of Naples Federico II/Italy: *Multiscale numerical bifurcation analysis of dislocation pattern formation of the Walgraef-Aifantis model*
- ***Panos Patsalas,*** Aristotle University of Thessaloniki/Greece*: Past and future of compound semiconductor growth*
- ***Markos Avlonitis,*** Ionian University, Corfu/Greece: Identifying asperity patterns in active faults
- ***George Efremidis,*** University of Thessaly, Volos/Greece: *An elastic-plastic axisymmetric borehole problem by using a deformation version of gradient plasticity*
- ***George Stefanou,*** Aristotle University of Thessaloniki/Greece: *Stochastic finite elements based on mesoscale random fields of material properties*
- ***Avraam Konstantinidis,*** Aristotle University of Thessaloniki/Greece: Modeling compression experiments at various scales through a hybrid gradient-stochastic model

Monday Dec 3

Session 13: **10:00 – 11:00** / Chair – Katerina Aifantis

- ***Athanasios Fokas,*** University of Cambridge/UK: *Part I – The Unified Transform; Part II – The Medical Imaging Techniques of PET,SPECT,MEG,EEG*

Session 14: **11:00 – 13:00** / Chair – Per Isaksson

- ***Michael Zaiser,*** Friedrich-Alexander University, Erlangen-Nürnberg/Germany: *Fracture behavior and flaw ultra-tolerance of hierarchically structured materials*
- ***Samuel Forest,*** Mines ParisTech CNRS, Paris/France: *Combining large scale simulations and experiments for the understanding of plasticity and cracking phenomena in metal polycrystals*
- ***Frantisek Chmelik,*** Charles University, Prague/Czech Republic: *Acoustic emission: A tool for exploring materials behavior from nano to macro scales in real time*
- ***Javad Razavi,*** Norwegian University of Science and Technology, Gløshaugen/Norway: Advanced engineering materials and health monitoring

Session 15: **14:00 – 16:00** / Chair – Samuel Forest

- **Per Isaksson,** Uppsala University/Sweden: *A note on the fracture sensitivity of porous network materials*
- ***Amit Chattopadhyay,***Aston University,Birmingham/UK: *On Stochastic resonance in double diffusion models*
- ***Inna Gitman,*** University of Sheffield/UK: *Methodology to estimate macroscopic strength properties of a material based on a microstructural and microdamage analysis*
- ***Maxim Dorogov,*** Togliatti State Univerisity, Togliatti/Russia: *Towards the existence of electrodeposited monatomic small metallic particles of a nearly dodecahedral habit*
- ***Stanislav Krasnitskii,*** ITMO University & Peter the Great St. Petersburg Polytechnic University/Russia: *Stress relaxation in a composite nanowire with a parallelepipedal core via dislocation formation*
- ***Shun Wang,*** University of Natural Resources and Life Sciences-BOKU, Vienna/Austria: *Modeling the viscous behavior of granular materials with hypoplastic model*

4. *Brief Bios of Honorees*

Professor Dan Shechtman
Nobel in Chemistry 2011
Technion/Israel

After receiving his doctorate from the Technion in Haifa, Israel, Danny Shechtman was an NRC fellow at the Aerospace Research Laboratories of Wright Patterson AFB, Ohio, where he studied for three years the microstructure and physical metallurgy of titanium aluminides. In 1975 he joined the Department of Materials Engineering at Technion where he is currently a Distinguished Emeritus Professor, and also a Distinguished Professor of Iowa State University. During 1981-2004 he was several times on Sabbatical at the Johns Hopkins University, (joint program with NBS-NIST). During this period he discovered by TEM the Icosahedral Phase which opened the new science of quasiperiodic crystals and performed research on other subjects. Shechtman is a member of several Academies, including the US National Academy of Engineering, Israel academy of arts and humanities, AAAS and the Russian Academy of Sciences (RAS). He is an Honorary Member of professional societies around the globe and was awarded many prizes for his scientific work, including the Wolf Prize in Physics The Gregori Aminoff Prize of the Royal Swedish Academy of Sciences, the EMRS award and the Nobel Prize in Chemistry 2011.

Nobel Prize winning scientists are used to causing a stir, the nature of their work is often groundbreaking or contradicts accepted beliefs, but seldom has a laureate's work been so poorly received as the discovery of quasicrystals by Dan Shechtman.

To make matters worse, most of the scorn and vitriol poured on Professor Shechtman's work came from double-Nobel winner Linus Pauling, one of the most respected scientists in the world, who declared: "There is no such thing as quasicrystals, only quasi-scientists." Pauling was wrong, but he went to his grave denying it.

At the Nobel Prize Ceremony

The Nobel Prize in Chemistry 2011 was awarded to Dan Shechtman for the discovery of quasicrystals

"*In quasicrystals, we find the fascinating mosaics of the Arabic world reproduced at the level of atoms: regular patterns that never repeat themselves. The configuration violates the rules of crystallography, was considered impossible, and Dan Shechtman had to fight a fierce battle against established science*"

Shechtman, with a background in mechanical and material engineering, was studying the metallurgical properties of rapidly-cooled alloys of aluminum and manganese. In April 1982 he noticed they produced electron diffraction patterns just as crystals do, but the patterns suggested an odd rotational symmetry which was inconsistent with the standard restricted patterns that effectively define a crystal. In normal crystals, atoms lie on three-dimensional lattices of identical cells, which are limited to 2-fold, 3-fold, 4-fold, and 6-fold degrees of rotational symmetry. In a quasicrystal, the local atoms are fixed, but each cell has a different configuration of cells nearby, giving them most often a 5-fold rotational symmetry in certain directions.

Shechtman persevered, and with colleagues Ilan Blech, John Cahn and Denis Gratias eventually got an article published in a technical journal in 1984. The effect was immediate, as a growing number of researchers succeeding in recreating the phenomenon, mostly using aluminium alloys. Finally, in 2009, a dedicated search produced a naturally-occurring quasicrystal substance which was named icosahedrite – an aluminium/cupalite/iron alloy found in Russia. Intriguingly, it is thought to be extra-terrestrial in origin, delivered to Earth in a meteorite.

Quasicrystals – or, as Shechtman would prefer, quasi-periodic materials – now have scientists thinking about matter in a new light, but they also have many possible practical applications. Because of their uneven structure, quasicrystals do not have obvious cleavage planes, making them unusually hard. This makes them ideal for making fine but durable instruments. Their low electrical and heat conductivity could also see them used for insulation or even a new non-stick coating for cooking pans.

Dan Shechtman studied at the Technion, gaining a BSc in Mechanical engineering in 1966, and MSc (1968) and PhD (1972) in materials engineering. After working in the aerospace research laboratory in the US as a metallurgist, he returned to the Technion as a member of staff in the materials science department (where he is currently professor). From 1981-83 he was on sabbatical at Johns Hopkins University in Baltimore and BS in Maryland. It was there, studying rapidly solidified aluminium alloys, that he made his discovery.

From 1992-94 he studied the effects of chemical vapour deposition on diamond at the US National Institute of Standards and Technology. He is an Associate of the US Department of Energy's Ames Laboratory and professor of materials science at both Iowa State University and the Technion, where he has also served on several Senate Committees.

Dan Shechtman is married to respected psychologist Prof Zipora Shechtman. They have a son, a physicist, and three daughters, all of whom are psychologists.

Life

Dan Shechtman was born in Tel Aviv, in what was then the British Mandate for Palestine. He earned his PhD in materials science from the Technion Israel Institute of Technology in Haifa in 1972. Dan Shechtman has been associated with Technion since that time, but has also spent time abroad. He made his Nobel Prize-awarded discovery at Johns Hopkins University in Baltimore, Maryland in the early 1980s. He has also been connected with Iowa State University in Ames in the United States since 2004. He is married with four children.

