

Joint Event on  
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**QUANTUM PHYSICS AND NUCLEAR TECHNOLOGY**  
&  
6<sup>th</sup> International Conference on  
**ATOMIC PHYSICS AND NUCLEAR PHYSICS**

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### **Effect of nuclear radiations on atoms in solids and on cells in humans**

We are constantly exposed to radiations from a variety of naturally occurring and human-produced sources. These radiations can affect atoms in solids as well as cells in living organisms. The paper discusses how radiation can ionize atoms, molecules or break chemical bonds, which damages the molecules and causes malfunctions in cell processes. Radiation can also create reactive hydroxyl radicals that damage biological molecules and disrupt physiological processes. It can cause somatic or genetic damage and is most harmful to rapidly reproducing cells. Types of radiation differ in their ability to penetrate material and damage tissue with alpha particles the least penetrating but potentially most damaging and gamma rays the most penetrating. The paper shows that there exists various devices and dosimeters which are used to detect and measure radiation and monitor radiation exposure which can cause a wide range of health effects from minor to severe and including death. All radioactive particles and waves from the entire electromagnetic spectrum to alpha, beta, and gamma particles, possess the ability to eject electrons from atoms and molecules to create ions, chemical reactions and damage. We can minimize the effects of radiation by shielding with dense materials such as lead, moving away from the source, and limiting time of exposure.

### **Biography**

Salah Arafa is a Professor in School of Sciences and Engineering in Americal University of Cairo, Egypt.

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