

materials fabricated by selective laser sintering for medical and dental application Prof. Leszek Adam Dobrzanski

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(https://www.citationsinternational.com/materials-science-2018)

# Materials Science 2018

Welcome to Citations International

### Welcome to Material Science conference 2018 (https://www.citationsinternational.com/materials-science-2018)...!!!

Theme : Revolutionising the New Horizon in Materials Science and Graphene Research

"Investing in scientific Research and Education"

It's a glad welcome to all Materials Science's Scientists, Academicans, scholars, delegates to have a look on our organization and join us for the session Material Science conference 2018 (https://www.citationsinternational.com/materials-science-2018). Today is the day when you begin to learn to look through the eyes of others; to find out and experience what the world is like for you. Here we provide a tremendous opportunity to join in this forum to utilize the expertise and novelties that expands your views in the fields of Materials Science and Graphene Technology

International Conference on Materials Science and Graphene Technology 2018 has prepared a platform for all to have an open discussion with your pal's who share similar thoughts and aspirations like you.

We Welcome you all to join us for this Knowledge oriented Materials Science Scientifc session

CITATIONS INTERNATIONAL is proud to host research scholars and professional experts to participate in this event. It's our pleasant duty to bid you all a genial welcome to share your valuable innovations and suggestions to the next generations. We aims to bring together front-line experts from multidisciplinary research and application areas to join this conference, to discuss the ongoing Research and Development efforts in the field of Materials Science and Graphene.

On behalf of this scientific extravaganza, CITATIONS INTERNATIONAL invites you to take this opportunity to join us.

It's gratifying to look around you in the upcoming event!!!

### Welcome Message

It is my great pleasure and honor to extend to you a warm invitation to attend the International Conference on Materials Science and Graphene Technology hosted by the Citations International, in Joint collaboration with Pan Asian Clinical Research Association (PACRA), to be heldApril 09-11, 2018 in Dubai, United Arab Emirates.



## **Registrations are Open**

Register Now (materials-science-2018/registration)

# Conferences Sessions/Tracks

#### Scientific Tracks of Materials Sciences and Graphene

Materials Science & Engineering-Materials science is a vast and diversified discipline hybridising Metallurgy, Nanotechnology, Polymers, Carbon, ceramics, solid-state physics, and chemistry. It owes its existence to fusion rather than fission. Materials science is that the study of those materials supported their structure, bonding, and their numerous characteristic properties like physical, chemical, mechanical, kinetic and thermodynamical properties. It's conjointly the study of their process, fabrication, integration and application. Materials science and engineering, involves the invention and style of latest materials. It is the answer to the problems and challenges faced by the human society for their growth and development and an humble effort to overcome and replace the Conventional Technologies and pressing for major breakthroughs in materials science for long term solutions with Engineering and Technology as its helping tool to work for and to develop and ecosystem where future generations are able to use it effectively and make their significant contribution for sustainable growth and development.

Graphene Fullerenes and 2D Materials- Graphene is an allotrope of carbon in the form of a two-dimensional, atomic-scale, hexagonal lattices in which one atom forms each vertex. It is the basic structural element which forms the basis of other allotropes including graphite, charcoal, carbon nanotubes and fullerenes. Graphene and alternative two-dimensional materials have an extended list of distinctive properties that have created it a hot topic for intense research and therefore the development of technological applications. The extraordinary physical properties of Graphene and alternative second materials have the potential to each enhance existing technologies and additionally produce a variety of latest applications. The material has shown miraculous properties in terms of strength, light-weight weight and exceptional heating and conducting property, additionally it's the sole element of carbon within which all its reacts from each side. This compound has attracted the attention from the researchers across the globe and its attributes are breath-taking and outstanding. It is being researched for numerous ways of synthesis and for group action potential its tremendous potential in our day to day life, in devices like semiconductors, biosensors and alternative 2nd materials. Apart from its applications electrical and electronics Industry it also widely used for many medicine applications like photodynamic medical care, drug and factor delivery and additionally within the style of superior X-Ray imaging distinction agents and MRI distinction agents.

