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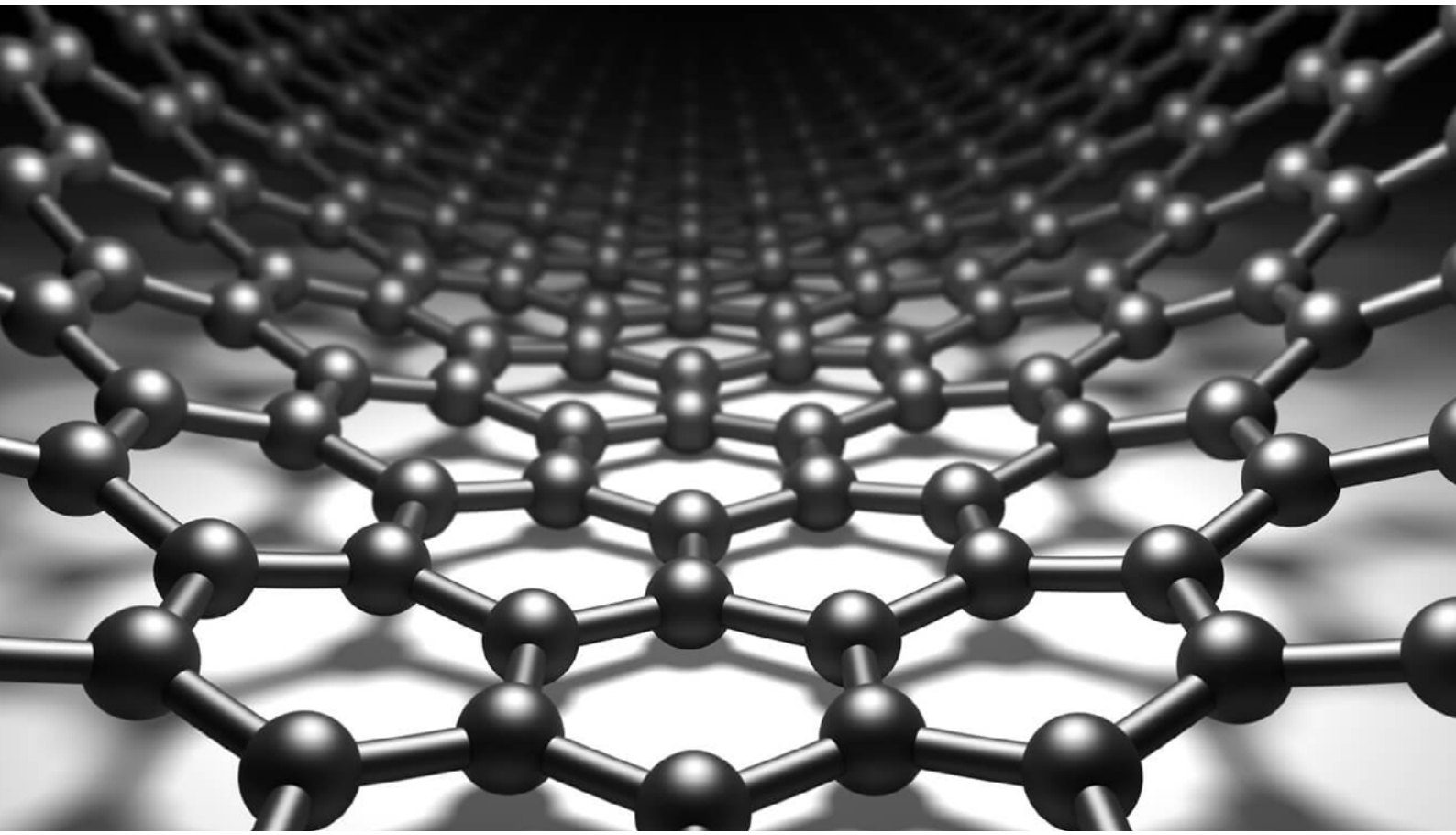
RESEARCHERS WORLD..

Webinar on

GRAPHENE & CARBON MATERIALS

JUNE 07 - 2021



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Phronesis strives to disseminate the scientific knowledge and research through its conferences and Webinars. We organize international conferences across different places in the world, with an aim to provide an excellent forum for upcoming young researchers, scientists, professors and other highly affiliated people to share their research in the particular field. Currently, Phronesis focuses mainly in the fields of Engineering, Physics, Chemistry, Life Sciences, Medical, and Pharmaceutical fields. Our aim is to explore the research information globally to all the people in the scientific community that encompasses the knowledge in all the fields, through organizing the conferences in different parts of the world. Phronesis maintains its standards and creates a unique position, in the scientific community by motivating the researchers all around the world.Our goal is expansion of the knowledge in science and its discoveries that leads its way to new inventions which structures brilliant benefits and for humans in their lives.

Vision

Interconnecting the scientific world through organizing the conferences and Webinars.

What we do

Phronesis has been established with an aim to organize standard and productive conferences across the globe to bring world class researchers on unique platform and to explore the interdisciplinary research activities. We aspire to expand the knowledge in science and its discoveries that leads its way to new inventions which structures brilliant benefits and for betterment in human lives.

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Scientific Program

Webinar on

Graphene & Carbon Materials

Monday
June 07, 2021

Day 1 - June 07

Keynote Forum

10.00-10.30	Title: Improving the Fatigue of Newly Designed Mechanical System Subjected to Repeated Impact Loading **Seongwoo Woo,** Addis Ababa Science and Technology University, Ethiopia
10.30-11:00	Title: Ferromagnetism in Transition Metal Dichalcogenides **Eui-Hyeok Yang,** Stevens Institute of Technology, USA

Eye Relaxation Break @11.00-11.10

Sessions

Sessions: Nanomedicine - Physics, Chemistry & Biology | Nanomedicine| Graphene And its Applications | Nano carbon Materials

11.10-11.30	Title: Evidence of Viral Particles Bio-Signature's link to Atmospheric Charging, other Environmental Factors and Derivation of Predictive Contagion Moment Operators **Kaspareck K Federico,** Energy & Engineering Consulting, GR, Ialy
11.30-11.50	Title: Molar Volume and Total Energy Behavior of ZnO Zinc Blend Structure a Phase Transition Study a Computational Prediction **Y. Chergui,** IGEE Boumerdes University, Algeria
11.50-12.10	Title: Evaluation of the Cytotoxicity and Apoptotic Effects of Nano Triple Antibiotic Paste with Nano Anti-Inflammatory Drug as an Intracanal Medicament **Yousra Nashaat,** October 6 university, Egypt

