Materials Congress-2016

(Theme: Manifold traits of Materials Science and Engineering)

Summary:

The material of choice of a given era is often a defining point. Phrases such as Stone Age, Bronze Age, Iron Age, and Steel Age are great examples. Originally deriving from the manufacture of ceramics and its putative derivative metallurgy, materials science is one of the oldest forms of engineering and applied science. Modern materials science evolved directly from metallurgy, which itself evolved from mining and (likely) ceramics and the use of fire. A major breakthrough in the understanding of materials occurred in the late 19th century, when the American scientist Josiah Willard Gibbs demonstrated that the thermodynamic properties related to atomic structure in various phases are related to the physical properties of a material. Important elements of modern materials science are a product of the space race: the understanding and engineering of the metallic alloys, and silica and carbon materials, used in the construction of space vehicles enabling the exploration of space. Materials science has driven, and been driven by, the development of revolutionary technologies such as plastics, semiconductors, and biomaterials. Before the 1960s (and in some cases decades after), many materials science departments were named metallurgy departments, reflecting the 19th and early 20th century emphasis on metals. The growth of materials science in the United States was catalyzed in part by the Advanced Research Projects Agency, which funded a series of university-hosted laboratories in the early 1960s "to expand the national program of basic research and training in the materials sciences." The field has since broadened to include every class of materials, including ceramics, polymers, semiconductors, magnetic materials, medical implant materials, biological materials and nanomaterials!

We invite you, on behalf of the Organizing Committee, to this excellent meeting with great scientists from different countries around the world and sharing new and exciting results in Materials World, which will be held in Spain from June 13-15, 2016.This exciting and informative conference program including plenary lectures, symposia, workshops on a variety of topics, poster presentations and various programs for participants from all over the world.

Importance& Scope:

The field of materials have not only helped the development in different fields in science and technology but also contributed towards the improvement of the quality of human life to a great extent. All this has become possible with the different discoveries and inventions leading to the development of various applications. The core aim of Materials Science-2016 conference is to provide an opportunity for the delegates to meet, interact and exchange new ideas in the various areas of Materials Science.

Why Alicante, Spain?

The province of Alicante is an exceptional place with many attractive factors for living, working and doing business. The new economic reality of the province of Alicante, the good services and competitive capacity make this place a unique area in which to invest and enjoy yourself. The city of Alicante, on the shore of the Mediterranean Sea, is situated in the centre of the Spanish Mediterranean Arc; this allows Alicante to act as a bridge with the North of Africa and as a linking gateway with the rest of Spain and Europe. Alicante has an exceptional communications network, an airport just 10 minutes away from the city (ranking 6th at the national level in number of passengers), a port in expansion and land connections through railways and the national highway network. All of this endows the Alicantine capital with excellent connectivity both nationally and internationally, and makes it a strategic enclave, thanks to the high versatility of connections with other modes of transport the city provides. Alicante is the capital of a province that is characterized by its enterprising dynamism (it is the 4th Spanish province in business creation), by the diversification of its productive fabric (agri-food industry, footwear, plastic-toys, textile, tourism, etc.) and its exporting tradition. Alicante has the most modern and versatile infrastructure for logistic, strategic and technological support for productive sectors. Thus, the city has logistic and distribution Centres, industrial parks and a Science Park. To this we must add the Alicante Trade Fair Institution (IFA), the Congress Palace and the Auditorium, which host a multitude of business events and congresses.

The city is the seat for the University of Alicante, where nearly 30,000 students are trained. In the province, we can also find Miguel Hernández University, located in Elche (25 km from the capital) and two private universities. Alicante is a point of reference for its perfect syntony between the public and private sectors. The support given by the different public institutions and the cooperation between these and socio-economic entities of the territory are crucial in ensuring that no project of interest remains undeveloped. During the last years, the city has experienced big transformations (expansion of port and airport, high speed train, streetcar network, new urban zones with parks and avenues, etc.) which include important public investments, being also an opportunity for private initiatives.

Why to attend?