Work

In the majority of solid matter are crystals: atoms are organised in an ordered pattern. Physicists long believed that the structures of all crystals consisted of patterns that repeated over and over again. In 1982, when Dan Shechtman was studying what are known as diffraction patterns, which occur when x-rays are passed through the crystals, he discovered a regular diffraction pattern that did not match any periodically repeated structure. This showed that there are crystal structures that are mathematically regular, but that do not repeat themselves. These are called quasicrystals.

Professor Subra Suresh
University President
NTU/Singapore

Professor Subra Suresh is an eminent American scientist, engineer and entrepreneur with decades of distinguished and impactful leadership in academia, industry and government. He was appointed president of NTU in July 2017 and began his tenure on 1st January, 2018. In recognition of his scholarly and scientific achievements in research, the NTU Board of Trustees also selected him as the inaugural Distinguished University Professor, the highest honour given to a faculty member at NTU.

He was the ninth President of Carnegie Mellon University (CMU) from 2013 to 2017. Before that, he served as Director of the US National Science Foundation (NSF) from 2010 to 2013, and Dean of the School of Engineering from 2007 to 2010 at the Massachusetts Institute of Technology (MIT), where he was a faculty member for two decades.

Prof Suresh has a deep understanding of higher education and research systems in North America, Europe, Singapore, India and China, having actively engaged with various public and private agencies, boards and individual researchers across these regions, to advance research, education and innovation.

His research in materials science and engineering, biomedical engineering and computational biology, has helped to shape disciplines and technologies at the intersections of engineering, science and medicine.

University leadership

At Carnegie Mellon, Prof Suresh launched a historic campus infrastructure development effort including the creation of a new quadrangle to house the largest building on campus. Under his leadership, these initiatives were supported by four of the most successful fundraising years in the university's history, which also saw an increase of 55% in the university's total endowment. He worked with the university community to secure more than US$200 million in new permanent endowment specifically for Presidential Fellowships and Scholarships, a programme he established in 2014 to provide financial support to top students.

During President Suresh's tenure, CMU assembled the most diverse senior leadership team in the university's history; established a strategic plan through an inclusive campus-wide process that placed particular emphasis on enhancing the campus experience as well as the health and wellness of students; recruited a record proportion of outstanding women first-year undergraduate students in computer science and engineering (at levels several times greater than the average for US universities in these areas where women have been traditionally underrepresented); and founded and chaired the Global Learning Council as an international forum to help improve learning outcomes through technology.

Research administration

Prof Suresh was appointed by then United States President Barack Obama in 2010 to lead the US National Science Foundation as Director. He was unanimously confirmed by the US Senate.

At the White House

"We have been very fortunate to have Subra Suresh guiding the National Science Foundation... [He] has shown himself to be a consummate scientist and engineer – beholden to evidence and committed to upholding the highest scientific standards."
Former US President Barack Obama
In conversation with former US President Barack Obama: Prof Suresh at the Oval Office in the White House during his term as the Director of the US National Science Foundation.

As Director, he oversaw an annual budget of US$7 billion that supports fundamental research and innovation in all fields of science and engineering and related education in more than 2,000 institutions across the US and in a number of research facilities across the globe from the Arctic to Antarctica.

Committed to upholding the highest scientific standards at the National Science Foundation, Prof Suresh established the NSF Innovation Corps (I-Corps) programme aimed at translating research discoveries into industrial practice. Launched in 2011, this effort was praised by Harvard Business Review for using “lean startup techniques to turn scientists into entrepreneurs”. It has since been replicated by a number of government organisations in the US and abroad.

At NSF, Prof Suresh also helped to establish the Global Research Council and the Graduate Research Opportunities Worldwide programme. All of his global initiatives at NSF involved strong links to Singapore.

Scientist and innovator

As a scientist, Prof Suresh researches the properties of engineered and biological materials, and their connections to human diseases. Apart from more than 300 published research articles, his research output includes 25 patent applications and three books, two of which have been translated into Chinese and are used as textbooks for graduate students.

Prof Suresh holds the distinction of being the only university president elected to all three US national academies of Sciences, Engineering and Medicine, in addition to his election to the American Academy of Arts and Sciences, and the National Academy of Inventors. He is an elected member of 15 science and/or engineering academies based in the US, China, France, India, Sweden, Germany, Italy and Spain. He has 15 honorary doctorates from universities around the world including Zhejiang University (China), Northwestern University (USA), University of Southampton (UK), Ecole Polytechnique Fédérale de Lausanne (Switzerland), Royal Institute of Technology (Sweden), Warwick University (UK), St. Petersburg Polytechnic University (Russia), Dartmouth College (USA) and his alma mater, the Indian Institute of Technology, Madras.

Prof Suresh is one of the few elected foreign members and the only current US-based university president in the Chinese Academy of Sciences. He was a member of an advisory group to the Governor of Guangdong Province during 2014-16, for technology and industry matters. His connections with China go back some 25 years when his book Fatigue of Materials was first translated into Chinese, and he has collaborated in research with various Chinese scientists. Over the years, Prof Suresh has held numerous professorships for visiting appointments at universities around the world. His work in nanobiomechanics garnered him a spot in MIT’s Technology Review magazine in 2006 as a Top 10 researcher whose work will have a significant impact on business, medicine or culture. He was also chosen by Science Watch/Thomson Reuters as one of the top 100 most impactful materials scientists (based on publication citation impact) during the decade 2000-2010. In 2011, he was awarded the Padma Shri, one of the highest civilian honours, by the President of India.

Early career

Born in India, Prof Suresh graduated from high school at 15 and received his undergraduate degree in first class with distinction in technology from the Indian Institute of Technology (IIT) in Madras, which recognized him as a Distinguished Alumnus in 1997. He received a master's degree from Iowa State University, and went on to complete his doctorate in mechanical engineering from MIT in just two years. Following postdoctoral research at the University of California, Berkeley, and the Lawrence Berkeley National Laboratory, he joined the faculty of engineering at Brown University in December 1983 and received permanent tenure in July 1986. Prof Suresh returned to MIT in 1993 as the R P Simmons Professor and served as Head of Department of Materials Science and Engineering from 2000 to 2006.

5. *Brief Bios of Technical RTP Chairs/Panelists*

Professor Athanassios Fokas

A.S. Fokas has a BSc in Aeronautics from Imperial College (1975), a PhD in Applied Mathematics from the California Institute of Technology (1979) and an MD from the University of Miami, School of Medicine (1986). In 1986, at the age of 33, he was appointed Professor and Chairman of the Department of Mathematics and Computer Science of Clarkson University, USA. In 1996 he was appointed to a Chair in Applied Mathematics at Imperial College, UK. In 2002 he was appointed to the newly inaugurated Chair in Nonlinear Mathematical Science at the University of Cambridge, UK.

In June 1975 he was awarded the Governor's Prize of Imperial College (best student), and in June 1983 he was awarded the Graham Research Prize of Clarkson University (best junior researcher).

In November 2000 he was awarded the Naylor Prize of the London Mathematical Society (the most prestigious prize in Applied Mathematics and Theoretical Physics in UK). The last five earlier recipients were Sir Roger Penrose, Sir Michael Berry, Sir John Ball, F.P. Kelly and S W Hawking.

In March 2004 he was awarded the Aristeion Prize in Sciences of the Academy of Athens (this is the most prestigious prize of the Academy given every four years to a single scholar of Greek origin chosen from science, engineering, or medicine).