Eye Relaxation Break @12.10-12.20

12.20-12.40	Title: Developments in the Semiconductor Biomedical Sensor for Health Applications **Usman Masud ,**University of Engineering and Technology, Taxila, Pakistan
12.40-13.00	Title: CNT for Reinforcing of Engineered Material **Vahid Mottaghitalab,** University of Guilan, Iran
13.00-13.20	Title: Role of Graphene-Based Nanofluids in Increasing Efficiency of Direct Absorption Solar Collectors **Masoud Vakili,** Iran University of Science and Technology, Iran
13.20-13.40	Title: Humic acid Removal by a Novel Fabricated Antifouling Carbon Nanotube Membrane **Amir Hossein Mahvi,** Tehran University of Medical Sciences , Iran

Sessions: Materials Science and Engineering | Smart Materials and Applications | Advanced Materials and Nanotechnology | Nanomaterials and Nanoparticles

13.40-14.00	Title: Detection of Hazardous Gases using Platinum Loaded Nanostructured ZnO Thick Films **Anil Ramdas Bari,** Arts, Commerce and Science College, Maharashtra, India
14.00-14.20	Title: Synthesis, Growth and Characterization of Organic Nano Crystals for Anti-Diabetic Applications **Divya. R,** S.T.Hindu College, Tamilnadu, India

Scientific Program

Webinar on

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Monday
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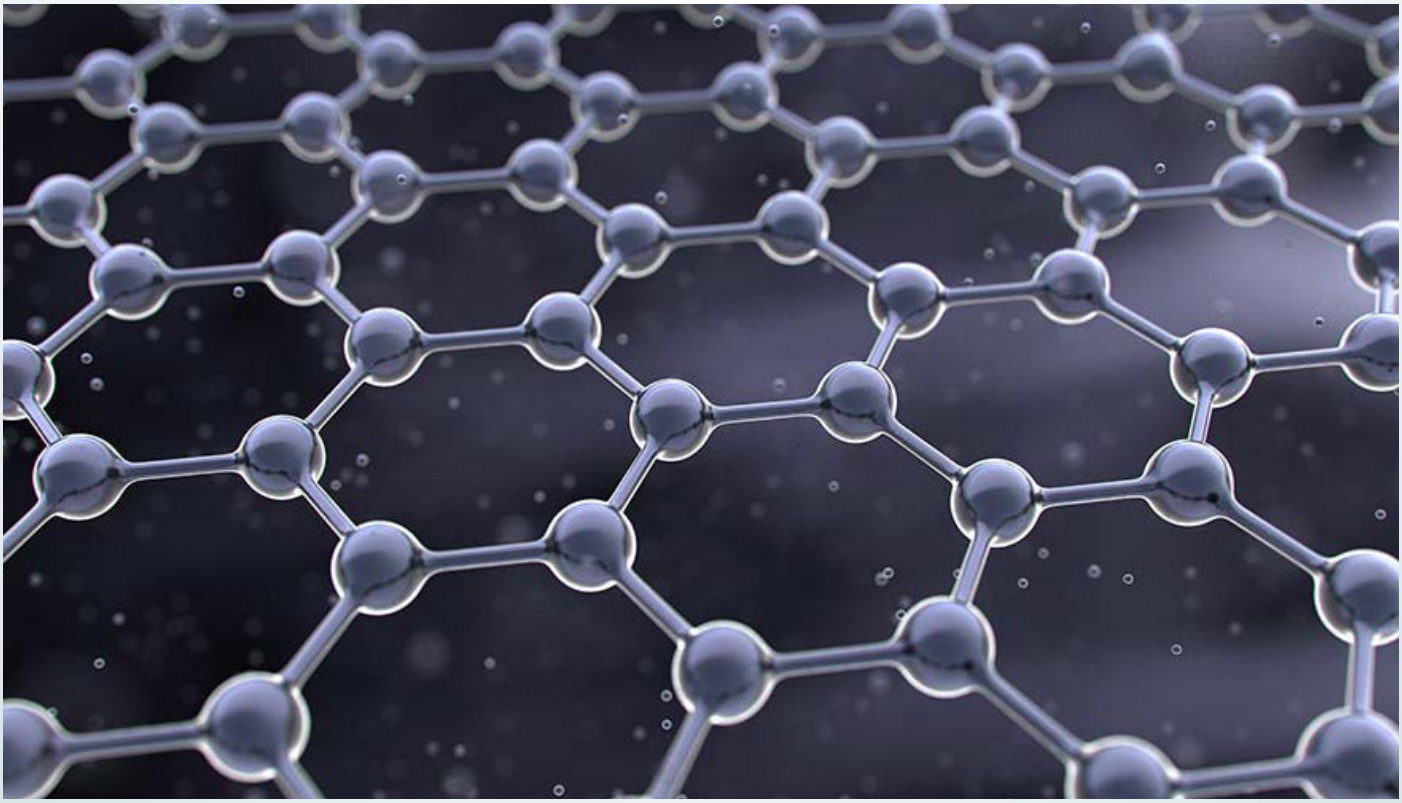
14.20-14.40	Title: Melt Extruded Calcium Carbonate/Talc Polypropylene-Based Microporous Membranes: The Comparison and Evaluation of Thermal Behavior, Pore Morphology, and Permeability Properties **Kian Habibi,** Persian Gulf Star Oil Company, Iran
14.40-15.00	Title: Microbes as a Source of Nanoparticles for Target Drug Delivery **Amit Arora,** Shaheed Bhagat Singh State University, Ferozepur, India
	Posters 15.00 Onwards
P-001	Title: Modifying Cement Properties with Carbon Nanotubes: a Molecular Dynamics Study **Isabel Lado-Touriño,** Universidad Europea de Madrid , Spain
P-002	Title: Electrical Characterization of the Graphene Ribbons at Low Temperatures **Riad Remmouche,** Mohamed Seddik Benyahia University, Jijel, Algeria
P-003	Title: A Novel Method for Producing Advanced Nanoparticles **Yeuh-Hui Lin,** Kao Yuan University , Taiwan
P-004	Title: Cavitation Resistance of Poly (Vinyl Butyral) Composite Films Reinforced with Silica Nanoparticles **Vera Obradović,** Innovation Center of Faculty of Technology and Metallurgy LTD, Serbia
P-005	Title: Investigation of Carbon Nanowalls Grown onto Various Substrates by ECR-MPCVD Method **Ozlem Celikel,** Cukurova University , Turkey
	End of Day Session



Day-1
Keynote Session

Webinar on

Graphene & Carbon Materials

June 07, 2021

Improving the Fatigue of Newly Designed Mechanical System Subjected to Repeated Impact Loading

Seongwoo Woo

[1]Department of Mechanical Engineering, College of Electrical and Mechanical Engineering, Addis Ababa Science & Technology University, Ethiopia

[2]Department or Division Name, Organisation/Affiliation, City, State, Country.