Nanotechnology, Nanomaterial & Microstructures- Nanotechnology is the treatment of matter on a nuclear, sub-atomic, and supramolecular scale. This covers each current work and ideas that area unit additional advanced. In its distinctive sense, engineering science mentions to the more reliquinished anticipated future technology and methodology to create things from rock bottom up, gaining insights and Working on unified Technology send Research to form complete, high performance merchandise for a better tomorrow. Nano-material analysis takes a materials science-based approach to technology, influencing advances in materials science and synthesis that are developed in support of micro fabrication analysis. Nano materials are set of a broadly classified substance that have at least one critical dimension less than 100 nano-meters and possesses unique bonding, structural, magnetic, optical and electrical properties. Due its relatively unconventional properties, these are the subjects of great fundamental research across the globe Micro structures are minute structures of a material and can be visually revealed by a microscope having more than 25 x magnifications. Various materials like metals, polymers, ceramics and composites have microstructures and they deeply influence various properties of the substance like high/low temperature behaviour, wear and tear resistance, strength, toughness, hardness, ductility etc.

Metallurgy, Mining and Advanced Metal Extractions-Metallurgical Engineering involves the study, innovation, design, implementation, and improvement of processes that remodel natural resource and metals into helpful merchandise that improve the standard of our lives. Mining consists of extracting minerals and different materials by selection from the layer, usually in giant quantities with great care that tiny amounts of the required product will be recovered. Four basic varieties of mining methodology presently exist. With time we've discovered new strategies of mining, detection of ores, extraction and fabrication. We've devised new strategies like electrolysis, smelting, hydro metallurgy, pyro science, forging, rolling and numerous heat treatment and metal operating processes to get metal articles of desired form and size. Materials Science that deals with physical and chemical nature of the gold-bearing & inter-metallic compounds and alloys. totally different techniques and technologies employed in the extraction and production of assorted metal square measure extraction of metals from ores, purification; Metal casting Technology, plating, spraying, etc. within the series of processes, the metal is subjected to thermogenic and refrigerant conditions to analyse the corrosion, strength & toughness and to form certain that the metal is creep resistant.

Batteries, Energy Materials Superconductors- Different geology and social pressures area unit are providing a shift from standard fossil fuels to renewable and property energy sources. In order to meet the challenges there is a need of hour to shift from more conventional fuels to more use of solar photovoltaic cells as new materials and material assemblies are the core of this analysis endeavour. The assembly emphases on materials-based solutions to the energy downside through a series of case studies illustrative enhancements in energy-related materials analysis. These energy materials has junction rectifier to the making of many devices that harnesses, conducts and transports energy expeditiously. Devices like super capacitors, fuel cells, thermo electrical and electricity materials are fictional, that aids in energy production, transmission and storage. To ensure loss less transfer of the energy made and economic power output superconductors are made superconductors are devised. Materials Science and Engineering domain is doing elite and extensive research and provides in depth broad exploration on metal binary compound materials and carbon nanotube-based materials for chemical element warehousing to fulfil Energy requirements worldwide. Superconductors are primarily devises that transmits electricity during a lossless manner. it's got a promising future in enhancing spintronic devices, transformers, smart grid, wattage transmission, electrical motors, power storage devices, railroading devices and fault current limiters.

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Polymer Science and Engineering-Polymers are all around with US since the start of time; they shaped the terribly basis (building blocks) of life i.e the natural polymers. Animals, plants and every one categories of living organisms from the microscopic to large level, square measure composed of polymers. Polymers are the major constituents in the production of chemical compound components i.e. green, energy-efficient, prime quality, cheap and high property, etc. can assure the accessibility of the best solutions around the globe. As with different engineering materials (metals and ceramics), the properties of polymers square measure connected their constituent structural components and their arrangement. Material science incorporates a additional intensive scope of utilisations which contains ceramic ware production, composites and chemical compound materials. Holding in ceramic ware production and glasses utilises each valence and ionic-covalent kinds with SiO2 as a elementary building. Proper knowledge and use of Polymers gives insight for us resolve issues, progress development, guarantee compliance and reach a made market launch for these industries, engineering, Packaging, and Medical.

Crystallography- Crystallography is that the science that examines the arrangement of atoms in crystalline solids. Natural philosophy may be a useful gizmo for materials scientists. In single crystals, the results of the crystalline arrangement of atoms are usually straightforward to examine macroscopically, as a result of the natural shapes of crystals mirror the atomic structure. This track covers section equilibrium, Mechanical behaviour and failure mechanisms and Microstructure Development, Sol-gel techniques, Powder Consolidation/Powder Synthesis and skinny film deposition. It conjointly includes the chemistry of those substances, study on quasicrystals and liquid crystals, crystalline novel materials, composite ceramic coatings, composites, purposeful and nuclear ceramics. It's been conjointly developed in an exceedingly thanks to endow the in depth analysis in organic compound physics, organic frameworks, semi crystalline and liquid polymers. Exhaustive study of those crystallographic defects can make sure the demolition of the defects within the root level.