In December 2004 he was elected a full member of the Academy of Athens. The Academy has about 45 members covering all areas including sciences, engineering, medicine, arts, letters, political and moral sciences; A.S. Fokas is the sixth mathematician elected in the Academy - the first was C. Caratheodory - and the first ever applied mathematician.

In January 2005 he was included in the New Year's list of honours of the President of the Hellenic Republic and he was presented with the decoration of the Commander of the Order of Phoenix (the list of honours included 14 individuals).

In June 2005 he was elected a Professorial Fellow of Clare Hall. In June 2006 he was awarded (jointly with Professor D. Christodoulou) the Excellence Prize of the Bodossaki Foundation. This premier scientific prize is awarded every two years to scientists of Greek origin, as chosen by an international committee chaired by a Nobel Laureate.

In 2009 he was selected as a Guggenheim Fellow on the basis “of stellar achievements and exceptional promise for continued accomplishment”.

In 2010 he was elected a Fellow of the European Academy of Science, and was also appointed “Ambassador of Hellenism” by the Prefecture of Athens.

In the fall of 2012 he was an Onassis Senior Visiting Scholar at the University of Harvard. He has been awarded honorary degrees from seven Universities. He is an honorary citizen of Oinousses and of Delphoi. He is a distinguished member of the Institute of Computational and Applied Mathematics, Greece, as well as an honorary Member of the Philological Society Parnassos. ISI Web of Science includes A.S. Fokas in the list of the most highly cited researchers in the field of Mathematics.

In many ways Fokas is the intellectual heir of Russian-American mathematician and biologist Israel Gelfand (considered one of the greatest mathematical minds of the 20th Century), who upon Fokas receiving the Aristeion Prize in Sciences from the Academy of Athens in 2004, wrote about his close collaborator: “Fokas is now a very rare example of a scientist in the style of the Renaissance.”

5. *Brief Bios of Technical RTP Chairs/Panelists*

Professor Sokrates Pantelides

Sokrates T. Pantelides is University Distinguished Professor of Physics and Engineering, William A. and Nancy F. McMinn Professor of Physics, and Professor of Electrical Engineering at Vanderbilt University, Nashville, Tennessee, USA. He holds secondary appointments as Distinguished Visiting Scientist at Oak Ridge National Laboratory in the U.S. and as Distinguished Visiting Professor of Physics at the University of the Chinese Academy of Sciences in Beijing, China.

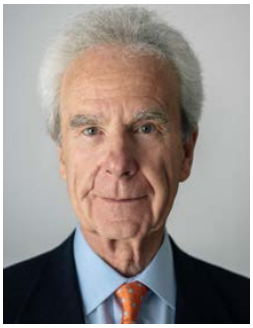
He received his Ph.D. in Theoretical Physics from the University of Illinois at Urbana-Champaign in 1973. Before joining Vanderbilt in 1994, he spent 20 years at the IBM Thomas J. Watson Research Center in Yorktown Heights, New York, where he carried out theoretical research in semiconductors, pioneering calculations for point defects at the same level of sophistication that was at the time possible only for perfect crystals and crystal surfaces. He served as manager, senior manager, and program director with responsibilities in materials and technology modeling.

Pantelides is a Fellow of the American Physical Society, the Materials Research Society, the American Association for the Advancement of Science, and the Institute of Electrical and Electronic Engineers. According to Scopus, he is author or coauthor of 697 technical articles in refereed journals with 25,941 citations and an *h*-index of 82, as well as editor of nine technical books. He has given ~300 invited talks at national and international conferences and has served as chair, program chair, or committee member for numerous international meetings.

He has been invited ~20 times by the Royal Swedish Academy of Sciences to nominate candidates for the Nobel Prize for Physics.

His research is theoretical, employing mostly density-functional-theory calculations, and focuses on the structure, defect dynamics, electronic, magnetic, optical, electrical, and mechanical properties of materials and nanostructures, complex oxides, two-dimensional materials, radiation effects, electron microscopy and electron-energy-loss spectroscopy, transport in molecules and thin films, device physics and reliability, wetting phenomena, and catalysis.

Professor Bernhard Schrefler



Bernhard A. Schrefler holds a MS. degree in Structural Engineering from the University of Padua (dott. ing with summa cum laude), a Ph.D. and D.Sc. from the University of Wales, Swansea. He is Professor Emeritus of Structural Mechanics at the University of Padua, Hans Fischer Senior Fellow at the Institute for Advanced Study of the Technical University of Munich and Senior Affiliate Member of the Houston Methodist Research Institute in Houston, Department of Nanomedicine.

Schrefler is a Fellow of the International Association of Computational Mechanics (IACM), past chairman of the Italian Association of Computational Mechanics (GIMC), member of the Executive Council of IACM, past member of the Executive Committee of the Congress Committee of the International Union for Theoretical and Applied Mechanics (IUTAM), of the Executive Council of the European Community of Computational Methods in Applied Sciences (ECCOMAS) and past-secretary general of the European Mechanics Society (EUROMECH). He is regional editor of Mechanics Research Communications, secretary general of the International Centre of Mechanical Sciences (CISM), and bureau member of IUTAM.

He has been awarded the Maurice A. Biot Medal from the American Society of Civil Engineers (ASCE), the Euler Medal from the European Community of Computational Methods in Applied Sciences (ECCOMAS), the Olgierd A.Zienkiewicz Medal of the Polish Association of Computational

Mechanics (PACM), received the Computational Mechanics Award of IACM, the IACM Award, the Lifetime Achievement Award of the International Conference on Computational & Experimental Engineering and Sciences ICCES, the IACM Gauss-Newton Medal, the INTERPORE Lifetime Honorary Membership Award and the Palmes Académiques in France.

He has received honorary doctorates from the St. Petersburg State Technical University, the University of Technology of Lodz, the Leibniz University of Hannover, the Russian Academy of Sciences and the Ecole Normale Supérieure at Cachan, an honorary fellowship from the University of Wales Swansea and an honorary professorship from the Dalian University of Technology.

Schrefler is a member of the National (Italian) Academy of Sciences ("dei XL"), the Accademia Galileiana di Scienze, Lettere ed Arti; the Istituto Veneto di Scienze, Lettere ed Arti, and corresponding member of the Istituto Lombardo di Scienze, Lettere ed Arti.

He has addressed fundamental aspects of applied and computational mechanics, and diverse applications to problems of practical interest. His contributions to structural and materials mechanics include the pseudo three-dimensional analysis of tall buildings, cable structures and related stability problems, membranes and wrinkling, asymptotic theory of homogenization with second order and boundary layer correctors, hierarchical and concurrent multi scale methods, thermo-electro-mechanical contact. In the field of technology for thermonuclear controlled fusion he contributed to the design of the reversed field pinch fusion device RFX (coils, vacuum vessel, shell, support structure, radiation in a torus, graphite first wall), and to the analysis of superconducting coils for ITER (International Thermonuclear Experimental Fusion Reactor). In porous media mechanics he was the first to apply Biot's theory to surface subsidence due to withdrawal of water (Venice) and gas (Ravenna), to extend Biot's theory to two- and three phase flow, and to introduce the generalized Bishop's stress, today the most used stress tensor in partially saturated soils mechanics. He also addressed non isothermal elastic plastic consolidation, infinite elements in isothermal and non isothermal consolidation, large strain quasi-static and dynamic partially saturated soil behaviour, strain localization in fully and partially saturated soils, cavitation modelling, constitutive modelling for partially saturated soils, partitioned solution procedures and their numerical properties, CBS stabilizing algorithm and discontinuous Galerkin method for porous media, thermo-hydro-mechanical analysis of partially saturated porous media, inclusion of air-water interfaces, carbonation of concrete, three-fluids model for concrete with application to concrete under very high temperatures, concrete at early ages and non-isothermal leaching. The concrete model has been incorporated into several general purpose computer programs. His current research focuses on tumor growth modeling and transport of nanoparticles in diseased microvasculature and on hydraulic fracturing. According to Scopus, he has received a total of 7,047 citations and his h-index is 48.

