

Joint Event

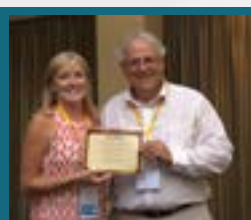
21<sup>st</sup> International Conference and Exhibition on  
**Materials Science and Chemistry**

**33<sup>rd</sup> Annual European Pharma Congress**

5<sup>th</sup> World Summit on  
**Renewable Energy**

March 13-14, 2023

Frankfurt, Germany



## Keynote Forum

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Bimal Roy Krishna, Glob J Res Rev 2023, Volume 11



**Bimal Roy Krishna**

Touro University Nevada, USA

### Current treatment guidelines for osteoporosis

Osteoporosis, a metabolic bone disease is associated with progressive reduction of bone density leading to bone fragility and increased susceptibility to fractures. In the United States it affects 10 million of the population; aged 50 or greater of which 2 million are men, the incidence and prevalence is much higher in post-menopausal women.

It is an asymptomatic condition, often diagnosed after a fracture typically of the hip, spine, pelvis or wrist. It is therefore essential that high risk patient be identified early in order to commence prophylactic measures. Diagnosis of osteoporosis measures bone mineral density particularly in the hip and lumbar spine and is done via Dual-Energy X-Ray Absorptiometry (DEXA scan). Thereafter T-scores are used to assess BMD and fracture risks.

While calcium supplementation and antiresorptives remain to be the corner stone of therapy, the overall approach has evolved significantly. This includes non-pharmacological management, lifestyle modifications, hormonal therapy, Parathyroid hormone (PTH) analogues and newer emerging therapies.

This presentation reviews the current treatment guidelines and individualized therapy.

### Biography

Bimal Roy Krishna currently holds the position of Professor and Director of Pharmacology and Chair-SPC at the College of Osteopathic Medicine-Touro University Nevada. He has been Adjunct Professor of Pharmacology for Kaplan Medical for the past 12 years where he has been actively involved in Step-1 USMLE and COMLEX reviews throughout the USA and in Mexico, Caribbean, Poland, India, UAE, South America and Saudi Arabia. In addition he is an Adjunct and Visiting Professor at various other national and international institutions.

**Received:** January 2, 2023; **Accepted:** January 4, 2023; **Published:** March 13, 2023



**Vitaly Petrovsky**

Ukrainian Academy of Science, Ukraine

### The effect of MXenes layers in solid multicomponent functional composites based on oxygen-free materials

**Statement of the Problem:** Multicomponent composites from advanced ceramics are obtained in multifactor technological processes. As a rule, the correlation "technological parameter-property" is quite illusory. This led to great risks of obtaining a composite with inappropriate properties. Our development of the process of creating 3-D macrostructure objects with a 2-D functional zone revealed a zone of increased efficiency, the explanations of which were too controversial. At the same time, the number of elements with high energy-saving properties was approximately 50% of the total number. But in 2011, the theory of MXenes appeared which, in combination with the theory of percolation, is able to explain the true nature of the high efficiency zone. The purpose of this study is to describe the experience of researching a large number of images of the microstructure of objects from zones in correlation with the properties of the object.

**Methodology & Theoretical Orientation:** Objects with a wide variation of technological parameters (time, temperature, environment, pressure) were prepared; then the physical properties of the obtained objects and their sorting according to the above groups were studied in detail. Among the objects of each group, electrical conductivity, its anisotropy, thermal surface load, thermo electromotive force and impedance were studied. Then, for each object, a quantitative analysis of the image of the microstructure was carried out.

**Findings:** The parameters of the 2D zone, namely the ratio of its width to its height, form the prerequisites for the flow of chemical reactions, as a result of which different types of nanostuctures, which were named MXenes are formed. In zone 2, ordered double transition metal MXenes are formed, famous for their unique energy-saving and energy-generating properties. The use of the described methodology allowed us to conduct non-destructive quality control for sorting objects by zone. And also produce heating elements with a high thermal surface load (up to 300 W/cm<sup>2</sup>), thermocouples for high temperatures (up to 2500 °C) and aggressive environments.