Biomaterials, Biodegradables & Tissue Engineering- Biomaterial may be a substance that has been built in a very method that they're biocompatible with biological systems and supply therapeutic or diagnostic advantages. The science of biomaterials has amalgamated the data of chemistry, biology, medicine, tissue engineering and materials science. It is extensively used in medical application, and medicine device that performs, augments, or replaces a natural perform. Such functions could also be beingn, like getting used for a heart valve, or could also be bioactive with a additional interactive practicality like hydroxyl-apatite coated hip implants. Biomaterials also are employed in dental applications, surgery, and drug delivery.

Bio-degradables area unit materials that possesses useful advantages, however on the opposite hand they're super eco-friendly as they move with the atmosphere harmlessly and that they degrade simply once their operational lifespan inflicting no further pollution and leads a path towards a property atmosphere. Together they are widely used as they are seen as major components for future research and n effective tool for sustainable growth and development.

Electronic, Optical, Magnetic & Multiferroic Materials- Materials have a bent to point out varied inherent properties particularly electrical, optical, magnetic property etc. New electronic and photonic nano-materials assure dramatic breakthroughs in communications, computing devices and solid-state lighting. Current analysis involves bulk crystal growth, organic semiconductors, skinny film and nanostructure growth, and soft lithography. Proper analysing of materials. Conjointly allows to synthesise superior grade materials by combining two or material and produces a fabric superior than their parent materials. The advanced optical material is are employed in imaging, microscopy, spectrum analysis, optical maser physics, X-rays, optical wires telecommunication etc. Magnetic materials are employed in superconductors, audio systems, information recording, motors, generators, transformers, compasse etc. Multiferroics are a special form of magnetic material that shows multiple characteristics like magnetic force, Ferro electricity&Ferro elasticity. This advanced cluster of fabric is currently being extensively employed in spintronics, tunnel magneto resistance, filters, oscillators, section shifters etc.

Computational Modelling, Processing & Simulation of Metals & Materials- Computational materials science is an intensive field that holds tremendous future potential. The aim of process Materials Science is to report on outcomes that deliver new perceptions into, or significantly accretive the properties of materials or phenomena connected with their style, synthesis, processing, description, and operation. Electronic structure calculations, atomistic and molecular dynamics, kinetic and applied mathematics modelling, along with new and rising techniques and accrued process techniques will give answers to versatile and sophisticated queries associated with materials properties, producing, performance and technological applications. Simulation of finite systems and electronic structure strategies comes beneath process materials science. Interatomic models are termed as force fields. All options of recent materials modelling square measure of interest, in conjunction with quantum chemical strategies, density practical theory, semi-empirical and classical approaches, natural philosophy, atomic-scale simulations and phase-field techniques. To review the physical moments of atoms and molecules the pc simulation technique of molecular dynamics is employed.

Glasses, Ceramics & Composite Materials-Major Applications of Materials Science include the structures of ceramics and glass generally related to the foremost brittle materials. Bonding in ceramics and glasses uses valency and ionic-covalent varieties with SiO2 (silica or sand) as a basic building block. Ceramics are as soft as clay or as onerous as stone and concrete. Ceramics presently embrace domestic, industrial and building product, moreover as a broad vary of ceramic art. Within the twentieth century, new ceramic materials were developed to be used in advanced ceramic engineering, like in semiconductors. Composite materials area unit for the foremost half used for structures, extensions and structures like watercraft frames, athletic facility boards, race machine bodies, shower slows down, baths, storage tanks, impersonation rock and refined marble sinks and ledges.

Smart & Hybrid Materials -Materials that are typically comprised of dissimilar phases that shows vital modification in their properties once obligatory by associate external stimuli as an example magnetic or field of force are referred to as sensible materials. Normally sensible materials are a mixture of 2 or additional materials upon that the specified properties are allowed to be expressed. Method management, modelling and simulation aids in fabrication of sensible materials. Varied sensible materials are fictional just like the sensible memory alloys that retain their original form once heated even when surfing a plastic deformation and materials like ferroelectrics and piezoelectric that turn out electrical phenomenon once obligatory by a mechanical stress. Hybrid Materials are reasonably a sensible material at a nanometric or molecular. it's typically comprised of 2 or additional constituent one being organic and also the different being inorganic. The inorganic half provides the ratio, whereas the organic half provides the useful advantage. until date we've got many hybrid materials that aids in corrosion resistance, hearth resistance, anti-oxidizing agents etc.