Professor Nektarios Tavernarakis

Nektarios Tavernarakis is Professor of the Medical School at the University of Crete/Heraklion, where he earned his PhD degree to be trained later as a postdoctoral researcher at Rutgers University in New Jersey, USA. He is the Chairman of the Board of Directors at the Foundation for Research and Technology-Hellas (FORTH), Research Director at the Institute of Molecular Biology and Biotechnology (IMBB), and Professor of Molecular Systems Biology at the Medical School of the University of Crete. In addition of being Director of the Graduate Program on BioInformatics at the Medical School of the University of Crete, he is also heading the Neurogenetics and Ageing laboratory of IMBB. He is an elected member of the *Scientific Council* of the *European Research Council* (*ERC*), the *European Molecular Biology Organization* (*EMBO*), the *European Academy of Sciences and Arts,* and *Academia Europaea*. He also served as the Director of the Institute of Molecular Biology and Biotechnology.

He has received several notable scientific prizes, including two *ERC Advanced Investigator Grants*, and an innovation-supporting *ERC Proof of Concept Grant*. He is also the recipient of the *EMBO Young Investigator* award, the Alexander von *Humboldt Foundation*, *Friedrich Wilhelm Bessel* research award, the *Bodossaki Foundation Scientific Prize for Medicine and Biology*, the *Empeirikeion Foundation Academic Excellence Prize*, the *FORTH Research Excellence* award, the *BioMedical Research Award* of the *Academy of Athens*, the *Galien Scientific Research Award*, the *Helmholtz International Fellow Award*, the *International Human Frontier in Science Program Organization* long-term *Postdoctoral Fellowship*, and the *Academic Achievement Award* of the Hellenic University Club of New York.

His research focuses on the molecular mechanisms of necrotic cell death and neurodegeneration, the interplay between cellular metabolism and ageing, the mechanisms of sensory transduction and integration by the nervous system, and the development of novel genetic tools for biomedical research. He has published about 200 articles in high impact scientific journals. According to Scopus, he has received a total of 14,458 citations and his h-index is 51.

Professor Constantinos Vayenas

Constantinos (Costas) Vayenas was born in Athens in 1950 and studied Chemical Engineering at the National Technical University of Athens (NTU, 1968-1973). He received his PhD from the University of Rochester in NY, USA in 1976 and then taught as Assistant Professor at Yale University (1976-77) and as Assistant and Associate Professor at the Massachusetts Institute of Technology (MIT, 1977-82). Since 1982 he is Professor of Chemical Engineering at the University of Patras. He has also been Visiting Professor at Yale, EPFL (Lausanne) and the University of Lyon. His research focuses in the areas of Catalysis, Electrochemistry and mathematical modeling of physicochemical and physical phenomena.

He has coauthored some 260 refereed publications in International Journals, four of them in the Journals Science and Nature. According to Scopus, he has received a total of 8,763 citations and his h-index is 53.

He has received several international Awards which include the Outstanding Achievement Award of the High Temperature Materials Division of the Electrochemical Society (ECS) in 1996, the Wason Medal for Materials Research of the American Concrete Institute in 1992, the Chemistry Award of the Academy of Athens in 1992, and the Outstanding Faculty Award of the Chemical Engineering Department at MIT in 1979 and 1981.

Together with his coworkers at MIT and at the University of Patras he has discovered the phenomenon of the Non-Faradaic Electrochemical Modification of Catalytic Activity (NEMCA effect) which is also known in the literature as the phenomenon of the Electrochemical Promotion of Catalysis (EPOC).

In recent years he is also investigating the thermodynamics and catalysis of hadronization and has developed Bohr-type rotating relativistic lepton models for hadrons and bosons using special relativity and gravity as the attractive force. These models contain no adjustable parameters and are in close agreement with experiment.

In 2005 he was elected Fellow of the International Society of Electrochemistry (ISE), being chronologically the 14th scientist to receive this honour. He is Editor of the book series “Modern Aspects of Electrochemistry” and has coauthored three books published by Springer and Marcel Dekker.

He has supervised 36 PhD Theses and 12 of these PhD students have become Professors in Greek but also non-Greek (USA, China) Universities and Research Centers. In 2010 he was elected as one of the 45 full members of the Academy of Athens and in 2015 he received an Honorary PhD degree from the Aristotle University of Thessaloniki. In 2017 he was the first Greek scientist to be elected as Foreign member of the National Academy of Engineering (NAE) of the USA.

6. Brief Bios of Technical Session Chairs

Professor Katerina Aifantis

Katerina Aifantis enrolled at Michigan Tech at the age of 16 and obtained her Bachelor's in Engineering in 2002 with a minor in Mathematics, at the age of 19. Then, she received a National Science Foundation Graduate Research Fellowship with which she obtained her Master of Philosophy Degree at the University of Cambridge in 2004 at the age of 20 and her PhD at the University of Groningen in 2005 at the age of 21. She is the youngest PhD in The Netherlands, receiving it even earlier that Groningen's pride H. Casimir (Casimir effect). After a short post-doctoral period at Harvard of Cambridge/US and at Ecole des Mines of Paris/France, she was the youngest recipient of the European Research Council Starting/ERC Grant at the age of 24 (out of ~9,100 applicants only 300 were funded that year), which she carried out at Aristotle University of Thessaloniki between 2008-2013, with the University of Erlangen-Nuremberg and The Foundation for Research and Technology-Hellas as co-host institutions. Over the past 10 years she has received funding as PI totaling ~ $3M; her current work is funded from the US Department of Energy (DOE) and the National Science Foundation (NSF).

In 2013 she joined the University of Arizona as an associate professor, and since 2017 she has been an associate professor and faculty fellow at the Mechanical and Aerospace Engineering Department of the University of Florida, where she directs the Laboratory of Nanomaterials for Energy and Biological Applications. Her work has attracted the attention of national and international media, including BBC, Physics Today, and Science Magazine. She was keynote speaker for the new academics at the University of Groningen at 2005, a keynote speaker at Athens Institute of Technology in 2009, and a featured speaker at TEDx – Athens. In 2011 she was honored by the President of Greece Dr. Karolos Papoulias. She has received the young Alumni Award from Michigan Tech and has been honored by the Association of Women Scientists in Greece for her nanotechnology contributions.

Her research topics range from capturing interface effects in nanomaterials and designing anodes for next generation Li-ion/Na-ion batteries to fabricating nanopatterned scaffolds for tissue regeneration and nanostructured electrodes for deep brain stimulation. She has published 70 peer reviewed articles in high impact international journals (including Nature Materials with a 5-yr impact factor of 47.5). She has co-edited/co-authored the book Higher Energy Density Li-ion Batteries for Wiley-VCH, which has been translated in Chinese. According to Scopus, she has received a total of 1,668 citations and her h-index is 23.

Professor Spiros Anastasiadis

Spiros Anastasiadis is Professor of Polymer Science and Engineering at the Department of Chemistry of the University of Crete and the Director of the Institute of Electronic Structure & Laser of the Foundation for Research and Technology - Hellas. He received his PhD in Chemical Engineering from Princeton University in 1988 whereas he has been a Visiting Scientist at the IBM Almaden Research Center in 1988-1989.