Materials Congress paves a platform to globalize the research by installing a dialogue between industries and academic organizations and knowledge transfer from research to industry. Materials Congress-2016 aims in proclaim knowledge and share new ideas amongst the professionals, industrialists and students from research areas of Materials Science and Nanotechnology to share their research experiences and indulge in interactive discussions and special sessions at the event.

Major Materials science Associations around the Globe

- The American Ceramic Society (ACerS)
- American Chemical Society (ACS)
- American Physical Society (APS)
- The Materials Information Society (ASM International)
- The Materials Research Society (MRS)
- Microscopy Society of America (MSA)
- The Minerals, Metals & Materials Society (TMS)
- Sigma Xi: The Scientific Research Society
- International Society for Optical Engineering (SPIE)

Major Materials science Associations in Spain

- Sociedad Española de Materiales
- Spanish Society of Ceramics
- Spanish Royal Society of Chemistry
- The Spanish Society of Medical Physics
- Centro Nacional de Investigaciones Metalúrgicas
- Centro Español de Plásticos

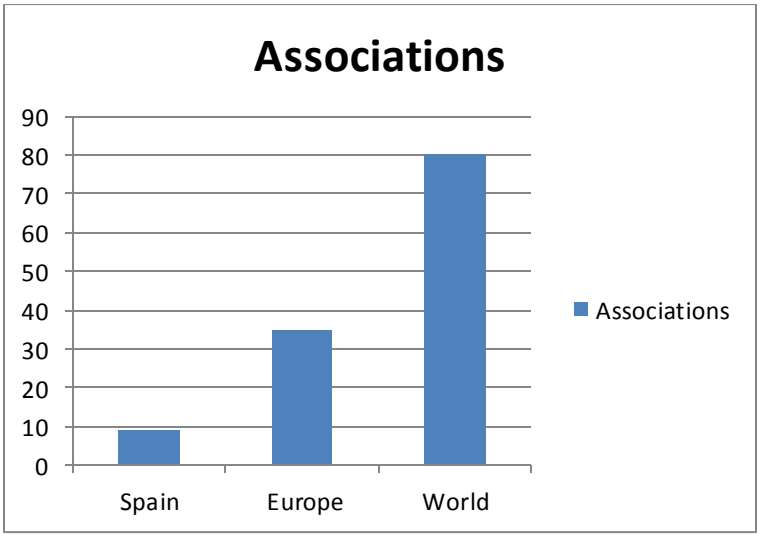

Figure 1: Statistical Analysis of Associations

Target Audience:

- Materials Scientists/Research Professors
- Physicists/Chemists
- Junior/Senior research fellows of Materials Science/ Nanotechnology/ Polymer Science/ Biotechnology
- Materials Science Students
- Directors of chemical companies
- Materials Engineers
- Members of different Materials science associations.

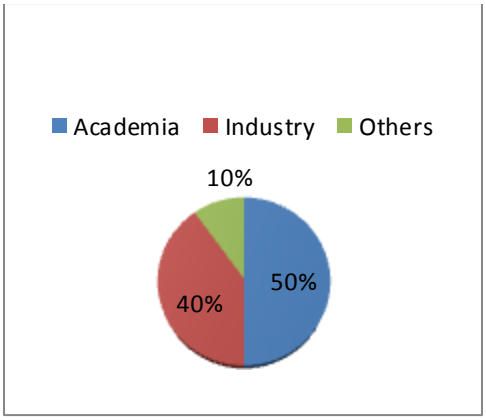

Figure 2: Target Audience

Top Universities in Spain:

University of Barcelona

Universidad Autónoma de Madrid

Universitat Autónoma de Barcelona

University Complutense Madrid

University of Navarra

Universitat Pompeu Fabra

Universitat de València

Universitat Politècnica de Catalunya

Universidad de Granada

Universidad de Alicante

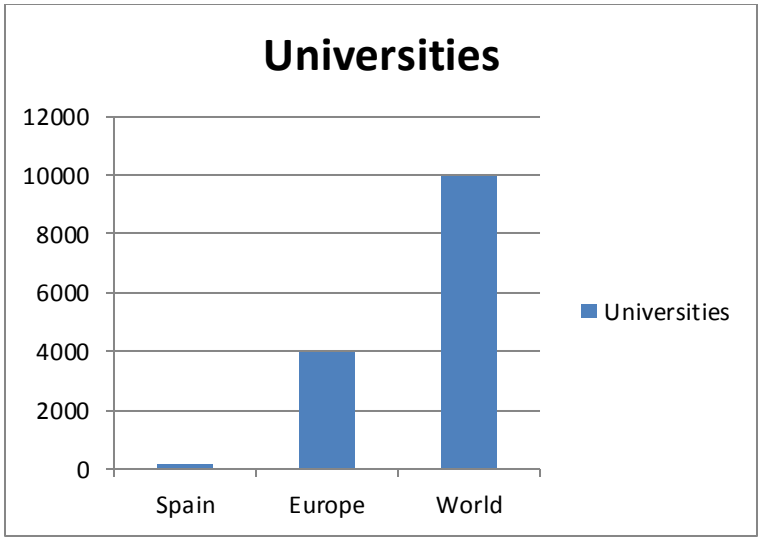

Figure 3: Statistical Analysis of Universities

Glance at Market of Materials Science:

The global market is projected to reach $6,000 million by 2020 and register a CAGR of 10.2% between 2015 and 2020 in terms of value. The growth in market is estimated to be driven by the increasing demand for aerogel materials from oil & gas and construction applications. The North American region remains the largest market, followed by Asia-Pacific. The Europe market is estimated to be growth at a steady rate due to economic recovery in the region along with the increasing concern for the building insulation and energy savings. The U.S. Bureau of Labour Statistics (BLS) produces annual wage estimates for more than 800 individual occupations. Newly released figures for 2012 put BLS Code 19-2032 (an occupational group encompassing materials scientists) in 82nd place in yearly wages. The group, which includes 7,970 employees across the country, posted an average annual salary of $89,740.

Scientific's index of countries' ability to take advantage of emerging technologies indicates that the US, Germany, Taiwan and Japan have the combination of academic excellence, technology-hungry companies, skilled workforces and the availability of early stage capital to ensure effective technology transfer. Corporate research and private funding were thought to have surpassed government funding figures as far back as 2004. But China will spend US$2.25 billion in nanotechnology research while the US will spend US$2.18 billion. In real dollar terms, adjusted for currency exchange rates, China is only spending about US$1.3 billion to the US's $2.18 billion. US have invested $2.46 billion while China has allotted $2.2 billion.

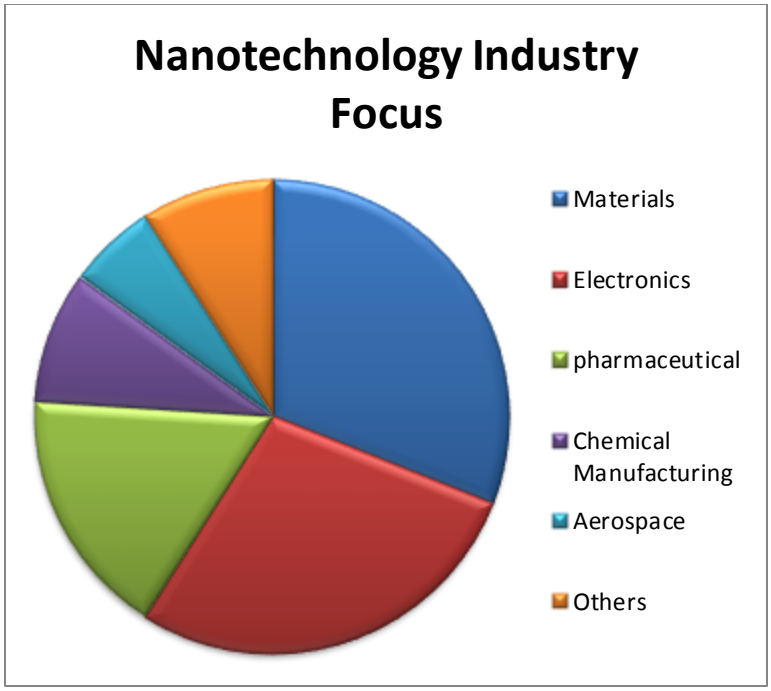

Figure 4: Nanotechnology Industry Focus.