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## Biography

Vitaly Petrovsky has her expertise in evaluation and passion in improving ideas about the role of technological factors in the formation of the microstructure multicomponent functional composites based on oxygen-free compounds. He built his model after years of experience in research at their Institute, teaching at the Universities of Ukraine, Poland, France, Italy, China and administration in the USSR (1980-1685), in Germany (founder of Bach & Co GmbH 1994-1996), in Ukraine (Volyn Institute of [Materials Science](#) and Energy-saving from 2012). He first proposed the technology of ceramic composites with organized macrostructure, showed the advantages of their properties, previously explained the physical basis of such advantages and suggests that the reason for such features is the MXens formed in the technological cycle of consolidation. He, in fact, created a new methodology of: design-production-non-destructive quality control-application of advanced ceramics in power electronics.

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**Received:** November 28, 2022; **Accepted:** December 1, 2022; **Published:** March 13, 2023

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Nathdanai Harnkarnsujarit, Glob J Res Rev 2023, Volume 11

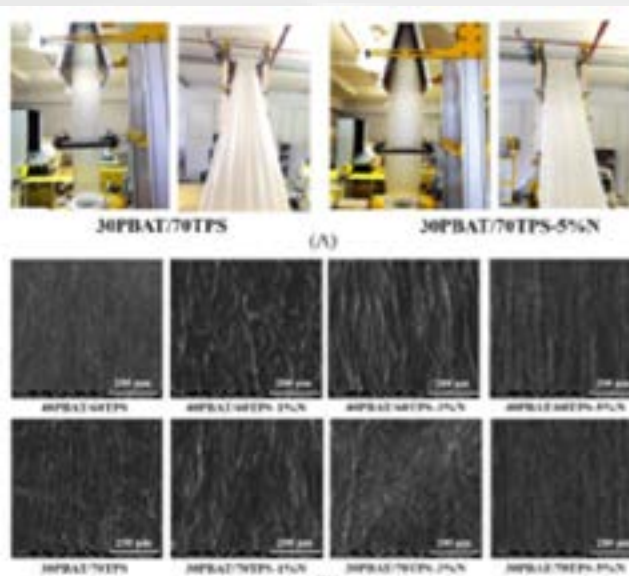


**Nathdanai Harnkarnsujarit**

Kasetsart University, Thailand

### Functionalized biodegradable polymers with antimicrobial for sustainable food packaging

**B**iodegradable polymers have been largely produced and utilized for flexible and rigid packaging which support consumers' requirement on sustainability and environmentally friendly. However, these sustainable materials have poor barrier properties which are a major limitation for utilization as food packaging. Microbial growth is a primary concern for quality deteriorations of packaged food with high water activity. Decontamination of microorganisms on food surface possibly delays quality loss and ensure safety for consumers. The purpose of this study is to demonstrate incorporations of antimicrobial into biodegradable polymers via extrusion process to produce functional packaging. Characterizations of packaging materials including morphology, properties and antimicrobial efficiency are demonstrated. The biodegradable polymers including Thermo Plastic Starch (TPS), Polybutylene Adipate Terephthalate (PBAT) and Poly Lactic Acid (PLA) were compounded with antimicrobial agents (sodium nitrite, Galangal essential oils) via a twin-screw extruder to produce the compound pellets prior to convert into films with either single-screw blown-film extrusion or cast sheet extrusion. Results showed that nitrite increased disruption of starch granules in TPS/PBAT blends which modified morphology and mechanical properties. Smoother microstructures in nitrite incorporated films reflected improved compatibility between TPS and PBAT polymer blends. Moreover, nitrite plasticized TPS phase due to hydrophilicity. Similarly, lesser galangal essential oils served as plasticizers in PBAT/PLA blend matrices with slight modifications of morphology. Increasing these active agents commonly gave larger modification of morphology which subsequently impacted packaging properties. The films containing sodium nitrite and Galangal essential oils effectively delayed microbial growth in fresh meat and cooked rice, respectively. The functionalized of antimicrobial agents into biodegradables polymers effectively produced food packaging which can extend the shelf-life of packaged products, reducing food loss for sustainability [Figure 1].



