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Wissenschaftlicher Abendvortrag
(in englischer Sprache)

Montag, 20. Juni 2016, 18:30 Uhr

Magnus-Haus Berlin, Am Kupfergraben 7, 10117 Berlin

Prof. Dr. Dr. h.c. mult. D. D. Sarma
Indian Institute of Science, Bangalore (India)

Brighter Side of Semiconductor Nanocrystals: How to Make Defects Useful

Diskussionsleitung: Prof. Dr. Wolfgang Eberhardt, Wiss. Leiter Magnus-Haus Berlin

Anschließend kleine Bewirtung. Die Veranstaltung wird gefördert durch die WE-Heraeus-Stiftung.

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Zur Person:
D. D. Sarma obtained his 5-years Integrated Masters degree in Physics from Indian Institute of Technology, Kanpur in 1977 and Ph.D. Degree in 1982 from Indian Institute of Science (IISc), Bangalore. He worked in Kernforschungsanlage, Jülich, Germany, as a Visiting Scientist during 1984 - 1986. Since 1986, he has been a faculty member at IISc. He also holds time-bound joint appointments as a Guest Professor at the Department of Physics and Astronomy, Uppsala University, Sweden and Distinguished Scientist of the Council of Scientific and Industrial Research, India. He was the MLS Chair Professor as well as the Founder-Chairman of the Centre for Advanced Materials at Indian Association for the Cultivation of Science (IACS), Kolkata during 2006 - 2008. He is or has been an Honorary or Guest Professor of a number of institutions in India and abroad, such as JNCASR, Bangalore; TIFR, Mumbai; IISER, Kolkata; IACS, Kolkata; and University of Tokyo.

Zum Inhalt des Vortrags:
One of the most exciting properties of semiconductor nanoparticles is the spectacular light it emits when excited, a phenomenon known as photoluminescence that has the potential to revolutionise the lighting technology. The early excitement was based on the realisation that quantum effects can be made use of to tune this emission across the visible range by tailoring the size of such pure nanoparticles. However, self-absorption as well as susceptibility to surface degradation are known to drastically affect the efficiency of such emissions, posing a challenge to technological utilisations of these materials. I shall discuss the counterintuitive approach based on deliberate insertion of point and extended defects in nanoparticles to overcome those intrinsic drawbacks of the pure system and to bring these materials closer to practical applications.