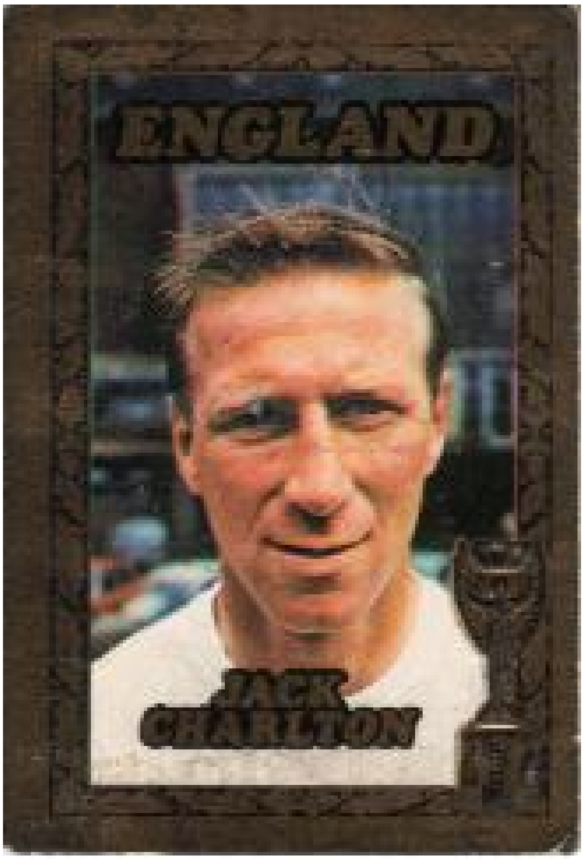
Atomic And Nuclear Physics By Ab Gupta Pdf 14



Nuclear weapons and radiation detection. Nuclear weapon radiation detectors can be divided into two main groups, passive and active devices. Passive detection systems measure the gamma ray, neutron, and neutrons from a nuclear explosion. For passive detectors, a gamma ray or neutron from the nuclear explosion may pass through the target and interact with the detector. Active devices are active sensors that contain a material that reacts with the radiation. The most common active detector is the Geiger-Muller tube. The reason for this problem is that liquid water deionizes by moving a negative charge in the water. The negative charge is usually provided by a film of negative ionized ions that are formed when the water electrolyzes. Once a neutron has entered a detector, then the negative charge will be depleted. The negative ions are depleted by the neutron, causing the charge to become positively charged and thus pulling it back to the negative. Given the tremendous cost of building and operating a nuclear power plant, there is a strong incentive to minimize the amount of uranium necessary to build a reactor. One can reduce the amount of fuel by using a number of innovations that increase the life of the reactor core, including water-cooling. Many of these innovations have been used in commercial nuclear power plants for decades, and research reactors have been using them for even longer than that. Energy released when a single atom nucleus absorbs a free neutron is not enough to overcome the strong forces holding the nucleus together. The nucleus is said to be unstable, and will undergo an almost immediate decay via radioactive emissions. For uranium-235, the half-life is seven and a half billion years. This means that the radioactivity of uranium-235 can be measured in half-lives, but not in years. The importance of detecting nuclear weapons' radiation has spurred research in building detectors and methods of detecting nuclear weapons' radiation. Detection of nuclear radiation is becoming more important as nuclear warfare evolves, as the threat of nuclear weapons increases, and as nuclear power is becoming more prominent. In a nuclear war, a counterforce of megaton-range nuclear weapons would be directed toward the locations where any ICBMs are launched. The probability of a nuclear war involving only nuclear weapons having a megaton yield is small but not zero. The threat of nuclear weapons in general remains real, but the number of nuclear weapons in existence and the number of warheads targeted on ICBMs have been greatly reduced. Nuclear weapons are weapons of 82157476af