To Improving the fatigue of newly designed mechanical system subjected to repeated loading, this paper develops parametric accelerated life testing (ALT) as a systematic reliability method to produce the reliability quantitative (RQ) specifications—mission cycle—for recognizing missing design defects in mechanical products as applying the accelerated load. Parametric ALT is a way to enhance the prediction of fatigue failure for mechanical systems subjected to repeated impact loading. It incorporates: (1) A parametric ALT plan formed on the system BX lifetime, (2) a fatigue failure and design, (3) customized ALTs with design alternatives, and (4) an assessment of whether the last design(s) of the system fulfils the objective BX lifetime. A BX life concept with a generalized life-stress model and a sample size equation are suggested. A domestic refrigerator hinge kit system (HKS), which was a newly designed mechanical product, was used to illustrate the methodology. The HKS was subjected to repeated impact loading resulting in failure of the HKS in the field. To conduct ALTs, a force and momentum balance was utilized on the HKS. A straightforward impact loading of the HKS in closing the refrigerator door was examined. At the first ALT, the housing of the HKS failed. As an action plan, the hinge kit housing was modified by attaching inside supporting ribs to the HKS to provide sufficient mechanical strength against its loading. At the second ALT, the torsional shaft in the HKS made with austenitic ductile iron (18 wt% Ni) failed. The cracked torsional shaft for the 2nd ALTs came from its insufficient rounding, which failed due to repeated stress. As an action plan, to have sufficient material strength for the repetitive impact loads, the torsional shaft was reshaped to give it more rounding from R0.5 mm to R2.0 mm. After these modifications, there were no problems at the third ALT. The lifetime of the HKS in the domestic refrigerator was assured to be B1 life 10 years.

Biography

Dr. Woo has a BS and MS in Mechanical Engineering, and he has obtained PhD in Mechanical Engineering from Texas A&M. He major in energy system such as HVAC and its heat transfer, optimal design and control of refrigerator, reliability design of mechanical components, and failure Analysis of thermal components in marketplace using the Non-destructive such as SEM & XRAY. Especially, he developed parametric accelerated life testing (ALT) as new reliability methodology. If there is design fault in the mechanical system that is subjected to repetitive stress, it will fail in its lifetime. Engineer should find the design faults by parametric ALT before product launches. In 1992–1997 he worked in Agency for Defense Development, Chinhae, South Korea, where he has researcher in charge of Development of Naval weapon System. In 2000-2010 he had been working as a Senior Reliability Engineer in Side-by-Side Refrigerator Division, Digital Appliance, SAMSUNG Electronics, where he focused on enhancing the life of refrigerator as using parametric the accelerating life testing. Now he is working as associate professor in mechanical department, Addis Ababa Science & Technology University.

Ferromagnetism in Transition Metal Dichalcogenides

Professor EH Yang

[1]Department of Mechanical Engineering,
[2]Center for Quantum Science and Engineering Stevens Institute of Technology, USA

I will present the chemical vapor deposition-growth, doping, and magnetism of two-dimensional (2D) transition metal dichalcogenides (TMDs). While the lack of bandgap is a serious limitation for graphene use in electronic devices, reports have shown up-and-coming prospects of using TMDs in electronics and optoelectronics because of their unique properties, which complement graphene. In particular, 2D atomic crystals exhibiting magnetic properties provide an ideal platform for exploring new physical phenomena in the 2D limit, representing a substantial shift in the ability to control and investigate nanoscale phases. Experimental studies have shown doping of dissimilar atoms into TMDs to create 2D dilute magnetic semiconductors, which are promising candidates for spintronics applications. However, the success of these previous attempts was limited, resulting in either a Curie temperature well below room temperature or lacking scalability for practical integration into devices. Our work demonstrates a 2D dilute magnetic semiconductor at room temperature via an in situ synthesis and characterization of Fe-doped TMD monolayers. We simultaneously achieve the substitutional doping of Fe and the growth of MoS_2 and WS_2 monolayers and show that Fe incorporates substitutionally into Mo and W lattice sites and probes ferromagnetism in Fe:MoS_2 at room temperature. This new class of van der Waals ferromagnets finds critical applications, including on-chip magnetic manipulation of quantum states or spintronics.

Biography

Dr. EH Yang is a Professor of the Mechanical Engineering Department at Stevens Institute of Technology. The first to receive a MEMS Ph.D. in South Korea, he joined Stevens in 2006 following tenure as a senior member of the engineering staff at NASA Jet Propulsion Laboratory, where he was awarded, among other honors, the Lew Allen Award for Excellence in 2003. Through the Stevens Micro Device Laboratory, he facilitated student research and hands-on education in emerging nanotechnologies and spearheaded Stevens' first undergraduate nanotechnology research training program. Dr. Yang's professional service credits include editorial board positions for several journals, including Scientific Reports and IEEE Sensors Journal. He received the Award for Research Excellence at Stevens in 2019 and the IEEE Technical Achievement Award (Advanced Career) from the IEEE Sensors Council in 2020. Dr. Yang is a Fellow of the National Academy of Inventors. He is also a Fellow of the American Society of Mechanical Engineers.

Day-1 Sessions

Evidence of Viral Particles Bio-Signature's link to Atmospheric Charging, other Environmental Factors and Derivation of Predictive Contagion Moment Operators

K F Kaspareck

1Energy & Engineering Consulting, GR, Ialy

Strong similarities were observed between SARS II signature and wave numbers of air oxides at onset of outbreak in Hubei and Padana basins. The two areas correlate closely geographically, for micro distribution population - infrastructural density, type and intensity distribution of pollutants. Similar spread correlations were noticed in other affected areas.

Thermodynamic signatures were computed from material absorption and refractive indexes (near field) - air to plastic to metal - and from the observed contagion spread function (far field). These were in good agreement and used for spread time decay computation.

Near field modalities appear to replicate in the evanescent field. Far field or spread's thermodynamics mirrors particles materials dispersion and NOx absorption signatures. Attenuation derived from lab measurements match decay indicating Equilibrium Thermodynamics.

The contagion appears to develop over a narrow light angles – orbital window and stabilizes later beyond critical angle along a thermodynamic "flat". It correlates over the period with Q1 all angles incoming radiation and with earth moment, with flex high near full moon.

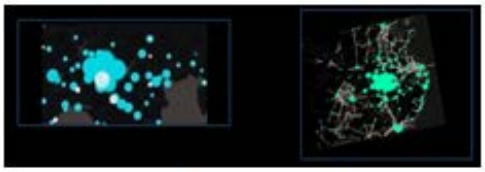
The contagion function overlaps well with general Estimated Fetal Weight (EFW) damping function, thus bound water relaxation. Moon, orbital forces - total irradiation and critical angle – appear as inertial forces and boundaries of the viral wake-field over a narrow Earth moment window, or optical aperture.