**Figure 1.** Structures of the 40PBAT/60TPS and 30PBAT/70TPS blend films containing 0,1,3 and 5% nitrite (N) in TPS (A) during blown-film extrusion processing and (B) scanning electron micrographs.

## Biography

Nathdanai Harnkarnsujarit is an Associate Professor in Packaging Technology. He got PhD in Food Science in 2012 from Kasetsart University, Thailand. During his PhD, he did research at University College Cork, Ireland in 2011 about Food [Material Science](#). After getting PhD, he went to Tokyo, Japan for post-doctoral research at Tokyo University of Marine Science and Technology from 2012-2014. Then, he started his academic career at Kasetsart University. His current research and expertise are food packaging and biodegradable packaging. He is the authors of more than 40 international publications and 3 Book chapters. He serves as reviewer for several publishers including Elsevier and Wiley and has been an Editor for the Journal of the Science of Food and Agriculture (Q1), Wiley publishing since 2015. He is now Vice Dean for Research and Innovation, Faculty of Agro-Industry, Kasetsart University.

**Received:** December 10, 2022; **Accepted:** December 13, 2022; **Published:** March 13, 2023

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Wael k. Ali , Glob J Res Rev 2023, Volume 11



**Wael k. Ali**

Al-Azhar University, Egypt

### The pharmacy transformation in the Eastern Mediterranean Region: Example from Egypt

A fundamental goal of pharmacy transformation is to enhance patient and pharmacist experience by allowing a flexible bidirectional healthcare exchange. Success lies in a pharmacist's ability to create pharmacy interactions that place patients top of mind. The pharmacy becomes patients oriented in parallel with medicine oriented.

The complete change or transformation of the pharmacy depends on two pillars First pillar is Pharmacy Education and second pillar is pharmacy workforce.

Transforming pharmacy in Middle East countries specially, Egypt, We will focus on change and transforming the pharmacy in Egypt, Middle East countries and African countries as well in education, workforce, advocacy, regulations and practitioners.

In Egypt around 300,000 licensed pharmacists, 53 schools of pharmacy and more than 75,000 pharmacy students. That makes all early career pharmacists eager to learn more and more about the new pharmacy specialties.

That makes a pharmacy workforce concept fundamental to help all those pharmacists to survive. Or they don't have any options except career shift.

Passion for pharmacy innovation and their need to work combined with early age are the main reasons to make new pharmacy specialties grow very fast.

We look at scientific and technological innovations occurring around the world and the new pharmacy specialties over the world and how to adapt to Egyptian pharmacy system.

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## Biography

Wael k. Ali is affiliated to General Secretary of EMRO pharm Forum-International Pharmaceutical federation (FIP) and President of Egyptian organization of pharmacy, Egypt. He is a recipient of many awards and grants for his valuable contributions and discoveries in major area of subject research. His international experience includes various programs, contributions and participation in different countries for diverse fields of study.