He was awarded the *John H. Dillon Medal* of the American Physical Society in 1998 and was elected *Fellow* of the American Physical Society in 2000. He has received the Materials Research Society *Graduate Student Award* in 1987 and the Society of Plastics Engineers - Plastics Analysis Division *Best Paper Award* during ANTEC 1985. He has been an *Editor* of the *Journal of Polymer Science: Part B: Polymer Physics* 5/2006-7/2010 (Senior Editor and Editor for Europe, Middle East and Africa).

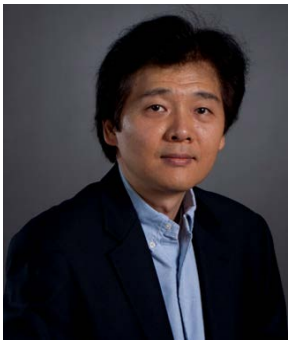
He served as a *Consulting Editor* for *AIChE J.* (8/2012-12/2016) and as a Member of the Editorial Advisory Board of *Macromolecules* (1/2015-12/2017). He is the elected President of the *European Polymer Federation* (EPF, www.epfwebsite.org) for the period 2018-2019 whereas he serves as President of the *Hellenic Polymer Society* (12/2012-now). He has been elected a *Mary Shepard B. Upson Visiting Professor* at Cornell University for 2018-2019.

He was the Founder, Organizer and Alternate Scientific Coordinator of the Department of Materials Science and Technology of the University of Crete. He has been a Professor of Materials at the Department of Physics of the University of Crete and a Professor of Materials Science and Engineering at the Department of Chemical Engineering of the Aristotle University of Thessaloniki, where he served as the Alternate Chairman (09/2007–10/2008). He is currently a Member of the Quality Assurance Committee and Vice Chair of the Committee on Research Integrity and Ethics of the University of Crete. He has been the National Representative and a Member of the Executive Group of the Materials, Physics & Nanosciences Domain Committee of the European Cooperation in Science & Technology (COST) and the National Delegate in the Horizon 2020 Programme Committee Configuration on Research Infrastructures.

His research interests are in the areas of polymer surfaces/interfaces and thin films, block copolymers, polymer blends and homopolymer/copolymer blends, dynamics and diffusion in multi-constituents, organic/inorganic nanohybrid materials and responsive polymer systems.

He has published 131 papers in refereed journals, 4 in books, 6 in refereed conference proceedings, and 80 in non-refereed conference proceedings. He has edited 1 book and has translated 2 textbooks in Greek. He has received a total of 5,671 citations and his *h*-index is 40.

Professor Ming Dao



Ming Dao is the Principal Investigator and Director of MIT's Nanomechanics Laboratory, a Principal Research Scientist in the Department of Materials Science and Engineering at MIT. He obtained his BS in engineering mechanics from Shanghai Jiao Tong University, and his PhD in materials science from University of California at San Diego.

He is a Fellow of the American Society of Mechanical Engineers (ASME) and received twice the best paper award from Japan Institute of Metals and Materials (2006 & 2013).

He was named the 2012 Singapore Research Chair Professor in Bioengineering and Infectious Disease by MIT, and was a visiting professor with French National Blood Transfusion Institute (INTS) from 2016-2017.

He is an adjunct professor in the School of Materials Science and Engineering at Xi'an Jiaotong University, Xi'an, China (October 2011 - present), and a visiting professor in the School of Biological Sciences at Nanyang Technological University, Singapore (March 2018 - present).

His main research interests include nanomechanics of advanced materials, mechanics of micro/nanoindentation, cell biomechanics and biophysics, sickle cell disease, malaria and cancer. He has published more than 130 papers in peer-reviewed journals, including Science, Nature Materials, PNAS, Nature Communications, Biomaterials and Acta Materialia. He has received a total of 9,639 citations and an h-index of 46.

Professor Samuel Forest

Samuel Forest is CNRS Research Director and Continuum Mechanics Professor at Mines ParisTech. He earned his PhD in materials science and engineering in 1996 at Mines ParisTech and his habilitation in 2004. He received the CNRS Bronze (1998) and Silver (2012) medals, the Mandel

prize (2001) and the Plumey prize (2008) of the Académie des Sciences de Paris. He became Fellow of the Euromech Society in 2018 for his contributions in mechanical metallurgy.

He is associate editor of International Journal of Solids and Structures and Philosophical Magazine. He is member of the editorial board of Continuum Mechanics and Thermodynamics, Archive of Applied Mechanics and Technische Mechanik.

His work deals with the introduction of microstructural and physical aspects of the deformation and fracture of materials into the continuum mechanical framework. His contributions are devoted in particular to crystal plasticity modelling for metallic alloys and structures. He participates also in the development of modern continuum mechanics including generalized continua endowed with additional degrees of freedom taken from the material's microstructure. These theories are applied to industrial components like turbine blades in jet engines. He has published more than 150 papers in peer-reviewed international journals. He has received a total of 5,565 citations and an h-index of 37.

Professor Costas Galiotis

Costas Galiotis is a Professor at the Chemical Engineering Department of University of Patras and Collaborating Faculty Member of the Institute of Chemical Engineering Sciences of FORTH (FORTH/ ICE-HT). He graduated from the University of Athens in 1977 and received his PhD in Materials Science and Engineering from the University of London (Queen Mary College) in 1981. From 1985 till 1997 he served as a tenured Lecturer and then Reader at Queen Mary College and has taught both at Queen Mary and Imperial Colleges of University of London. He moved to Greece in 1997 as a Research Director of the Institute of Chemical Engineering Sciences of FORTH and was appointed Professor at the University of Patras in 2002. From 2007 till 2013 he acted as the Director of whole FORTH/ ICE-HT. Since 2017 he serves as an elected member of the Executed Council of the newly founded Hellenic Foundation of Research & Innovaton and he is the Director of its Physical Sciences programme.

His current research interests are in the areas of nano and micro-mechanics, interface interactions, graphene and CNT production and nanocomposites. He has pioneered the technique of laser Raman microscopy for measuring stresses and strains in nano and micro inclusions embedded in polymer matrices. He has published over 200 journal papers and numerous book chapters and reviews. According to Scopus he has received a total of 10,520 citations and his h-index is 40. Since his return to Greece he has attracted funding for his own work of over 12 million Euros inclusive of ERC-Advanced Grant, ERC Proof-of-concept, FET-Open, Graphene Flagship, FP5, FP6, FP7 and Horizon 2020 CEC Grants, Marie-Curie Grants etc. As a Director of FORTH/ ICE-HT he attracted institutional grants of over 10 million Euros.

He is the Editor-in-Chief “Graphene Technology” (Springer-Nature) and of “Advanced Composites Letters” and Editorial Board Member of “Scientific Reports” (Nature). He has served in all the major Research Panels of CEC (ERC, INFRAIA, Teaming, Marie-Curie, SME etc) and has also acted as Expert, Vice-Chair and Independent Observer in CEC evaluation committees. He is the Head of the National (Greek) Representation in the NMBP (Nano-Materials-Bio-Production) Committee of Horizon 2020. He is a founding member of the Graphene Flagship (2013-2023) and currently a member of its Executive Board and WP leader of the area of Composites that comprises of 19 academic institutions and industrial firms. He was the chairman and organiser of a number of international conferences such as “Graphene Week 2017’’, ‘’Industrial Technologies 2014’’, ‘’GrapHEL (2012)’’, “Onassis/ FORTH lecture series (2013)”, ‘’NANOCONF (2007)’’, ‘’ECCM 11 (2004)” and other.He has received recent honorary Awards from the Academy of Athens and the John S. Latsis Public Benefit Foundation.