Physics and Chemistry of Materials-Materials Physics is that the application of physics to explain the physical properties of materials. it's a mixture of physical sciences like solid mechanics, solid state physics, and materials science. Materials physics is taken into account a set of condensed matter physics and applies elementary condensed matter ideas to advanced point in time media. they need a large usage in varied fields which has the event of Optoelectronic Materials and Devices and build use of quantum dots that area unit current in semiconductors. a large spectrum of topics constitutes material physics that area unit Photo catalysis, optical device physics, high-energy physics and analytical physics. Laser Technology is one of the widely used technologies in Materials physics.

Materials Chemistry provides the circle between nuclear, sub-atomic and super molecular conduct and also the valuable properties of a fabric. It lies at the centre of varied compound utilizing businesses. Plenty of properties of electrical, enticing particles and substance materials develop from this level of structure. The route within which the particles and atoms are strengthened and sorted out is essential to concentrate the properties and conduct of any material. The conjecture for R&D development within the compound and propelled materials business demonstrates the enhancing worldwide economy and also the key markets the business serves.

Materials Characterisation and Testing of Materials-To understand the origins of to understand the origins of physical, chemical, and purposeful properties of various materials characterisation and Testing of Materials is required. Characterisation refers to the broader and wider method by that a material's structure and properties are checked and measured. it's a elementary method within the field of materials science, while not that no scientific understanding of engineering materials may be as curtained . . Characterisation and testing of materials is incredibly vital before the usage of materials. correct testing of fabric will build the fabric additional versatile and sturdy. It is powerful overlap with physical science, mineralogy, natural philosophy, ceramics, metallurgy, natural philosophy, materials science and physics with a spotlight on the synthesis of novel materials and their characterisation.

Advanced Emerging Materials -Speciality chemicals are sanctionative the creation of latest parts and devices together with displays, batteries, super capacitors, written physical science, elastic physical science and far additional. On the amount of materials science analysis, represents a replacement genre of materials with its own logic of result that can't be delineated merely in terms of the same old classes of significant and lightweight or kind, construction, and surface. The materials like Salmon animal skin, Wood-Skin versatile wood panel material, Re Wall Naked board, Coe k lighting system, OLEDs, Organic electric cell, Bling Crete light-reflecting concrete, digital ordination, 3D printing, and lots of different new innovations have created wonderful and distinctive characteristics of the materials, for instance Coe k lightening system wherever the scientists used a skinny coating of nanoparticles to accurately simulate daylight through Earth's atmosphere and therefore the result called Third Baron Rayleigh scattering. Soft materials are another rising category of materials that features gels, colloids, liquids, foams, and coatings.

Materials for Green Energy Technology and Sustainable Development-Green technology incorporates a perpetually developing cluster of procedures and materials from techniques for making energy to non-toxic cleansing product. at the present the expectation of this field is to bring innovation and changes in existence of comparable scale to the data technology evolution over past twenty years. property is meeting needs the wants while not assent the aptitude of future generations to satisfy their own requirements. The reduction of waste and pollution by the amendment in patterns of consumption and production is termed as supply reduction. to cut back the employment and generation of dangerous substances the invention, style and application of chemical product is thought as inexperienced chemistry.

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Forensic and Corrosion Science- Forensic & corrosion science is that the study of failure in materials. The track includes the study of fracture of materials & merchandise, or the other attainable reason why such a product fails in commission or fails to satisfy its specification it had been created for. It conjointly includes the varied ways of study of the merchandise failure. Few of the causes embrace exposure to gas and ultraviolet inflicting gas degradation and ultraviolet degradation severally, exposure to atomic number 17 leading to atomic number 17 induced cracking and exposure to water inflicting reaction. Analysis on forensics and study on the factors of corrosion helps U.S.A. perceive the rationale of failures of materials and metals and what agents have probably caused the failure and what approaches is taken to stop the occurring of comparable circumstances. It involves the study of structural failure, stress-strain analysis, rhetorical chemistry and fractography. This data facilitates U.S.A. synthesising additives and reagents that help in corrosion management, corrosion hindrance & corrosion repair.