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**Received:** January 30, 2023; **Accepted:** February 1, 2023; **Published:** March 13, 2023

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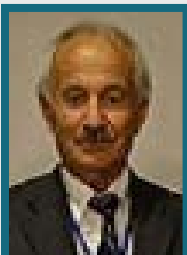
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Adiguzel O, Glob J Res Rev 2023, Volume 11



**Adiguzel O**

Firat University, Turkey

### Structural reactions and functional characterization of shape memory alloys

Metals and metallic alloys exist different crystal phases at the different temperatures and pressures with crystal structures depending on alloy compositions. Crystal structures of these alloys turn to other structures with variation of temperature and stressing by means of crystallographic transformations. A series of alloy system take place in a class of advanced smart materials with the stimulus response to external effect. Shape memory alloys take place in this class by exhibiting a peculiar property called shape memory effect. This phenomenon is characterized by the recoverability of two certain shapes of material in reversible way at different conditions. These alloys are used as shape memory devices in many fields from medicine, biomedical to the building industry. Shape memory effect is initiated on cooling and deformation and performed thermally in a temperature interval on heating and cooling, with which shape of materials cycles between original and deformed shapes in reversible way. Therefore, this behavior is called thermo elasticity.

This phenomenon is governed by structural transformations thermal, and stress induced martensitic transformations. Thermal induced martensitic transformation occurs on cooling with cooperative movements of atoms by means of lattice invariant shears in  $\langle 110 \rangle$ -type directions on the  $\{110\}$ -type planes of austenite matrix and ordered parent phase structures turn into the twinned martensite structures, along with lattice twinning. Twinned structures turn into the detwinned martensite structures by means of stress induced martensitic transformation with stressing. Movements of atoms are confined to interatomic distances. Therefore, these transformations have diffusion less character.

These alloys exhibit another property, called super elasticity, which is performed with stressing and releasing in elasticity limit at a constant temperature in parent phase region, and shape recovery is performed instantly and simultaneously upon releasing the applied stress, by exhibiting elastic material behavior. Stress-strain profile is nonlinear in stress-strain diagram, also stressing and releasing paths are different, and hysteresis loops refers to energy dissipation, and these alloys can be used in building industry against seismic events with this property.

Copper based alloys exhibit this property in metastable  $\beta$ -phase region which has bcc-based structures. Lattice invariant shear and twinning is not uniform in these alloys and gives rise to the formation of complex layered structures. These structures can be described by different unit cells as 3R,9R or 18R depending on the stacking sequences.

In the present contribution, X-ray diffraction and Transmission Electron Microscopy (TEM) studies were carried out on copper based CuAlMn and CuZnAl alloys. X-ray diffraction profiles and electron diffraction patterns exhibit super lattice reflections. X-ray diffractograms taken in a long-time interval show that diffraction angles and peak intensities change with aging duration at room temperature. This result refers to the rearrangement of atoms in diffusive manner.

**Keywords:** Shape memory effect, Martensitic transformation, Thermo elasticity, Super elasticity, Twinning, Detwinning.

## Biography

Adiguzel O graduated from Department of Physics, Ankara University, Turkey in 1974 and received PhD degree from Dicle University, Diyarbakir-Turkey. He has studied at Surrey University, Guildford, UK, as a post-doctoral research scientist in 1986-1987, and studied were focused on shape memory effect in shape memory alloys. His academic life started following graduation by attending an assistant to Dicle University in January 1975. He became professor in 1996 at Firat University in Turkey, and retired on November 28, 2019, due to the age limit of 67, following academic life of 45 years. He supervised 5 PhD theses and 3 M.Sc-theses and published over 80 papers in international and national journals; He joined over 120 conferences and symposia in international level with contribution. He served the program chair or conference chair/co-chair in some of these activities. Also, he joined in last six years (2014-2019) over 60 conferences as Keynote Speaker and Conference Co-Chair organized by different companies. Additionally, he joined over 70 online conferences in the same way in pandemic period of 2020-2021. He served his directorate of Graduate School of Natural and Applied Sciences, Firat University, in 1999-2004. He received a certificate awarded to him and his experimental group in recognition of significant contribution of 2 patterns to the Powder Diffraction File–Release 2000. The ICDD (International Centre for Diffraction Data) also appreciates cooperation of his group and interest in Powder Diffraction File.

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**Received:** October 19, 2022; **Accepted:** October 21, 2022; **Published:** March 13, 2023

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