The global market for biomaterials is estimated at $44.0 billion in 2012 and is poised to grow at a CAGR of 15% from 2012 to 2017 to reach $88.4 billion by 2017. The biomaterial polymers market is expected to show the highest growth at a CAGR of 22.1% (2012-2017) due to tremendous ongoing research for the development of biodegradable and bio-compatible polymeric biomaterial and its use in a wide range of applications.

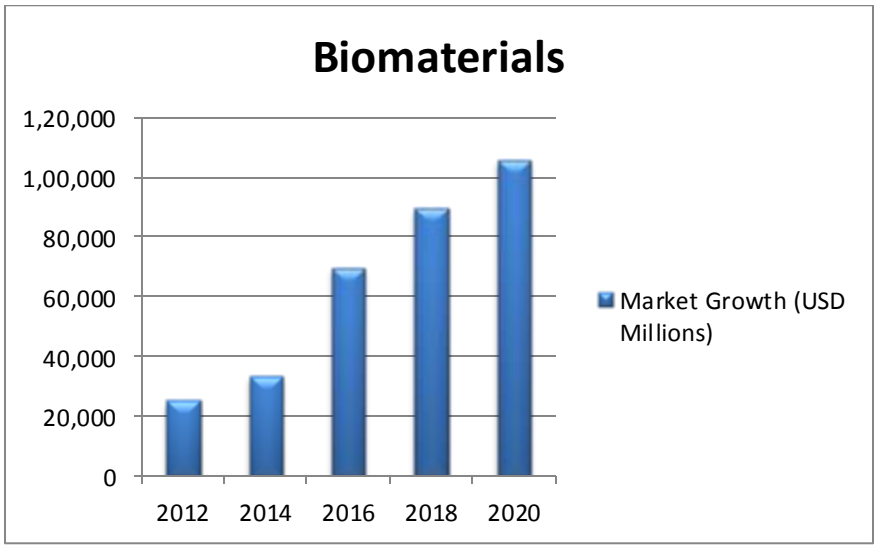

Figure 5: Growth forecast of Biomaterials.

Transparency Market Research's new market report, titled 'High Performance Alloys Market - Global Industry Analysis, Size, Share, Growth, Trends and Forecast, 2014 - 2020', provides a detailed description of the high performance alloys market in terms of revenue (US$ million) and

volume share (kilo tons) for the forecast period 2014-2020. According to the analysis stated in the report, the global high performance alloys market is expected to rise and reach US$9.09 billion by 2020, from a value of US$6.82 billion in 2013. The report analyses the market with respect to various segments along with the growth opportunities expected in the next six years. In terms of volume, the market stood at 1,110.7 kilo tons in 2013. Overall, the market is expanding at a steady CAGR of 4.2% during the forecast period from 2014 to 2020.

