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Revolutionary role of nanomaterials in cancer therapy

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Nanotechnology arises from the exploitation of new properties, phenomena, processes, and Functionalities that matter exhibits at intermediate sizes between isolated atoms or molecules (~ 1nm) and bulk materials (over 100 nm). As opposed to the microscale, the nanoscale is not just another step towards miniaturization, but is a qualitatively new scale. Here quantum and size 2 phenomena are allowed to manifest themselves either at a purely quantum level or in a certain "admixture" of quantum and classical components. The foundation of nanosystems lie in the quantum manifestations of matter that become relevant and measurable. Consequently, instead of being a limitation or an elusive frontier, quantum phenomena have become the crucial enabling tool for nanotechnology. This talk throws light on the recent developments in cancer detection methods with an emphasis on nanotechnology. Nanomaterials have unique features that are attractive, and can be applied to biosensing. The development of various nanomaterials and nanotechnology has enabled detection of cancer biomarkers with great precision and sensitivity that could not be achieved before. The low detection limit obtained by nanotechnology is expected to contribute immensely to the early detection and accurate prognosis of cancers. Since it has huge importance and will be able to diagnose cancer as early as possible, many studies are being conducted all over the world including Centre for Interdisciplinary Research at D.Y. Patil University, Kolhapur, on developing sensing mechanisms. This will push down the detection limit as far down as possible. As well, various new biomarkers discovered and verified with such sensitive tools are reported in the present talk.

Biography

S. H. Pawar is presently working as the Vice-Chancellor of the D. Y. Patil University, Kolhapur, India. He is an academician with distinguished record and scholastic recognition in the national and international circle of Physicists. He has worked as "Emeritus Scientist" CSIR, Delhi and held various important responsibilities. He has edited 10 books, written 25 review articles and published more than 700 research papers in National & International Journals and Proceedings of the Conferences. He has supervised successfully 50 research scholars for their Ph.D. award. His frontier areas of research are Nanotechnology, Medical Physics, Superconductivity, Thin Film Physics and Renewable Energy Resources.

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