Refractive indexes of SARS, Albumin solutions and Nitrogen oxides are close, so are their absorption and dispersion bandwidths. Signature's thermodynamics indicates compatibility with atmospheric charges - electromagnetically space organized - and compatible with ionic membrane-cellular exchange. Particle resonances indicate THz band.

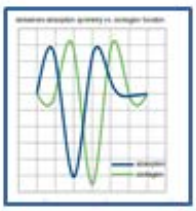
Analysis of second contagion event was complicated at onset by a solar-magnetic storm. However, contagion back scatter development repeated well as for speed and thermodynamic stabilization, allowing derivation of predictive operators of spread development in space and time.

Viral thermodynamic signature links to materials and atmospheric components valence, near and far field signature similarity indicates that near and far field moments are much closer than it would be expected. Correlations may be extended to infrastructure potentials and indicate the likelihood of chain electro-chemical development.

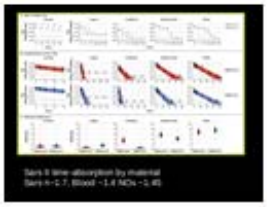
Far and near field signatures and physics led to conclude that low frequencies convergence in the near field, spread moves towards lower frequencies in time at constant velocity, or increasing group velocity up to opticalflat.



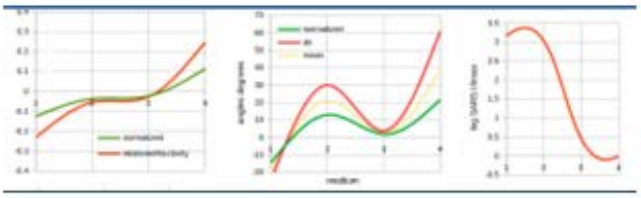
Viral spreads Padana and Wuhan basins



Near and Far field signatures



Laboratory dispersion



Refractive indexes derivations

Biography

Education and work background in applied earth physics, signal analysis-processing and petroleum engineering. Institutional expert and auditor for energy and infrastructural projects, R&D, Disruptive technologies, most recently, AI medical and bio metric applications, modeling and telemedicine, related business and supply models.

Molar Volume and Total Energy Behavior of ZnO Zinc Blend Structure a Phase Transition Study a Computational Prediction

Y. Chergui[1,2*], T. Aouaroun[3,4], R. Chemam[1]

[1]Physics Department, Badji Mokhtar University, Sidi Ammar, Annaba 23000, Algeria
[2]IGEE Institute, University M'Hamad Bougara of Boumerdes, Boumerdes 35000 Algeria
[3]Faculty of Science, Physics Department, University M'Hamad Bougara of Boumerdes, Boumerdes 35000, Algeria
[4]Unité de Recherche (UR-MPE), University M'Hamad Bougara of Boumerdes, Algeria

In order to see the effect of extended pressure and temperature, on molar volume, total energy, and phase transition of Zinc Oxide Zinc Blende type; we use the technique of molecular dynamics and DL_POLY_4 to run the calculations on RAVEN supercomputer of Cardiff University in UK. We choose 5832 atoms, where the interatomic interaction are modeled by Coulomb-Buckingham potential. The range of pressure and temperature are 0-200GPa and 300-3000K respectively, we focus on the effect of the previous conditions of pressures and temperatures on the molar volume, total energy, and the phase transition of Zinc Oxide, using equilibrium time of molar volume as a new method to confirm the phase transition. Although no more data under these conditions, our results are in agreement with available information. This work has great importance in different field of industry especially in pharmacetics and medcine.

Biography

Yahia CHERGUI is a lecturer in Electrical & Electronics Engineering Institute, Boumerdes Algeria. He has completed his PhD from Badji Mokhtar University in Annaba, Algeria. He did all his PhD work in Cardiff University in UK. His research field is Physics(condensed matter, simulation by molecular dynamics). He has many published articles and international conferences. He has been serving as a referee with condensed matter journal (IOP), Energy journal (Elsevier), and recently accepted to be a reviewer of American Journal of Modern Physics since 20/11/2018.

Evaluation of the Cytotoxicity and Apoptotic Effects of Nano Triple Antibiotic Paste with Nano Anti-Inflammatory Drug as an Intracanal Medicament

Presenter and Main author: Yousra Nashaat: Professor of Endodontics, faculty of dentistry October 6 University
Co-Authors: Hadil Sabry: Associate professor of dental biomaterials, faculty of dentistry October 6 University
Soha Ahmed: Associate prof of General biology and genetics faculty of dentistry October 6 University

Objective: The aim of this study is to compare the cytotoxicity of triple antibiotic paste (TAP) with an anti- inflammatory drug (TAP+Catafast-TAPC) in nano and regular formulations versus calcium hydroxide as intra- canal medicaments.

Methods: The TAPC drugs extraction were made in cell culture media MEM-E (Eagle's minimal essential medium) using concentration of 10 mg/mL of each sample for seven days. Inhibitory concentrations (IC50 val- ues) were determined for each extract. A human fibroblasts cell line was used to evaluate the cytotoxicity of different concentrations (10, 0.625 and 0.07 mg/mL) using MTT essay. The cell viability was measured after 24 h, 48 h and 7 days for all concentrations of the drugs. Flow cytometry analysis was carried out to identify the effect of materials on apoptosis/necrosis. Statistical analysis for the obtained results was done by one-way ANOVA.

Results: The results revealed that cell viability was inversely proportional to the duration of treatment in all of the groups. Calcium hydroxide (Control group) demonstrated a significantly greater cytotoxic effect, followed by Nano Triple Antibiotic Paste with Catafast as an anti-inflamatory drug (Nano TAPC), while Triple Antibiotic Paste with Catafast (TAPC) had the least cytotoxic effect. Nano TAPC has the greatest apoptotic value, while TAPC had the least when compared with the reference group, with no significant difference between groups ($P<0.05$).

Conclusion: The cytotoxic effect of Nano TAPC was lower than that of calcium hydroxide and higher than that of TAPC. Although Nano TAPC has the highest apoptotic value when compared to TAPC and calcium hydroxide but still there is no statistically significant difference between them.

Keywords: Apoptosis, cytotoxicity, flow cytometry, MTT, Nano TAPC, Root canal

Biography

Dr Yousra Nashaat was graduated on 2001 from faculty of Dentistry, Cairo University, she joined the endodontic departement October 6 University, Egypt on 2003, she obtained her masters degree in endodontics in 2007 and her PhD degree in the same speciality in 2010 both from faculty of dentistry Cairo,Egypt and obtained the position of assistant prof of endodontics in the endodontic departement, october 6 university by then. she was promoted to Assistant professor in same speciality and institute on 2016, also promoted to a full professor and occupied the position of head of endodontic departement in the same institute on 2021. She published more than 17 articles which included studies on the efficiency of the use if the nanomatetials in root canal treatment procedure success.