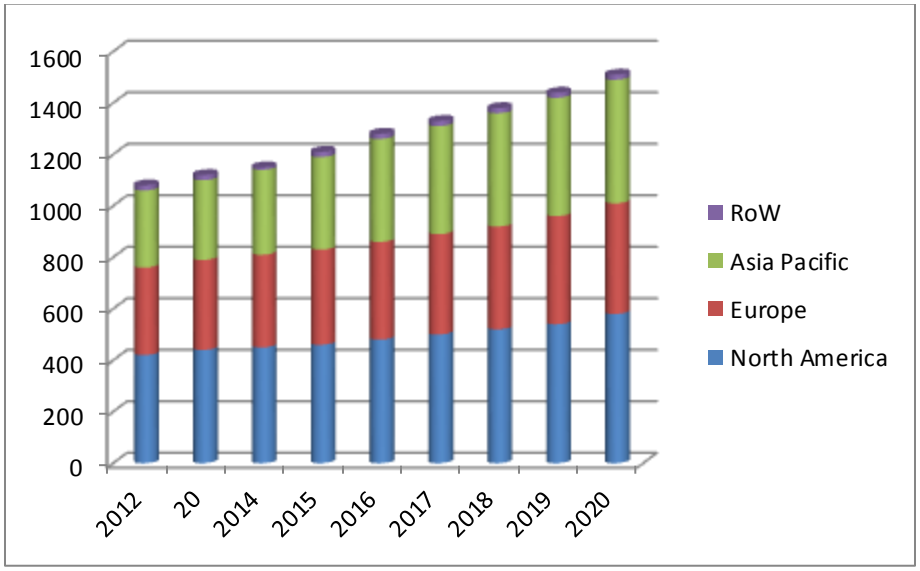

Figure 6: Global high performance alloys market by region (Kilo Tons)

Currently standing at USD 296.2 billion, the ceramics market is forecast to grow to USD 502.8 billion by 2020, as every industry achieves improved manufacturing efficiency along with high renewable energy efficiency. According to global market analysis, in 2014, the Composite materials industry is expected to generate revenue of approximately 156.12 billion U.S. dollars.

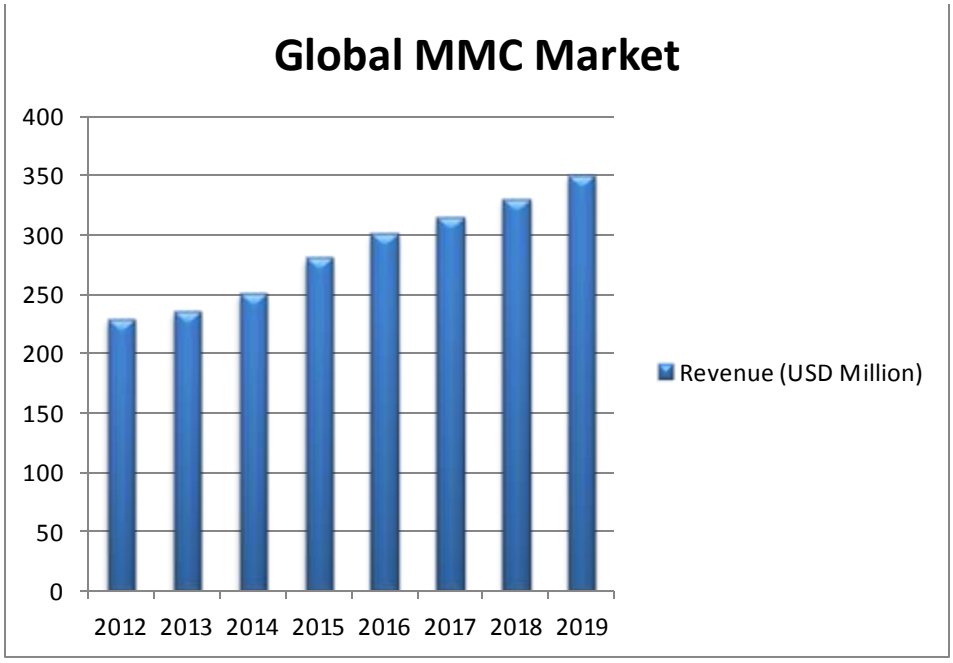

Figure 7: Global MMC Market revenue.

The silicon photonics market is expected to grow to $497.53 million by 2020, growing at a CAGR of 27.74% from 2014 to 2020. The silicon carbide semiconductor market is estimated to grow $3182.89 Million by 2020, at an estimated CAGR of 42.03% from 2014 to 2020.

