

Condensed Matter Physics

Theme: From Solid State Physics to Condensed Matter Physics

Summary:

Condensed matter physics is a branch of physics that deals with the physical properties of condensed phases of matter. Condensed matter physicists seek to understand the behaviour of these phases by using special physical laws. In particular, these include the laws of quantum mechanics, electromagnetism and statistical mechanics. The most familiar condensed phases are solids and liquids, while more exotic condensed phases include the superconducting phase exhibited by certain materials at low temperature, the ferromagnetic and antiferromagnetic phases of spins on atomic lattices, and the Bose–Einstein condensate found in cold atomic systems. The study of condensed matter physics involves measuring various material properties via experimental probes along with using techniques of theoretical physics to develop mathematical models that help in understanding physical behaviour. Research in condensed matter physics has given rise to several device applications, such as the development of the semiconductor-transistor, and laser technology. Several phenomena studied in the field of nanotechnology come under condensed matter physics. Techniques such as scanning-tunnelling microscopy can be used to control processes at the nanometre scale. This has given rise to the field of nanofabrication. Several condensed matter systems are being studied with potential applications in quantum computation, including experimental systems like quantum dots, SQUIDs, and theoretical models like the toric code and the quantum dimer model. Condensed matter systems can be tuned to provide the conditions of coherence and phase-sensitivity that are essential ingredients for quantum information storage. Spintronics is a new area of technology that can be used for information processing and transmission, and is based on spin, rather than electron transport. Condensed matter physics also has important applications to biophysics like the experimental technique of magnetic resonance imaging, which is widely used in medical diagnosis. The organizing committee is gearing up for an 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. We invite you to join us at the Condensed Matter Physics-2016, where you will be sure to have a meaningful experience with scholars from around the world. All members of the Condensed Matter Physics-2016 organizing committee look forward to meeting you in Chicago, USA.

Why Chicago?

Chicago is the third most populous city in the United States. It is the most populous city in the state of Illinois and the Midwest with over 2.7 million residents. The Chicago metropolitan area is home to nearly 10 million people and is the third-largest in the United States. Chicago is the seat of Cook County.

Chicago was incorporated as a city in 1837, near a portage between the Great Lakes and the Mississippi River watershed, and experienced rapid growth in the mid-nineteenth century. Today, the city is an international hub for finance, commerce, industry, technology, telecommunications, and transportation, with O'Hare International Airport being the busiest airport in the world; it also has the largest number of U.S. highways and railroad freight. In 2012, Chicago was listed as an alpha global city by the Globalization and World Cities Research Network, and ranks seventh in the world in the 2014 Global Cities Index. As of 2012, Chicago had the third largest gross metropolitan product in the United States at US\$571 billion. Apart from this Chicago is home to several scientists and professors from several fields and this makes it ideal place for the conference.

Why to attend???

Condensed Matter Physics-2016 is an exciting opportunity to showcase the new technology, the new products of your company, and/or the service your industry may offer to a broad international audience. It covers a lot of topics and it will be a nice platform to showcase their recent researches on condensed matter physics, nanotechnology and other interesting topics.

Major Physics Associations around the Globe

The International Association of Mathematical Physics (IAMP)

International Astronomical Union

The International Liquid Crystal Society

The international society for optics and photonics (IUPAB)

International Union of Crystallography

The International Union of Pure and Applied Physics

International Organization of Chinese Physicists and Astronomers

Society of Non-Linear and Dynamics Econometrics

Major Physics Associations in USA

The American Association of Physicists in Medicine AAPT

International Conference and Exhibition on

Mesosopic & Condensed Matter Physics

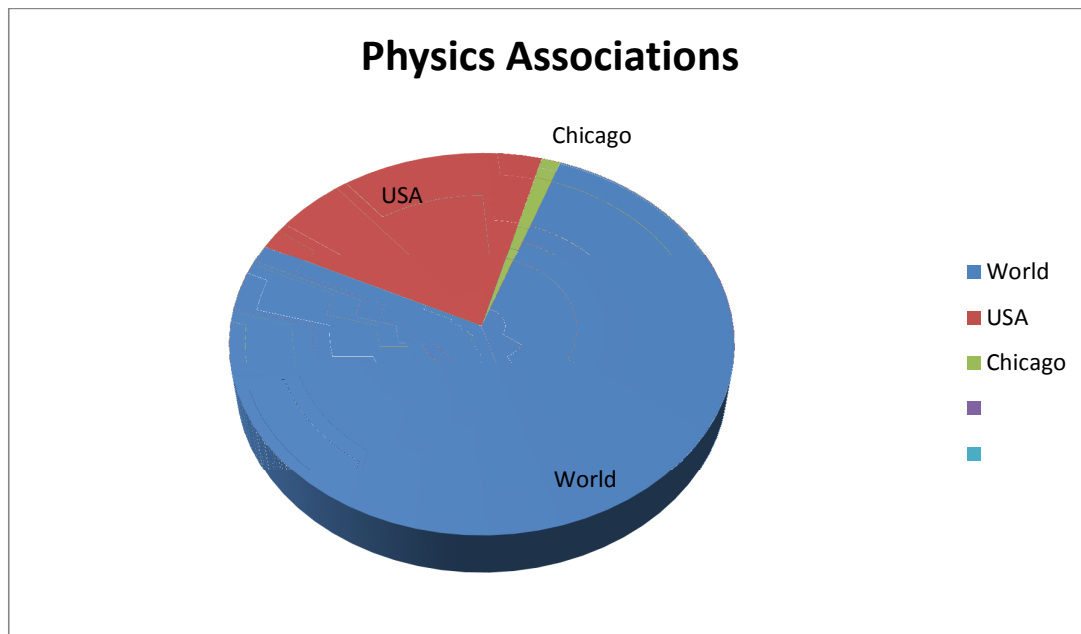
Dates and Venue: June 22-24, 2015 Boston, USA