Developments in the Semiconductor Biomedical Sensor for Health Applications

Usman Masud[1] and Momna Ikram[2]

[1]University of Engineering and Technology, Taxila, Pakistan
[2]Biomedical Research Consultant, Islamabad, Pakistan

Based on the cutting edge absorption spectroscopy, one of the ways to identify the performance of a dual mode optical sensor designed for breath analysis is by its temporal behaviour. This work sets ablaze the essential time resolved measurements and expects to hunt indispensable information.

Since the said sensor has to be destined for a medical entity, it is mandatory to interrogate the existence of both modes in minute intervals which becomes the burning question of this work, thereby bridging it with previous investigations.

This would help guarantee the stable operation of the system and paves the way for ring down spectroscopy, a combination of two mighty tools. As the existing setup is unable to acquire time based information, it has to be supplemented by additional devices. The selection of device has not been easy, as the system tends to be very sensitive in terms of its operation. Fibre based system has been prioritized due to its practical viability and operation in the form of an optical modulator.

Intuition suggests that transmission path lengths hold prime importance for satisfactory experimentation as all signals should adequately synchronize on the measurement equipment. This has been carefully done before the commencement of each experimental measurement that facilitates precise results in the said slots.

To wind up, mode competition has been examined in the light of successful temporal investigation, and has unfolded substantial dependence on system's parameters. This enhances guidelines for future work and closes in the chase to comprehend the overall optical sensor setup.

Biography

Usman Masud, Senior Researcher.
Usman Masud (ORCID: 0000-0003-1067-4415) did his B.Sc. in electrical engineering from University of Engineering and Technology, Taxila, in 2005. Then he proceeded to Germany to do his M.S. in electrical engineering in 2010, and culminated his research work in the form of Ph.D in 2014. His areas of expertise include laser systems, biomedical sensors, spectroscopic applications and wireless networks. He has been involved in multiple research areas at the moment and finds deep interest in laser based biomedical applications. He has been an active member of Verband der Elektrotechnik, Elektronik und Informationstechnik e.V. (VDE) for several years.

CNT for Reinforcing of Engineered Material

Vahid Mottaghitalab

[1]Department of Nanotechnology, University of Guilan, Rasht, Guilan, Iran

The mechanical properties (stiffness, strength and toughness), electrical properties (semi conducting or metallic behavior), very high aspect ratio and surface area of CNTs materials as compared to other material allow many applications in actuators, sensors, batteries or super capacitors and various electronic devices.

The combination of carbon nanotubes with a range of material offers many advantages not only to reinforce the physical properties of the host material but also to introduce new electronic and magnetic properties based on morphological modification or electronic interaction between the two components.

This work trying to represent part of self-scientific experience regarding to development and characterization of CNT composite engineered materials. The presentation also intends to give an outlook to CNT for multifunctional material and structures.

Biography

Dr. Mottaghitalab joined to Tarbiatt Modarres University (TMU) and received MS.c. degree of chemical engineering in 1994. He could successfully start his academic job in University of Guilan from 1994 till today. The IPRI&ACES center of excellence for nanostructured electromaterials, University of Wollongong, Australia was hosted him as PhD student and he was graduated in 2006. He obtained the position of Professor at the university of Guilan in 2020 after 14 years tremendous research about smart material and structure by focus on hybrid material containing CNTs. He has published more than 50 research articles in recognized ISI journals.

Role of Graphene-Based Nanofluids in Increasing Efficiency of Direct Absorption Solar Collectors

Masoud Vakili[1], Shirin Riahi[2], Elham Abedini[3]

[1]Graduate of Department of Mechanical Engineering, Iran University of Science and Technology, Tehran, Iran
[2]Department of Physics, Shahid Beheshti University, Evin, Tehran, Iran
[3]Department of Photonics, Laser and Plasma Research Institute, Shahid Beheshti University, Evin, Tehran, Iran

Nowadays, almost all countries and societies worldwide are facing energy challenges for the future due to population growth and the dependence of industry and technology on nonrenewable fossil energy. Moreover, the detrimental effects of fossil fuels on the environment and public health are the main reasons for finding suitable alternatives. Among different kinds of renewable energy sources, solar energy is the best substitution as it is clean and green and sustainable. Conventional solar thermal collectors require a solid surface for absorbing and converting incoming solar energy into valuable thermal energy, while in recent decades, volumetric absorbers have attracted researcher's attention as instead of limitation to the surface for passing the light beams use fluid volume also the emitted heat from hot surfaces can be collected. Therefore, selecting appropriate working fluid is vital in volumetric collectors and direct absorption for optimizing the direct absorption mechanism in solar collectors. Due to the importance of using nanofluids in thermal exchangers, including solar collectors, many studies have been done on the effect of nanoparticles, both metallic and non-metallic, on increasing the efficiency of this type of collectors. In recent years, most research has been carried out on carbon-based structures, particularly single-layer and multilayer graphene nanoplatelet, graphene oxide nanosheets which are the working particle of nanofluids. In this study, recent developments for improving the efficiency of direct absorption solar collectors using graphene-based nanofluids are thoroughly discussed. A comprehensive study has been conducted on the preparation method, thermophysical and photo-thermal properties of graphene and graphene oxide nanofluids to achieve this goal. In the end, issues and challenges of using this type of nanofluid in direct absorption solar collectors are also presented.

Biography

Mr. Masoud Vakili studied Mechanical Engineering at the Iran University of Science and Technology, Tehran, Iran as MS in 2015. He then joined the research group of Prof. Seyed Mostafa Hosseinalipoor, at the Energy, Water and Environment Research Laboratories of Iran University of Science and Technology as research assistance. He has published more than 10 research articles in ISI journals.