#### Venue Why in Dubai?

The United Arab Emirates is a country located in the southeast end of the Arabian Peninsula on the Persian Gulf, bordering Oman to the east and Saudi Arabia to the south, as well as sharing sea borders with Qatar, Iran and Pakistan. Established on 2 December 1971, UAE is a federation of seven emirates. The constituent emirates are Abu Dhabi, Ajman, Dubai, Fujairah, Ras Al-Khaimah, Sharjah, and Umm Al-Quwain. The capital is Abu Dhabi, which is one of the two centers of commercial and cultural activities, together with Dubai. Islam is the official religion of the UAE and Arabic is the official language. Dubai is a cosmopolitan city of diversity and contrasts at the crossroads of Europe, Asia and Africa. Dubai has emerged as one of the world's leading international business centers and regional hubs. With state-of-the-art infrastructure and world-class professional environment, Dubai has fast become the best place to do business in the Middle East. Thanks to our city's strategic location, tax-free living and strong economic outlook. It is the ideal base for multinationals and other companies targeting markets in Central Asia, the Middle East. Africa, the Asian Subcontinent and the Eastern Mediterranean.

#### Here are the ten reasons to choose Dubai:

**1 Global Aviation Hub:** Dubai International Airport is ranked second in the world for international passenger traffic with over 7,000 weekly flights. The airport is operated by 125 airlines that connect to over 260 destinations across the globe. Dubai's new airport, AI Maktoum International Airport in Jebel Ali, will have the capacity to handle 160 million passengers when it's fully operational. Currently, phase one has been completed.

Emirates Airlines is Dubai's flag carrier with flights to and from over 140 destinations worldwide and fly Dubai has also become the world's fastest start-up airline since its launch in 2008, flying to more than 65 destinations across the GCC, Asia, Africa, India and parts of Europe.

2 World-Class Infrastructure: Who ever imagined a small Arab village would become the powerhouse it is today? Dubai boasts well-maintained roads and excellent public transport and connectivity, including the state-of-the-art Dubai Metro – just some of the services you can expect here.

3 Venues for Meetings and Conventions: We have a wide option of flexible business event facilities, from meeting rooms for 10 people to convention halls for thousands. Dubai International Convention and Exhibition Centre (DICEC) has 90,000+ square meters of exhibition and meeting space and is only a 10-minute drive or a Metro Red line ride from the airport. In addition, arrays of hotels in Dubai offer high quality and sizeable meeting space.

4 Hotels: Choose from one of our premium, standard or budget hotels, all of which have excellent conference and meeting facilities. There are currently more than 625 hotels with more than 85,000 hotel rooms. Current estimates show that the end of 2016 expects 20,000 to 30,000 more rooms.

5 Business Growth Opportunities: Thanks to our ideal location, excellent connectivity and extensive services to help you with all aspects of your business. Dubai has become a centre of trade and commerce for the Middle East. Our government is pro-business with the most transparent business regulations in the region and provides tax-free zones, first-class physical infrastructure and access to an experienced and skilled labor force. With the newly established Dubai Association Centre, the Emirate now has a platform that lets you easily set up an international association here, whether it's a headquarters or a regional office.

**6 Knowledge Hub:** Dubai is a growing knowledge hub that includes a significant number of universities and research centers committed to paving the way for technological and scientific advancements. Dubai Silicon Oasis offers state-of-the-art research, development and industrial facilities, while Dubai Biotechnology and Research Park is the leading life sciences cluster in the Middle East. In addition, Dubai Healthcare City is home to over 4,000 licensed professionals in two hospitals and over 120 outpatient medical centers and diagnostic laboratories occupying 4.1 million square feet in the heart of Dubai.

7 Safety: Rated by Interpol as one of the safest cities in the world, Dubai offers a crime-free and politically stable environment. Delegates also have access to state-of-the-art health facilities and paramedics in hotels.

8 Adventures and Experiences: Adrenaline-pumping desert safaris, luxurious spa breaks, sumptuous meals, relaxing dhow cruises, high-octane skydives and exhilarating water park rides – these are just some of the unique experiences Dubai offers its guests. You'll find that our city is one of contrasts and our people a great mix of cultures. The meeting point of old and new provides a cultural experience deeply rooted in Arabic tradition, set in a modern environment.

9 Restaurants and Entertainment: From Arabic to Asian, French to Mexican and everything in between, Dubai offers food lovers a tantalizing array of mouthwatering options to delight your taste buds. The city is known for its vibrant nightlife and entertainment scene, a place where you can relax at blissful beach clubs or watch one of the world's most exciting horse races.

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**10 Experienced Industry Support:** The Dubai Bid Alliance, chaired by Dubai Business Events, provides professional organizers and conference managers a unique bid package that includes incentives, specific discounts, pre-negotiated rates and harmonized terms and conditions from Dubai stakeholders.

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