

Properties Engineering Materials Higgins

Aerospace materials

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Aerospace materials are materials, frequently metal alloys, that have either been developed for, or have come to prominence through their use for aerospace purposes.

These uses often require exceptional performance, strength or heat resistance, even at the cost of considerable expense in their production or machining. Others are chosen for their long-term reliability in this safety-conscious field, particularly for their resistance to fatigue.

The field of materials engineering is an important one within aerospace engineering. Its practice is defined by the international standards bodies who maintain standards for the materials and processes involved.

Engineers in this field may often have studied for degrees or post-graduate qualifications in it as a speciality.

History of materials science

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Materials science has shaped the development of civilizations since the dawn of humankind. Better materials for tools and weapons has allowed people to spread and conquer, and advancements in material processing like steel and aluminum production continue to impact society today. Historians have regarded materials as such an important aspect of civilizations such that entire periods of time have defined by the predominant material used (Stone Age, Bronze Age, Iron Age). For most of recorded history, control of materials had been through alchemy or empirical means at best. The study and development of chemistry and physics assisted

the study of materials, and eventually the interdisciplinary study of materials science emerged from the fusion of these studies. The history of materials science...

Materials Science Laboratory

The Materials Science Laboratory (MSL) of the European Space Agency is a payload on board the International Space Station for materials science experiments

The Materials Science Laboratory (MSL) of the European Space Agency is a payload on board the International Space Station for materials science experiments in low gravity.

It is installed in NASA's first Materials Science Research Rack which is placed in the Destiny laboratory on board the ISS. Its purpose is to process material samples in different ways: directional solidification of metals and alloys, crystal growth of semi-conducting materials, thermo-physical properties and diffusion experiments of alloys and glass-forming materials, and investigations on polymers and ceramics at the liquid-solid phase transition.

MSL was built for ESA by EADS Astrium in Friedrichshafen, Germany. It is operated and monitored by the Microgravity User Support Center (MUSC) of the German Aerospace Center...

Seismology

propagate in solid or fluid materials. They can be divided into body waves that travel through the interior of the materials; surface waves that travel

Seismology (; from Ancient Greek σεισμός (seismós) meaning "earthquake" and -λογία (-logía) meaning "study of") is the scientific study of earthquakes (or generally, quakes) and the generation and propagation of elastic waves through planetary bodies. It also includes studies of the environmental effects of earthquakes such as tsunamis; other seismic sources such as volcanoes, plate tectonics, glaciers, rivers, oceanic microseisms, and the atmosphere; and artificial processes such as explosions.

Paleoseismology is a related field that uses geology to infer information regarding past earthquakes. A recording of Earth's motion as a function of time, created by a seismograph is called a seismogram. A

seismologist is a scientist who works in basic or applied seismology.

Gordon Wallace (nanotechnologist)

1016/0032-3861(94)90427-8. Gelmi, Amy; Higgins, Michael J.; Wallace, Gordon G. (2010). "Physical surface and electromechanical properties of doped polypyrrole biomaterials"

Gordon George Wallace is a scientist in the field of electromaterials. His students and collaborators use of nanotechnology in conjunction with organic conductors for energy conversion and storage as well as medical bionics. He has developed approaches to fabrication that allow material properties discovered in the nano world to be translated into micro structures and macro scopic devices.

Wallace's research interests include new materials and the use of these in energy and biomedical devices.

Wallace is currently Director of the Intelligent Polymer Research Institute and the former Director of the Australian National Fabrication Facility (Materials Node) both headquartered at the University of Wollongong. He was also previously Executive Research Director at the ARC Centre of Excellence for...

Éamon Hanrahan

"The 2nd Hanrahan Lecture: Geotechnical properties of Irish compressible soils". Quarterly Journal of Engineering Geology and Hydrogeology. 53 (4): 475-522

Edward (Éamon) T. Hanrahan (1917 - 30 November 2012) was an Irish civil engineer, Associate Professor of Civil Engineering, and Head of department in the School of Civil, Structural and Environmental Engineering at University College Dublin (UCD). Owing to his contributions to geotechnical engineering education and practice in Ireland, a biennial lecture at UCD's Geotechnical Society is named in his honour.

Hanrahan undertook studies and research on soil mechanics and foundation engineering, particularly on soft soils such as peat. In 1955, he created the first postgraduate soil mechanics course in for students in Ireland. He published work in Irish and British journals including Géotechnique, and published several works on peat and glacial tills which continue to be cited in soil mechanics...

Test method

Control of Materials (1963). ASTM Manual for Conducting an Interlaboratory Study of a Test Method. American Society for Testing and Materials. p. 3. Retrieved

A test method is a method for a test in science or engineering, such as a physical test, chemical test, or statistical test. It is a specified procedure that produces a test result. To ensure accurate and relevant results, a test method should be "explicit, unambiguous, and experimentally feasible.", as well as effective and reproducible.

A test is an observation or experiment that determines one or more characteristics of a given sample, product, process, or service, with the purpose of comparing the test result to expected or desired results. The results can be qualitative (yes/no), quantitative (a measured value), or categorical and can be derived from personal observation or the output of a precision measuring instrument.

Usually the test result is the dependent variable, the measured response...

Lesley Cohen (physicist)

transitions in cool materials. She is consul for the faculty of Natural Sciences. Her recent[when?] work focuses on exotic properties that occur at interfaces

Lesley Francis Cohen is a Professor of solid-state physics at Imperial College London. She works in magnetic materials for solid-state magnetic refrigeration and spintronic applications. Cohen has served as the editor-in-chief of Applied Physics Letters since 2019.

British Construction Industry Awards

Marriott Grosvenor House Hotel on Park Lane in London. List of engineering awards "Sir David Higgins to chair British Construction Industry Awards 2012 judges"

The British Construction Industry Awards (BCI Awards or BCIA) were launched by New Civil Engineer magazine and Thomas Telford Ltd in 1998, at the time both owned by the Institution of Civil Engineers.

The awards seek to recognise outstanding achievement in the construction of buildings, taking account of a wide range of factors including architectural and engineering design, but also consideration of the construction process, delivery to time and budget, and client satisfaction.

In 2012, Network Rail chief executive Sir David Higgins was the chair of the British Construction Industry Awards judging panel which celebrated its 25th anniversary of rewarding excellence in UK construction delivery.

In June 2017 owners of New Civil Engineer, Ascential, sold the title to Metropolis International who...

Pulsation reactor

(electrode materials, coating materials) Luminescent materials Additives (flame protection, anticorrosives, thickening agent) Filler material (bulking,

Pulsation reactor technology is a thermal procedure for manufacturing fine powders with precisely defined properties.

Pulsation reactor technology is a thermal procedure with a special functional principle that results in reaction parameters and a reaction medium, and which ultimately leads to other property parameters in terms of surface, reactivity, homogeneity and particle size of the powder material.

The technology has proven particularly effective in the manufacture of ceramic and submicroscale powders, as well as in the production of highly active catalysts. Also, simple oxides such as zirconium oxide with doping elements or mixed oxides like spinel can be produced in the pulsation reactor.

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