Professor Antonios Giannakopoulos

Antonios Giannakopoulos received a Bachelor of Science in civil engineering with honors from National Technology University of Athens (NTUA) in 1983 and a Doctor of Philosophy in theoretical mechanics from the same university in 1987. He continued his studies in US receiving a Master of Science in solid mechanics from Brown University in 1987, a Master of Science in applied mathematics in 1988 and a Doctor of Philosophy in solid mechanics from the same university in 1989. He also became a Docent in solid mechanics at the Royal Institute of Technology/Sweden in 1993.

He was appointed as an assistant (1988-1990)/associate (1992-1996) professor at the Royal Institute of Technology, a visiting professor at Brown University in 1993 and at MIT for the period 1995-2000. He became associate and full professor in Civil Engineering at the University of Thessaly until 2016 and a full professor at NTUA in 2016.

He is the author of 120 scientific papers in applied mechanics and computational methods and holds several patents, some of which with Professor Subra Suresh. He has been Deputy Editor (1981-2001) in Acta Materialia and Scripta Materialia and is on the Editorial Board of International Journal of Structural Integrity. Since returning to Greece he has been funded or co-funded with over 3 million Euros from the Hellenic General Secretariat for Research and Development.

His research interests are in solid and fluid mechanics, fracture and contact mechanics, experimental mechanics and nonlinear finite element methods. He has made notable contributions in gradient elasticity, piezoelectricity/magnetoelasticity, micro-electro-mechanical systems and bioengineering. According to Scopus he has received 5,640 citations and his h-index is 37.

Professor Jimmy Hsia

K. Jimmy Hsia is Professor in the School of Mechanical and Aerospace Engineering and School of Chemical and Biomedical Engineering, and Dean of Graduate College at NTU. He received his B.S. from Tsinghua University, Beijing, China, and his Ph.D. from MIT.

He is a Fellow of American Association for the Advancement of Science (AAAS), a Fellow of American Society of Mechanical Engineers (ASME), and recipient of an NSF Research Initiation Award, a Max-Planck Society Scholarship, and a Fellowship from the Japanese Society for Promotion of Science.

Before joining NTU, Hsia was Vice Provost for International Programs and Strategy, and Professor of Mechanical Engineering and Biomedical Engineering at Carnegie Mellon University, and before that he was W. Grafton and Lillian B. Wilkins Professor of Mechanical Science and Engineering at the University of Illinois at Urbana-Champaign (UIUC). From 2005-2007 he served as Founding Director of the Nano and Bio Mechanics Program in the Directorate for Engineering at NSF. He also served as Associate Dean of Graduate College and Associate Vice Chancellor for Research for New Initiatives at UIUC. He is co-Editor-in-Chief of an Elsevier journal, *Extreme Mechanics Letters*.

Hsia's research interests are in the mechanical behavior of materials at micro/nano scales, mechanical behaviours of living systems such as cells and plants, and mechanics of soft materials. He has published more than 100 papers in peer-reviewed journals. His papers have been featured as cover articles in journals such as PNAS, Advanced Materials, Nano Research, and Extreme Mechanics Letters. According to Scopus, he has received a total of 2,146 citations and his h-index is 27.

Professor Per Isaksson

Per Isaksson is a Professor in Solid Mechanics at the Ångström Laboratory, Uppsala University, Sweden since 2010. Uppsala University, founded in 1477, is one of the most prestigious universities in Scandinavia (ranked 61st in the world and 20th in Europe in the ARWU). Uppsala University has eight Nobel Prize laureates and is associated with numerous prominent academics, such as Ångström, Linnaeus and Celsius.

He received his MSc in Engineering Physics from Uppsala University 1995, and his PhD from LTU in 2001. Since 2011 he also acts as guest professor at Université Grenoble Alpes. He is a member of the board of Swedish National Committee for Mechanics (who are promoting research and education in mechanics in Sweden) and represents Sweden in IUTAM (the International Union of Theoretical and Applied Mechanics). He has won several prestigious national grants from the Swedish Research Council, the Swedish Knowledge Foundation, the Bo Rydin's Science Foundation and the Swedish Energy Agency.

Additionally, his research is often jointly conducted with international companies or research facilities such as SCA, Tetra Pak, DS Smith or NASA.

His main scientific interests are experimental, theoretical and numerical studies of fracture and deformation of complex porous heterogeneous materials such as human bone and tissue, wood, paper and woven materials. This research is often multi-disciplinary and is conducted with colleagues in neighboring scientific fields. He has published more than 80 peer-reviewed papers in high-ranked scientific journals.

Professor Costas Kiparissides

Costas Kiparissides is a Professor Emeritus of Chemical Engineering at Aristotle University of Thessaloniki (AUTH). He received his Diploma in Chemical Engineering from NTUA (1971) and his PhD from McMaster University in Canada (1978). From 1978-1983, he taught as an Assistant and Associate Professor at the University of Alberta in Canada.

From 1987-1989 he was a visiting professor of Chemical Engineering at Queen's University in Canada and from 1995-2002 a visiting professor at the University of Newcastle in U.K. During the period 2013-2015 he was the "Borealis" Chair Professor at Petroleum Institute in United Arab Emirates. He served as Director of the Chemical Process Engineering Research Institute-CPERI (2001-2006) and Director of the Centre for Research and Technology Hellas-CERTH (2005-2010).

He has served in numerous National, International and EU scientific-technical working committees for Science, Innovation and Technologies Policies. He has supervised more than 50 PhD graduate students, 160 Diploma Theses and presented more than 300 invited seminars and lectures at international scientific conferences, industrial research centers, institutes and universities world-wide.

He has published over 230 scientific papers in refereed journals, 500 conference papers and 20 books and reports. According to Scopus, his published work has received a total of 6,328 citations and his h-index is 45. He has been awarded more than 100 National, industrial and EU research grants of over 20 million Euros in total.

His research interests are in the areas of polymers, functional materials, drug delivery systems, production of chemical intermediates and biopolymers from renewable biomass sources, and multi-scale modelling of chemical, biochemical and biomedical systems.

Professor Evgeny Lomakin

E. Lomakin was educated in Russia at the Faculty of Mechanics and Mathematics of the Lomonosov Moscow State University. He is Director of the Department of Theory of Plasticity, Faculty of Mechanics and Mathematics, Lomonosov Moscow State University, Moscow; Director of the "Research Laboratory of Mechanics of Advanced Structural and Functional Materials", Perm National Research Polytechnic University, Perm, Ural Region of Russia; and Principal Researcher of Institute for Mechanical Engineering of Russian Academy of Sciences and Moscow Aviation Institute.

He is a Corresponding Member of Russian Academy of Sciences and a Member of the EU Academy of Sciences, Doctor of Sciences (Physics and Mathematics). He is a member of the Boards of Editors of International Journals "Archive of Applied Mechanics", "Acta Mechanica", "Mechanics of Solids", "Mechanics of Advanced Materials and Modern Processes" (Springer). He is a Member of EUROMECH (European Mechanics Society) of ESCM (European Society for Composite Materials) and ESIS (the European Structural Integrity Society). He also serves as a Member of the Russian National Committee on Theoretical and Applied Mechanics; the Council of National Board of Russian Academy of Sciences on Mechanics of Solids; and the Board of Experts of Supreme Certifying Commission of Russian Federation. He is Chief of The Board of Experts of Russian Foundation for Basic Research in Mechanics. He is a Honourable Professor of Lomonosov Moscow State University and of Perm National Research Polytechnic University.