Humic Acid Removal by a Novel Fabricated Antifouling Carbon Nanotube Membrane

Ali Jafari[1], Amir Hossein Mahvi[2]

[1]Department of Environmental Health Engineering, School of Public Health, Lorestan University of Medical Sciences, Khoramabad, Iran
[2]School of Public Health, and Center for Solid Waste Research, Institute for Environmental Research, Tehran University of Medical Sciences, Tehran, Iran

In present work, a novel supported bucky paper (BP) membrane was fabricated and evaluated for humic acid (HA) removal from water. For better understanding the effect of operating variables, response surface methodology (RSM) was also applied. Three independent parameters namely TOC concentration (5, 10 and 15 mg l -1), operating time (10, 20 and 30 min) and transmembrane pressure (TMP) (1, 2 and 3 bar) were selected for TOC removal (%) and permeate flux analysis. The results revealed that the membrane could effectively remove HA primarily through electrostatic repulsion and then adsorption mechanisms. The study also showed that about 65% and 35% of the removed HA were through repulsion and adsorption mechanisms respectively. Based on analysis of variance (ANOVA), it was showed that the effect of TMP was strongly significant on the removal and flux (P-value 5). In addition, statistical test confirmed that RSM based on the Box–Behnken was a suitable method for optimizing the main operating variables for HA rejection using BP membrane (R2=0.97). At optimum condition (TMP of 1.5 bar, TOC concentration of 12.7 mg l -1) and operating time of 13.5 min, removal obtained 67.4% and the flux was 233.4 lm-2h -1 . In general, the synthesized BP membrane showed a relatively good rejection of HA and revealed antifouling properties over the filtration time.

Biography

Associate professor at Department of Environmental Health Engineering, School of Public Health, and Center for Solid Waste Research, Institute for Environmental Research, Tehran University of Medical Sciences. Teaching experience in MS and PhD on water and wastewater courses over 35 years. Conducting over 100 research projects till now and publishing about 6oo papers on valid ISI journals.

Detection of Hazardous Gases using Platinum Loaded Nanostructured ZnO Thick Films

Anil Ramdas Bari

Department of Physics, Arts, Commerce and Science College, Bodwad 425 310, Maharashtra, India

Ultrasonic atomization pyrolysis technique was used for the preparation of Nanostructured ZnO powders. Thick films of this powder were prepared using screen printing technique. These films were characterized using XRD, SEM, EDAX and TEM. The average grain size was observed to be near about 20 nm. Platinum is loaded on nanostructured ZnO thick films using dipping technique. The sensing performance of the pure and Pt-loaded nanostructured ZnO thick films was tested on exposure of chemical warfare agents' simulants, such as, dimethyl methyl phosphonate, 2-chloroethyl ethyl sulfide and 2-chloroethyl phenyl sulfide. Both the pure and Pt-loaded nanostructured ZnO thick films showed higher response to DMMP.

Biography

Dr. Anil Ramdas Bari has completed his PhD at the age of 30 years from Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon. He is the Head of Department of Physic, IQAC / NAAC Coordinator and NSS Programme Officer of Arts, Commerce and Science College, Bodwad. He has published more than 48 papers in reputed journals and presented more than 80 research papers in seminars, conferences and workshops and over 100 on online mode. He attained more than 120 online webinars. He has been serving as an editorial board member of reputed journals. He has participated as an Organizing Committee Member in the Scientific Committee of 17 conferences and associations as well as served as a reviewer in a wide range of National and International Journals. He has been given Keynote Speech at 03 the International Conferences. He has chaired the sessions of the International Conferences and member of various scientific societies. He has organized 04 online national conference /seminar and workshops.

Synthesis, Growth and Characterization of Organic Nano Crystals for Anti-Diabetic Applications

Divya. R[1]* and Senthil Kannan. K[2]*

[1]Department of Physics, S.T. Hindu College, Nagercoil - 629 002, Tamilnadu, India
[2]Department of R&D / Physics, Edayathangudy G S Pillay Arts and Science College (Autonomous - Affiliated to Bharathidasan University – Tiruchirappalli – 620 024), Nagapattinam – 611 002, Tamilnadu, India.

The amino stilbene derivative crystals are grown and are properly analyzed using single crystal XRD for the lattice parameters. The lattice parameters represent the macro level crystalline specimen. When it is converted to the nano form by milling method, they are of 62nm of size and having effective antidiabetic output for the two categories namely the α-amylase and α- glucosidase. The macro level IC_{50} values are 58.5 and 56.2 for α-amylase and α-glucosidase macro level specimen. The nano level IC_{50} values are 55.1 and 53.1 for alpha amylase and alpha glucosidase nano scale converted specimen. From this it is represented that nano is predominant in amino stilbene derivative specimen than that of macro leveled one. They also have good optical nature.

Keywords: growth, xrd, anti-diabetic

Biography

Dr. Divya.R obtained Bachelor's Degree (B.Sc.,) in Physics from S.T. Hindu College, Nagercoil, TN, India- affiliated to the M. S University, Tirunelveli and Master's Degree (M.Sc.,) in Physics from S.T. Hindu College, Nagercoil, TN, India - affiliated to the M.S University, Tirunelveli and also got M.Phil. Degree from the same college. She is having 3+ years of experience in Teaching. She has published 10 + papers in International Journals – (UGC, SPRINGER, SCOPUS). Presented quality papers in 15 + National and International Conferences. Presently Assistant Professor, Dept of physics, S.T. Hindu College, Nagercoil.

Melt Extruded Calcium Carbonate/ Talc Polypropylene-Based Microporous Membranes: The Comparison and Evaluation of Thermal Behavior, Pore Morphology, and Permeability Properties

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Micro-sized calcium carbonate and several commercial grades of talc were selected to develop polypropylene-based microporous membranes through the MEAUS process (melt extrusion – annealing – uniaxial strain). Different filler percentages were added to polypropylene (1, 5, 10 wt. % calcium carbonate/talc). To analyze the effect of the calcium carbonate/talc, and content of the obtained membranes, parameters such as draw ratio during extrusion, annealing temperature, strain rate, and strain extension were kept constant. Talc membranes showed that the small particle size and high aspect ratio tend to provide membranes with fine pore distribution, high porous area, and high Gurley permeability values, and calcium carbonate membranes demonstrated that the stress applied involved a pre-orientation of the amorphous tie chains before crystal chain unfolding, which can be related to the first yield point. A logical pattern of increasing elastic modulus as filler content does is found in calcium carbonate compounds.

Keywords: Microporous membranes, Calcium carbonate morphology, Talc size, MEAUS process, amorphous tie chains, Elastic modulus

Biography

Dr. Kian Habibi has a Ph.D. in Petroleum Engineering and he is an independent researcher, consultant, and Society of Petroleum Engineers volunteer for Ambassador lecturer, and a member of SPE's young professionals. He is also a member of the editorial board of Petroleum Engineering Science and Journal. Dr. Kian Habibi has published five books, and he has published articles in several prominent journals, he presented some of his works as papers at various national and international conferences as well.

Microbes as a Source of Nanoparticles for Target Drug Delivery

Amit Arora[1]

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The field of medicine is looking at target drug delivery as a significant treatment technique for carcinoma. Silver nanoparticles are synthesized from microbes i.e bacteria algae, fungi, ,yeast etc. Gold nanoparticles are also synthesized from bacteria as well as fungi. These biodegradable nanoparticles can be loaded with drug which can be targeted to specific tissue saving the healthy tissue . Hence the hazardous side effects can be reduced. The present study discusses in detail particular species of algae, fungi as well as yeast which can be utilized for the synthesis these biodegradable nanoparticles leading to the reduced hazardous side effects.

