

NANOSCIENCE AND NANOTEHNOLOGY

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Abstract. *In this paper, after introduction, it's presented the main strategic and current research areas in the nano world. The author presents the main direction of development of the nanotechnology, and the necessity of the regulations and standardization in the field of the nanotechnology. The main conclusion of this paper is that nanotechnology has advanced beyond the stage of an infant scientific field to provide now a tool kit that is poised to help us to solve a number of pressing problems.*

Keywords: nanoscience, nanotechnology, nanodevices, nanoelectronics, nanophotonics, nanosensors, molecular junction, nanofabrication, metamaterials

1. Introduction

Nanoscience and nanotechnology, without any doubt, will lead in the XXI century to many technological revolutions. Even, in our times, nanotechnology starts an industrial revolution that may have a bigger impact than the industrial and technological revolutions in the past 250 years brought on by great inventions such as the steam and internal combustion, electrical power generation, the automobile, the airplane, the integrated circuit e.g., which brought major changes in manufacturing, transportation and communications, that have had a profound effect on the socioeconomic and cultural conditions of mankind.

We can be sure that nanoscience and nanotechnology are revolutionary quests that will transform almost everything we do, the way we live and work, and the organizations around us.

If, the steam power revolution has been started in Great Britain, the internal combustion engine has been started in Germany, or the integrated circuit industrial revolution has been started in the United States, and they have been spread throughout all over the world, nanoscience and nanotechnology have been developed in many regions around the world, with unprecedented levels of global financial and intellectual investments.

The nanoscience and nanotechnology revolution can be compared with other major social history turning points like invention of farming or the rise of the first city-states.

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