His main scientific interests are: experimental and theoretical studies of elastic and plastic deformation of porous; cracked and other heterogeneous materials of variable properties and fracture mechanics of these materials; rock mechanics, mechanics of non-linear thermovisco-hyperelastic materials, and mechanics of composite materials.

Professor Sotirios Natsiavas

Sotirios Natsiavas is the Director of the Machine Dynamics Laboratory in the Department of Mechanical Engineering at Aristotle University, Thessaloniki, Greece. He holds a Diploma (1982) from Aristotle University and an MS (1983) and a PhD degree (1987) in Mechanical Engineering from the California Institute of Technology. In the past, he held positions of a Research Fellow and Instructor of Engineering at Caltech (1987) as well as of an Assistant and Associate Professor (1987-1994) at Arizona State University. Since 2000, he is a Professor of Dynamics and Vibration at Aristotle University.

Professor Natsiavas received the E. Sechler Award from the Graduate Aeronautical Laboratories of Caltech (1987) and the Award for Teaching Excellence from the College of Engineering and Applied Sciences at Arizona State University (1990). He is a Fellow of ASME (since 2008) and has been an Associate Editor and member of the Editorial Board of several prestigious scientific journals, including the ASME Journal of Computational and Nonlinear Dynamics, Journal of Vibration and Acoustics, Journal of Vibration and Control, International Journal of Solids and Structures, International Journal of Non-linear Mechanics and the Journal of Multi-Body Dynamics. He has served in several international scientific and technical committees and has organized numerous symposia in engineering conferences.

He teaches and conducts research in Linear and Nonlinear Vibrations, Structural Dynamics, Analytical and Multibody Dynamics, Vehicle Dynamics, Structural Stability, Fluid-Structure and Ground-Structure Interaction. He is the author of three textbooks in Dynamics and Vibration, as well as of numerous journal and conference papers. He taught many courses in Mechanics and his research has been funded by European, USA and Greek agencies. Many of his graduate students work in academia and engineering industry. According to Scopus he has received 1,957 citations and his h-index is 25.

Professor Eugen Rabkin

Eugen Rabkin is Professor of Materials Engineering and a holder of the Trudy and Normal Louis Chair in Engineering at Technion – Israel Institute of Technology. Eugen Rabkin received his M. Eng. degree from Moscow Institute of Steel and Alloys, and his PhD degree from the Institute of Solid State Physics of the Russian Academy of Sciences in 1991.

Prior to his appointment at Technion in 1997, he worked at the Max Planck Institute for Metals Research and at the Institute of Physical Metallurgy of the University of Stuttgart, firstly as an Alexander-von-Humboldt research fellow and then as a University Assistant. He has held guest researcher appointments at the University of Western Australia (1997), University of Aix-Marseille (2000), Tohoku University (2003), Princeton University (2005-2006), and at Karlsruhe Institute of Technology (2014). In 2014-2017 he served as Dean of the Department of Materials Science and Engineering at the Technion.

He was awarded the Otto Hahn medal for young outstanding researchers of the Max Planck Society, and was selected as a Federation of European Materials Research Societies Lecturer. He was awarded twice the Henry Taub Prize for excellence in research (Technion), and was a recipient of the Science Prize of the German Technion Society.

His research interests are focused on diffusion and phase transformations in metallic materials, on the mechanical properties of metals at the nanoscale, and on hydrogen interaction with metals. He has co-authored more than 230 publications in peer-reviewed international journals. According to Scopus, he has received 3,863 citations and his h-index is 35.

Professor Laszlo Toth

Laszo Toth holds a physics and astronomy diploma as well as a doctorate degree in solid state physics from the Eötvös University, Hungary. His habilitation was defended at the Hungarian Academy of Sciences in 1986. He became an internationally known personality of the mechanics and materials scientific community since about 1990. He earned his high recognition through his broad knowledge in both mechanics and materials which permits him to make the bridge between these two disciplines.

Professor Toth started his academic experience in the Eötvös University in 1976. After 10 years intense activity there, he spent three years at the McGill University in Montreal in the Metallurgical Engineering Department, followed by another long stay in the Materials Science Laboratory of the Catholic University of Leuven, Belgium. Finally, he moved to Metz, France, to the Laboratory of Physics and Mechanics of Materials, which he united with the Materials Texture Laboratory in 2010, founding the LEM3 Laboratory that counted at that time 160 persons (Laboratory of Microstructures and Mechanics of Materials). He also founded a special Center of Excellence in 2012, under the name “Laboratory of Excellence on Design of Alloy Metals for low-mAss Structures” ('DAMAS') of which he is currently the director. This center unites all academic forces of the Lorraine region in metallurgy (about 80 permanent researchers).

His achievements were recognized with the Grand Prize of Research of the Industrial Society of East-France in 2012. He also received the title of Knight of the French Superior Education by the Government of France, in 2012.

He was co-Chairman of the 4th EUROMECH Conference in Metz in 2000, Chairman of the NanoSPD6 Conference in Metz in 2014 (Nanomaterials by Severe Plastic Deformation) and will organize the next ICSMA Conference (Int. Conf. on Strength of Materials) in 2021, in Metz, France.

He is a member of the International NanoSPD and ICOTOM (Int. Conf. on Textures of Materials) Committees.

His main expertise is in polycrystal plasticity, crystallographic textures, and severe plastic deformation of metals. He published 200 papers with an impact of about 6000 citations. He is Editor for the journal Advances in Materials Science and Engineering as well the journal Materials. According to Scopus, he has received a total of 4,446 citations and his h-index is 36.

Professor Michael Zaiser

Michael Zaiser is Professor and Head of the Institute for Materials Simulation at Friedrich-Alexander University of Erlangen-Nuremberg (FAU). He received his diploma in physics from the University of Stuttgart and his PhD from the Max-Planck Institute of Metals Research.

Before joining FAU, Michael Zaiser was Professor of Mechanics of Materials and Head of the Institute for Materials and Processes at the University of Edinburgh. He is Associate Editor of the Springer-Nature Journal Materials Theory, of de Gruyter's Journal of the Mechanical Behavior of Materials, and of the IoP Journal of Statistical Mechanics.

The research interests of Michael Zaiser relate to dislocation theory and mechanical behavior of crystalline solids, and to modelling deformation and failure of materials with disordered microstructures. He has worked on a wide range of materials from geomaterials and geosystems over cellular materials and biomaterials to nanostructures and nanomaterials. Michael Zaiser has published over 150 articles in peer reviewed journals including Science, Nature Physics, and Nature Communications, Advances in Physics, and Physical Review Letters. According to Scopus he has received a total of 3,534 citations and his h-index is 30.

6. Brief Bios of RTP Chairs on Philosophy/Theology – Science/Technology – Music/Arts

Professor Stavros Baloyannis

Stavros Baloyannis is an Emeritus Professor of Neurology at Aristotle University of Thessaloniki. After his undergraduate and graduate education in medicine and theology at Aristotle University of Thessaloniki he continued his graduate and postgraduate studies on neurology, pathology and electron microscopy at the Institute of Neurology in London and at the Catholic Univeristy of Louvain in Europe, as well as at the University of Pennsylvania, Yale, and Harvard in US. His work on neuropathology and experimental neurology at Pennsylvania, neuroimmunology at Yale, and neurootology /neurootopathology at Harvard gained wide international recognition. He transferred this knowledge to Aristotle University where he became Head of the First Clinic of Neurology for the period 1992 – 2011. He has been a Visiting Professor of Neurology at Tufts University in US, and at the Democritus University in Greece, as well as Adjunct Professor of Theology at Aristotle University. He has participated in about 600 Neuro Congresses in Greece – in half of them as keynote speaker.