Biography

Amit Arora is currently working as Dean student welfare and Associate Professor of Chemical Engineering at the Shaheed Bhagat Singh State University, Ferozepur, Punjab, India. He obtained his Ph.D. in Chemical Engineering from the Indian Institute of Technology, Roorkee, India. His area of expertise are gas hydrates, waste to energy, biomass utilization, Microbioligy etc.. He has published more than 50 research papers in various reputed international journals. He has been awarded many awards for his scientific work from various scientific bodies. He has given many plenary talks in the field of gas hydrates at various international conferences of repute.

Posters

Modifying Cement Properties with Carbon Nanotubes: a Molecular Dynamics Study

Isabel Lado-Touriño, Rosario G. Merodio-Perea, Alicia Páez-Pavón, Andrea Galán-Salazar

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During the last few years, there have been an increasing number of research studies on composites made of cement and carbon nanotubes (CNTs). These nanostructures are long cylindrical molecules, made only of carbon atoms and can be described as rolled-up graphene layers and classified as single-walled carbon nanotubes (SWCNTs) or multi-walled carbon nanotubes (MWCNTs) depending on the number of layers. Due to their excellent mechanical properties, they hold great promise as reinforcing materials in cement composites. In the present work, we used molecular dynamics simulations to model the pull-out of pristine and functionalized CNTs from a cement matrix (see figure 1). We estimated the interfacial shear strength of the structures as a function of CNT length and degree of functionalization. Simulated results show that the interfacial shear strength increases with increasing the number of functional groups due to the improvement of non-bonding interactions between the matrix and the carbon nanotubes.

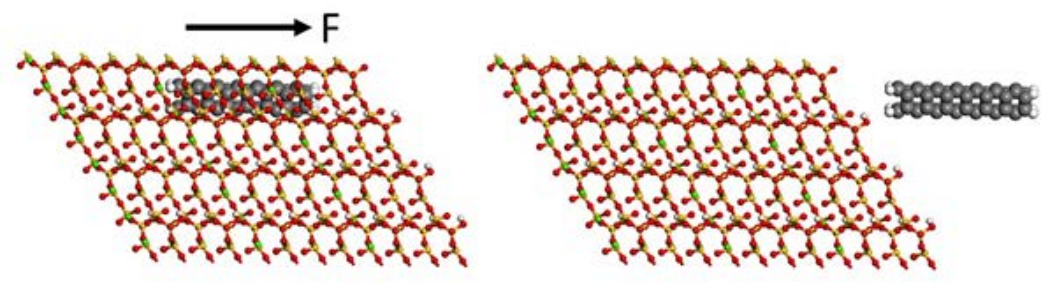

Figure 1. Pulling out a CNT from a cement matrix.

Biography

Dr. Isabel Lado-Touriño studied Chemistry at Santiago de Compostela University, Spain. She received her PhD degree in 1996 at the same institution. After two-year postdoctoral fellowship at Institut Supérieur des Matériaux du Mans, France, she obtained the position of an Associate Professor at the same institution. In 2001, she joined the Universidad Europea de Madrid team as an Associate Professor. She has published more than 30 research articles in SCI(E) journals.

Electrical Characterization of the Graphene Ribbons at Low Temperatures

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In this work, we report experimental electrical characteristics of graphene ribbon devices defined as back-gated graphene transistors. Two-terminal graphene ribbon devices with a back gate are fabricated on conventional silicon (Si) substrate covered by a 90 nm-thick thermal silicon dioxide (SiO_2). Chemical vapor deposition (CVD) process is used for single-layer graphene deposition, then, the graphene layer is transferred on the SiO_2/Si substrate. The quality of graphene is checked with optical microscopy, scanning electron microscopy and Raman spectroscopy. For the device fabrication, optical lithography is used for electrode patterns through a mask, and Ti/Au (10 nm/100 nm) metallic contacts are deposited by the thermal evaporator. The electrical characterization with a micro prober setup of hundreds of devices has been performed under controlled environment, in temperature range 300 °K downto 77 °K. As the temperature decreases, the drain-source current characteristics varies as well for output characteristic as for transfer characteristic. Therefore, the temperature affects directly the current characteristics of the devices. At 77K, the drain current decreases, i.e. the resistance of the graphene increases. This indicate that the carriers are thermally activated, resulting in least pronounced current with the increasing of the back gate voltage.

Biography

Dr. Riad Remmouche studied Electronics at Setif University, Algeria and graduated as MS in 1994. He then joined the research group of Prof. Youcef Bouterfa at the Institute of Electronics at Ferhat Abbas University, Setif, Algeria. He received her PhD degree in 2015 at the same institution. After three years postdoctoral in the LEM Laboratory, Algeria, he obtained the position of an Associate Professor at the MSB University.

A Novel Method for Producing Advanced Nanoparticles

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The discovery of various nanostructures, such as metallic and/or carbon nanoparticles (MNPs/CNPs), have attracted extensive attention due to their novel properties and potential applications especially for the further applications in fields in high-performing nano-materials, nano-electronics, and in cold field emitter. Carbon nanoparticles have been successfully synthesized by a one-step self-heating detonation process using by an energetic materials to provide the need of high temperatures, high shock waves, and parts of carbon sources in the presence of various metallic-containing catalysts. The products of carbon nanotubes and nano-scale catalyst particles are characterized by XRD, EDX and TEM techniques. The systematic experiments carried out indicate that mixture of these molecular precursors can be employed to produce metal core-shell nanoparticles encapsulated in concentric layers of graphitic carbon. Various pure carbon or metal nanostructures can be simply obtained from the detonation of the desired molecular precursors. The approach used in this study involving bottom-up nanotechnology is universal and low-cost, and especially providing the suitable alternatives to reuse the energetic explosive further.

Biography

Professor Yeuh-Hui (Colin) Lin obtained his PhD in 1998, from the Institute of Chemical Engineering at University of Manchester Science and Technology (UMIST), UK. He then became the faculty of the Kao Yuan University at the department of Chemical and Biochemical Engineering in 2004. In 2006, he promoted as an associated professor, and in 2010 to be a professor until now. Update, he has contributed more than 30 SCI papers published. His major fields associated with waste-to-worth especially in polymer recycling in the environmental sustainability and detonation technologies for producing nano-metallic and nano-carbon materials,as well as 2D graphene and 3D nano-capsules.