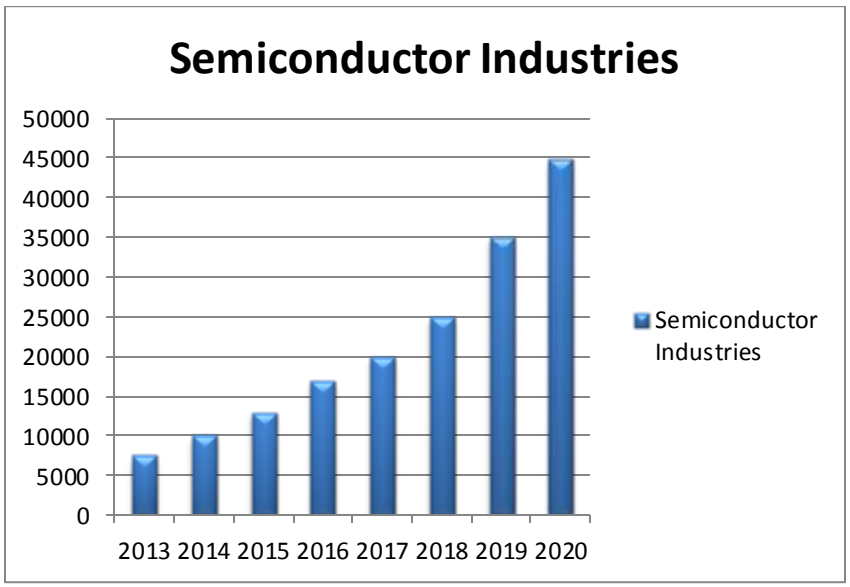

Figure 8: Growth forecast of semiconductor industries. (In Million Dollars)

BCC Research projects that the total global market for metamaterials is expected to grow from $289.2 million in 2013 to about $1.2 billion by 2019 and nearly $3.0 billion by 2024, registering a compound annual growth rate (CAGR) of 20.5% between 2019 and 2024. The global market for superconductivity applications was worth nearly $1.8 billion in 2013 and is expected to approach about $2.0 billion in 2014 and nearly $4.2 billion in 2019, with a compound annual growth rate (CAGR) of 16.4% over the next five years. The global market for smart materials totaled about $26.0 billion in 2014 and is expected to reach $42.2 billion in 2019, registering a compound annual growth rate (CAGR) of 10.2% for the period 2014-2019.

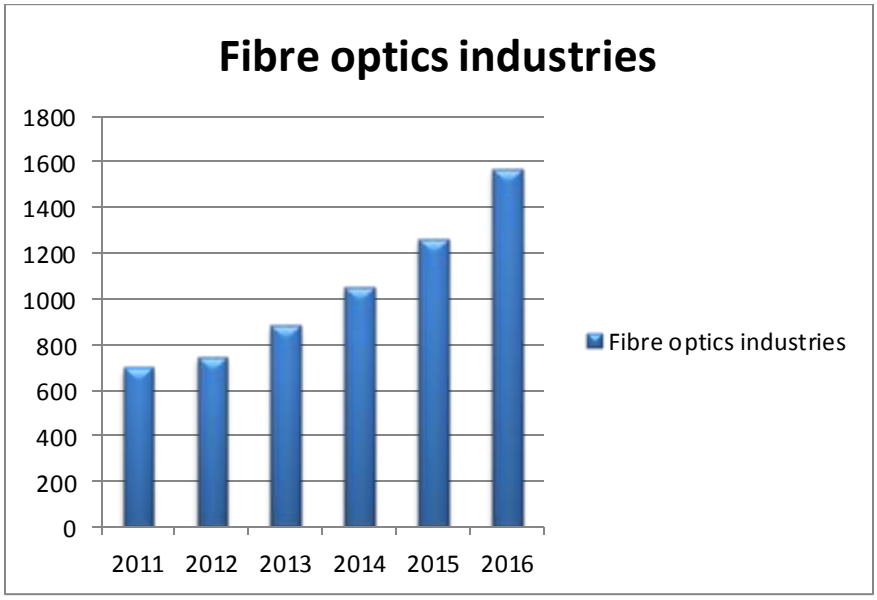

Figure 9: Growth forecast of Fibre optics industries. (In Million Dollars)