He is the author of 28 books on neurology/neuropathology/neuropsychology, as well as on neurology and the arts, on the history of neurology, and on neuroethics. His 8-volume treatise on neurosciences has been a textbook for undergraduate and graduate students in the medical schools of Greece. He is an author of over 700 articles published in Greek and international journals, a Chief Editor of the "Journal of Neurology & Stroke" and of "Brain & Nerves", and serves

in the Editorial Boards of 15 International Journals on Neurosciences. He is a member of 60 Greek and International Scientific Societies and a honorary member of the Academy of Hellenic Air force. He is President of the *Society of Amelioration of Quality of Life in Chronic Neurological Diseases*, as well as President of the *Orthodox Medical Association for Health & Medical Education in Asia and Africa*. He currently serves as Director of the *Research Institute for Alzheimer & Neurodegenerative Diseases.*

His research interests are in neuroethics, philosophy of neurosciences, music and the brain, as well as in the application of physics and mathematics in neurology and the arts. He has received 24 Gold Medals from Academic Institutions, the Hellenic Red Cross and the Orthodox Church of Greece. He holds the title of *Archon Actuarius of the Ecumenical Patriarchate of Constantinople*. He has also published two poetry collections.

CEO Florian Kongoli

Florian Kongoli [BSc (Honors), MSsA (Canada), PhD (Japan)] is CEO of FLOGEN Technologies Inc., in USA and Canada and Chairman of FLOGEN STAR OUTREACH.

He has about 20 years of rich scientific and technology experience through numerous invited engagements in all continents. He has worked with more than 60 well-known chemical and metallurgical companies and several well-known universities around the world.

Dr. Kongoli is has published 40 books and about 120 scientific articles in the last 5 years and has delivered in numerous countries about 200 plenary, keynote and invited presentations as well as articles, technical reports and research presentations. He has served in many leadership positions in national and international organizations.

Dr. Kongoli is an Elected Member of Euro Mediterranean Academy of Arts and Sciences (EMAAS) and member of the Industrial Achievement Award Committee of International Federation of Automatic Control. He is Editorial Board member of several International Journals.

He is and has been since 2003 President of the Organizing Committee of the Sustainable Industrial Processing Summits held almost every year in several countries around the world. In August 2017 he was Awarded “The Environmental Tech CEO of the year 2017” by CEO-Monthly magazine in UK.

7. Brief Bio of the Coordinator

Professor Elias Aifantis

Elias Aifantis was born on October 10, 1950 in Greece. Graduated from National Technical University (NTUA) of Athens in 1973 with a diploma in Mining and Metallurgy, awarded a PhD in 1975 from Chemical Engineering and Materials Science of the University of Minnesota (the fastest PhD without a Masters ever in that Department). He became an Assistant Professor of Theoretical and Applied Mechanics at the University of Illinois at Urbana-Champaign in 1976, which was dissolved soon after his resignation in 1980, when he went back to University of Minnesota as a visiting Professor. He joint Michigan Technological University (MTU) in 1982 as a tenured Full Professor at the age of 31 (the youngest ever appointed as such in Michigan). In 1990 he accepted a special honorary invitation/metaklisi to join Aristotle University of Thessaloniki (AUTh) where is his

basis until now. Since 2010 he is an Emeritus Professor of MTU. Currently, he is a Distinguished Visiting Professor at Beijing University of Civil Engineering and Architecture (and prior to that at Southwest Jiaotong University/China), as well as at Togliatti State University/Russia (and prior to that at ITMO/St. Petersburg). He was also a Distinguished Foreign Faculty Advisor at King Abdulaziz University – Jeddah (2011-14). His colleagues in mechanics, materials science and engineering recognized his contributions with two special Symposia: Joint ASME/ASCE/SES Symposium for his 55th birthday, 1-3 June 2005, Baton Rouge/USA and International Symposium for his 65th birthday & Fray International Sustainability Award (along with Nobel Laureate Ei-ichi Negishi) from Flogen Star Outreach, 4-9 October 2015, Antalya/Turkey.

He is included in the ISI Web of knowledge list of the world's most highly cited authors in engineering (3rd entry. A0086-2010-N out of 262). He has published over 330 articles and received about 11,318 citations with 52 h-index (Scopus). He has been supported from NSF,ARMY/ARO/NATO, US Academy of Sciences, European Commission, Greece, Japan, China and Russia with a total of about 15 million USD. His most recent project from the Ministry of Russian Federation on micro/nano objects with pentagonal symmetry belongs to the MegaGrant program launched by President Putin, a counterpart of the ERC program in EU.

The terms "dislocation patterning", "gradient plasticity, "gradient elasticity", "material instabilities", "chemomechanics" and "nanomechanics", first appeared in the scientific literature through his articles. This work is cited, among others, in important books by acclaimed authors as follows: *Chapter 89 of a book by M. Gurtin/E. Fried/L. Anand* "The Mechanics and Thermodynamics of Continua, Cambridge Univ. Press, UK, 2010" discusses his theory of gradient plasticity; *Chapter 6 of a book by Nobel Laureate I. Prigogine* (Honorary Doctorate of AUTh) and *G. Nicolis* "Exploring Complexity, Freeman, New York, 1989" discusses his approach with Walgraef (W-A model) on dislocation patterning; *Chapter 2.6 of a book by S. Suresh* "Fatigue of Materials, Cambridge Univ. Press, UK, 1991" and in Chapter 2.7.3 of its 2nd Edition, 2001 contains a summary of the W-A model for PSB formation in fatigued metals; *Chapter 3.1.1 of a book by M.Yu. Gutkin and I.A. Ovid'ko* "Plastic Deformation in Nanocrystalline Materials, Springer-Verlag, Berlin-Heidelberg-New York, 2004" discusses the application of his gradient elasticity theory to eliminate singularities from line defects; *A recent book by N. Ghoniem and D. Walgraef* "Instabilities and Self-Organization in Materials, Oxford Univ. Press, UK, 2008" discusses extensively the W-A model and his theory of gradient plasticity; *Section 10.6.3 of a most recent book by G.A. Maugin* (Honorary Doctorate AUTh) "Continuum Mechanics Through the Twentieth Centrury - A Concise Historical Perspective, Springer, 2013" includes him among 4 listed: the late Professor of NTUA and Academician P. Theocaris – former General Secretariat of Research and Development; the late Professor and Academy Corresponding Member P. Panagiotopoulos of AUTh; and the late Professor G. Lianis – Aifantis' predecessor of Mechanics at AUTh, former Minister of Greece and subsequently its Ambassador in Japan.

He has advised/co-advised a number of docs/postdocs and mentees of whom 15 and 30 respectively hold academic positions throughout the world. Among them are H. Zbib/D. Bamman, M. Zaiser/H. Askes and A. Romanov/M. Gutkin, leading distinguished professors in EU, US and Russia respectively. Influenced by Elytis (Nobel Laureate in Literature 1979) he published a poetry book Anazitisi/Quest in 1973 and encouraged by his wife Maria (a painter and former artist in residence of Athens Archeological Museum) he is promoting joint science/technology – music/art ventures: Their daughter Katerina, with a Masters from Cambridge/PhD from Groningen at the age of 21 and an ERC recipient at the age of 24 is an associate professor at the University of Florida – Gainesville; their son Elias, a musician with a Masters in electronic composition from the University of Edinburg is seeking new/untried acousmatic paths.