Cavitation Resistance of Poly (Vinyl Butyral) Composite Films Reinforced with Silica Nanoparticles

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[3]University of Belgrade, Faculty of Technology and Metallurgy, Karnegijeva 4, 11120 Belgrade, Serbia

Cavitation is a phenomenon in which rapid changes of pressure in a liquid lead to the formation, growth and collapse of bubbles within the liquid. This cavitation mechanism occurs frequently in hydraulic machinery such as turbines, pumps and propellers. The collapses of vapour bubbles interact with neighbouring metal surfaces in a shock waves way, which produces the damage in metal. Polymer coatings in the form of thermoelastoplastics, polyurethanes and epoxy resins may be used for improving the cavitation erosion resistance of hydraulic metal elements and equipment.

In this study the poly (vinyl butyral)/silica (PVB/SiO_2) composite films were subjected to the cavitation process. The cavitation tests were carried out by using a modified ultrasonic vibratory cavitation device in accordance with the ASTM G32 Standard. The experiments were carried out with the PVB solution in concentration of 10 wt.% where ethanol was used as the solvent. The silica nanoparticles were added into the solution in different content of 1, 3 and 5 wt.% SiO_2 with respect to PVB. The thickness of the created PVB composite films was around 0.2 mm. The surface of the PVB films was investigated both by the optical microscope and the scanning electron microscope. All the composite film surfaces in optical images were studied in Image-Pro Plus software after the cavitation. The cavitation resistance and microhardness of the films were analysed. The results revealed that the PVB film with 5 wt.% SiO_2 nanoparticles produced the greatest improvement in microhardness and the best cavitation resistance compared to other films.

Biography

Dr Vera Obradović has been employed at the Innovation Center of Faculty of Technology and Metallurgy in Belgrade since 2011 out of which the last three years as a Research Associate. Her research work includes the preparation and processing of p-aramid composites through their reinforcement by nanoparticles and their mechanical characterization. She has attended several international conferences presenting her research results and published significant research papers in SCI journals. Dr Vera Obradović has been nominated as Management Committee Substitute in the Cost Action CA18120 "Reliable roadmap for certification of bonded primary structures".

Investigation of Carbon Nanowalls Grown onto Various Substrates by ECR-MPCVD Method

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Carbon nanowalls (CNWs) are vertically stacked graphene sheets that have an intermixed convoluted structure on the substrate. CNW can be used in energy storage devices, sensors, and fuel cells owing to large surface. Increasing the wall height enlarges the total surface area and electro-optical properties of the film. However, the difficulty of depositing on a non-crystalline substrate and increasing the wall height are two major problems in terms of application areas. This problem can be overcome by using the electron cyclotron resonance deposition system which enables high wall structures by controlling the kinetic energy and flow rate of reactive ions. CNWs were successfully deposited on the glass substrate without catalyst, using methane as the carbon source. Optimum CNW morphology was achieved at 1 keV ionization energy and 6 sccm gas flow rate. The thicknesses and wall heights of the champion film was measured as 1.5 µm and 0.216 µm, respectively. Raman spectroscopy showed that when 1 keV of critical ion energy was applied, sp2-bonded carbon phases in the structure were reduced, as well as sp3 bonded ones. The average optical transmittance of all films is over 90% and the band gap energy is in the range 3.4-3.7 eV.90 and the band gap energy are in the range 3.4-3.7 eV.

Keywords: CNW, Nonconductive substrate, ECR-MPCVD, Catalyst free.

Biography

Ms. Çelikel studied Physics at Akdeniz University and graduated with BS degree. She has completed her master degree working on carbon nano materials including carbon nanowalls, diamond like carbon at Çukurova University in 2020. She is pursuing PhD degree at Plasma Laboratory in Physics Department of Çukurova University under supervision of Prof Kavak. At the meantime, she is studying Health Physics at Ankara University.

BOOKMARK YOUR CALENDAR

4th World Congress on Materials Science and Engineering	Nov 15-16, 2021 | Miami, USA	http://phronesisonline.com/materials-science-conference
3rd World Congress on Lasers Optics & Photonics	Nov 15-16, 2021 | Miami, USA	https://www.phronesisonline.com/optics-conference/
Global Meet On Optoelectronics & Quantum Physics	Nov 15-16, 2021 | Miami, USA	https://phronesisonline.com/optoelectronics-quantumphysics/
World Graphene Technology Summit	Nov 15-16, 2021 | Miami, USA	https://www.phronesisonline.com/graphene-technology-summit/
2nd World Nanotechnology Summit	Nov 15-16, 2021 | Miami, USA	https://www.phronesisonline.com/nano-technology-summit/
2nd World Nursing and Healthcare Congress	Nov 17-18, 2021 | Miami, USA	http://www.phronesisonline.com/nursing-conference
International Conference on Public Health & Health Care System	Nov 17-18, 2021 | Miami, USA	http://phronesisonline.com/publichealth-conference/
2nd International Conference on Chemical Engineering & Catalysis	Nov 17-18, 2021 | Miami, USA	https://phronesisonline.com/chemical-engineering-conference/
2nd World Biopolymers & Polymer Chemistry Congress	Nov 17-18, 2021 | Miami, USA	https://phronesisonline.com/polymer-chemistry-congress/
2nd International Conference on Applied Science and Engineering	Feb 21-22, 2022 | Dubai, UAE	https://phronesisonline.com/applied-science-engineering-conference/
International Conference on Life Sciences	Feb 21-22, 2022 | Dubai, UAE	https://www.phronesisonline.com/life-sciences-conference/
3rd World Congress on Nano Science, Nanotechnology & Advanced Materials	Feb 21-22, 2022 | Dubai, UAE	https://phronesisonline.com/nanoscience-nanotechnology-conference/
2nd Global Congress on Chemistry and Catalysis	Feb 21-22, 2022 | Dubai, UAE	https://phronesisonline.com/chemistry-conference/
International Conference on Surgery & Anesthesia	March 7-8, 2022 | Paris, France	http://www.phronesisonline.com/surgery-anesthesia-conference
International Conference on Neuroscience and Psychiatry	March 7-8, 2022 | Paris, France	https://www.phronesisonline.com/neurology-psychiatry-conference/
Global Summit on Flu, lung, & Viral Respiratory Diseases	March 7-8, 2022 | Paris, France	https://www.phronesisonline.com/flu-lung-respiratory-summit/
2nd World Congress on Cardiology and Cardiovascular diseases	March 7-8, 2022 | Paris, France	http://www.phronesisonline.com/cardiology-congress
5th International Conference on Materials Research and Nanotechnology	March 7-8, 2022 | Paris, France	https://phronesisonline.com/materials-research-conference/
International Conference on Quantum Engineered Sensing and Information Technology	June 08-11, 2022 | Paris, France	https://phronesisonline.com/quest-conference/

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