

SOCIAL AND ETHICAL IMPLICATIONS OF MICRO AND NANOTECHNOLOGIES

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Abstract. *This paper approaches technologies which gain more and more interest in the latest period, because they contribute to the accomplishment of some very important 3rd millennium issues: soil pollution, water and air pollution, natural resources depletion, demographic growth, global warming. The technical possibilities and devices of micro, nano, pico and even femto type open up new and revolutionary perspectives in science and applications. Research and development of nanotechnologies implies controlled manipulation of nanostructures and their integration in materials, systems and architectures. Nanotechnologies have many applications in all fields of engineering and will contribute with certitude at the amplification of the social effects of other technologies.*

Keywords: nanotechnologies, microtechnologies, ethical implications, legal issues, social implications

1. Introduction

Long time ago novelists considered the amazing possibilities of living beings much bigger or much smaller than us. Back in 50's, the physicist Richard Feynman foresees the fabrication of machines much smaller than their makers. The human's length scale, at slightly more than 10^0 m, remarkably fits right in the middle of the smallest subatomic particle, which is approximately 10^{-26} m, and the extent of the observable universe, which is of the order of 10^{26} m.

The next Industrial Revolution is already here. Fourth generation nanotechnology (molecular manufacturing) will radically transform the world, and the people, of the 21st century. Whether that transformation will be peaceful and beneficial or horrendously destructive is unknown.

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