Materials Research Society

The American Ceramic Society

International Centre for Theoretical Physics

International Union of Materials Research societies

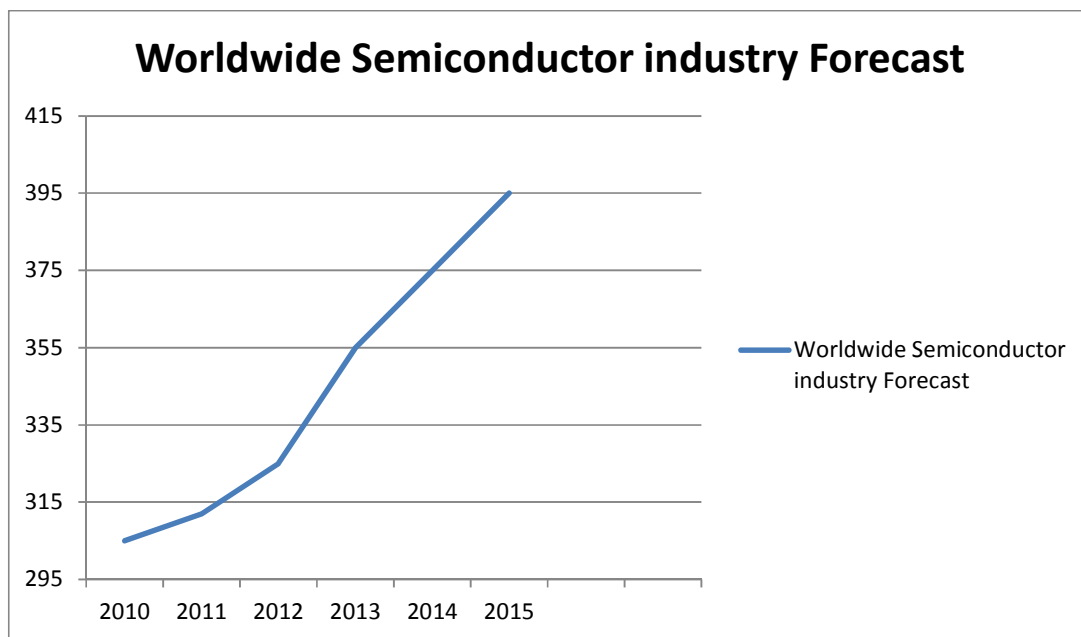


Target Audience

Eminent Scientists/ Research Professors, Junior/Senior research fellows, Students, Directors of companies, Engineers, members of different physics associations.

Glance at Market of Condensed Matter Physics

The semiconductor industry is the aggregate collection of companies engaged in the design and fabrication of semiconductor devices. It formed around 1960, once the fabrication of semiconductors became a viable business. It has since grown to be the \$350 billion industry it is today. The global semiconductor industry is dominated by USA, South Korea, Japan, Taiwan, Singapore, and European Union. The U.S. industry faces challenges to development by some forms of government regulation. The U.S. government regulates exports and certain uses of some types of semiconductors due to their potential dual use in military applications. The popularity of Condensed Matter Physics is concentrated mainly in USA followed by Japan and China. USA and Japan are the leading producers of semiconductors, average approximate turn over- \$20,000 million.



Source: IHS iSuppli Research, January 2012

WSTS Forecast Summary from the autumn 2014 Forecast Meeting, held in Hiroshima, Japan, 20-2 May 2014.

Spring 2014	Amounts in US\$M				Year on Year Growth in %			
	2013	2014	2015	2016	2013	2014	2015	2016
America	61,496	62,796	64,462	66,985	13.1	2.1	2.7	3.9
Europe	34,883	37,664	38,716	40,334	5.2	7.9	2.8	4.2
Japan	34,795	34,360	35,036	36,078	-15.2	-1.3	2.0	3.0
Asia-Pacific	174,410	190,580	197,993	207,077	7.0	9.3	3.9	4.6
Total World - \$M	305,584	325,379	336,148	350,474	4.8	6.5	3.3	4.3
Discrete Semiconductors	18,201	19,492	20,379	21,123	-4.9	7.1	4.6	3.7
Optoelectronics	27,571	29,952	31,483	32,768	5.3	8.6	5.1	4.1
Sensors	8,036	8,764	9,403	9,896	0.3	9.1	7.3	5.2
Integrated Circuits	251,776	267,172	274,882	286,687	5.7	6.1	2.9	4.3
Analog	4,117	43,775	46,315	48,695	2.1	9.1	5.9	5.1
Mico	58,688	59,241	60,912	63,293	-2.6	0.9	2.8	3.9
Logic	85,928	92,062	94,996	98,246	5.2	7.1	3.2	3.4
Memory	67,043	72,094	72,659	76,453	17.6	7.5	0.8	5.2
Total Products - \$M	305,584	325,379	336,148	350,474	4.8	6.5	3.3	4.3

Source: www.ebnonline.com