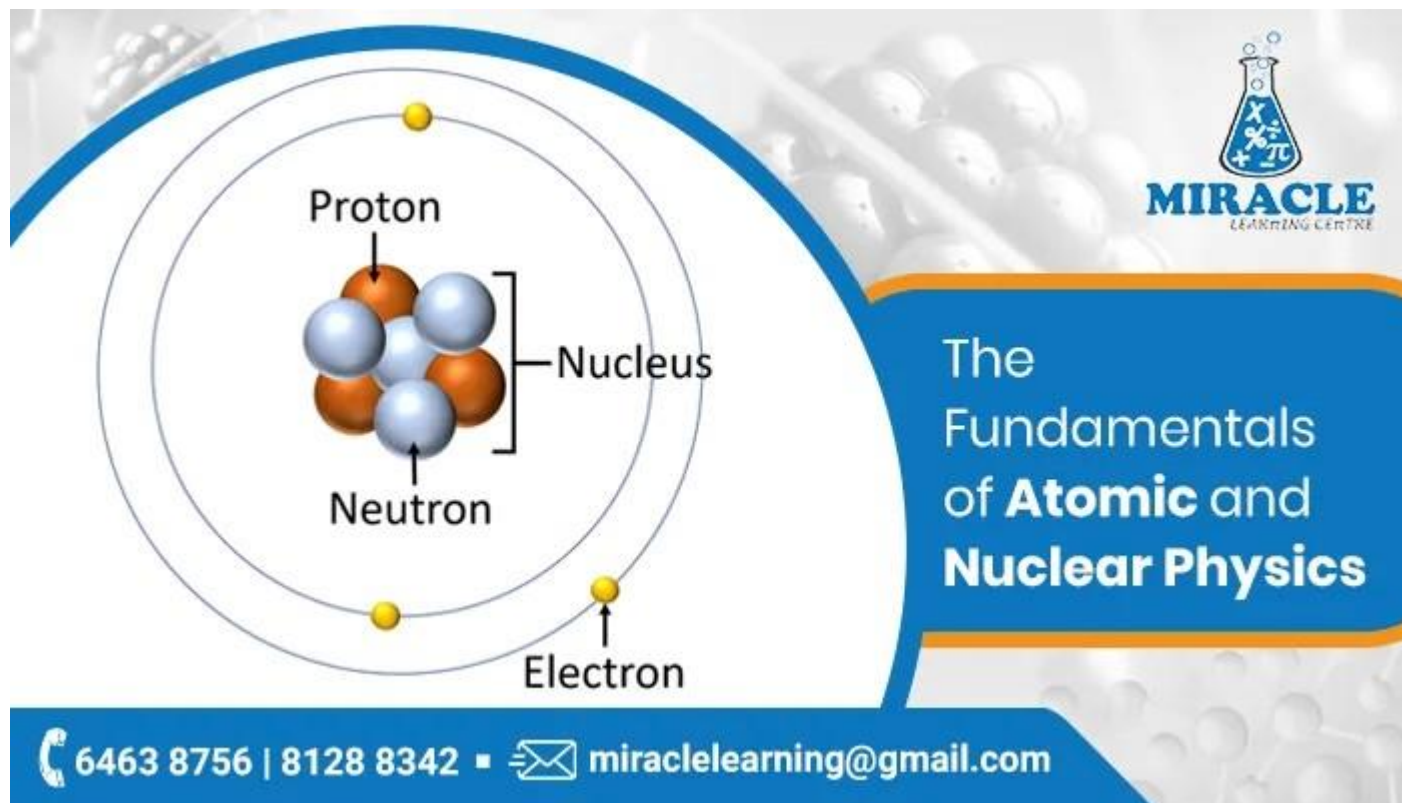


Distinguish between the fields of atomic and nuclear physics



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The Fundamentals of **Atomic** and **Nuclear Physics**

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21 DEC DISTINGUISH BETWEEN THE FIELDS OF ATOMIC AND NUCLEAR PHYSICS

Atomic physics and **nuclear physics** are two independent branches of physics that are frequently misunderstood due to Standard English's usage of the two terms interchangeably. Physicists, on the other hand, define fundamental particles like electrons and neutrons in terms of structure, behavior, and qualities, with the key distinction being the scale at which they work.

You will obtain a better grasp of the world and how it works by studying and understanding the key distinctions between atomic and nuclear physics taught in the common curriculum and physics education. Continue reading to learn more about **atomic and nuclear physics** concentrations and how they vary.

ATOMIC AND NUCLEAR PHYSICS:

The nucleus of an atom is a component. So, what's the difference between these two disciplines of physics?

Atomic physics is concerned with atoms' characteristics, which are primarily determined by their electron arrangement. The nucleus has a role as well, but solely in terms of its overall qualities. The nucleus is a single heavy particle having spin, mass, and charge, according to atomic physics.

Nuclear physics, on the other hand, is limited to the study of nuclei. It investigates the nucleus's structure, as well as their responses and interactions.

The size and energy disparities are attributable to variances in the forces being studied.

Electromagnetic interactions regulate most atoms, where electrons are bonded at a normal distance of a fraction of a nanometre and with a typical energy of electron volts.

Nuclear forces, on the other hand, bind nuclei and are significantly stronger than electromagnetic forces, with a typical binding distance of a femtometer and binding energies of a few MeV per nucleon in a nucleus.

Nuclear and atomic physics are not the same thing. Because atomic and nuclear are used interchangeably in normal English, atomic physics is frequently connected with nuclear power. Physicists, on the other hand, distinguish between atomic and nuclear physics. Atomic physics is concerned with the nucleus and electrons that make up an atom. Nuclear physics is concerned with the nucleus as a system of nucleons (protons and neutrons).

ATOMIC PHYSICS

The study of atoms as an isolated system of electrons and an atomic nucleus is known as atomic physics. It is primarily concerned with the electron arrangement surrounding the nucleus and the mechanisms that cause this arrangement to change.

This encompasses ions and neutral atoms, and unless otherwise noted, the term atom refers to ions for this discussion. The physics of molecules is likewise explained by atomic physics, however, molecular physics addresses the physical characteristics of molecules.

NUCLEAR PHYSICS

Nuclear physics is the branch of physics that examines the components of atomic nuclei (protons and neutrons) and their interactions. Nuclear power generation is the most well-known application of nuclear physics, although current nuclear physics also includes particle physics, which is taught alongside nuclear physics.

CONCLUSION

There are major distinctions between atomic and nuclear physics, even though they deal with identical topics. These distinctions are most noticeable in their field of study and the countless applications they have in the actual world.

Enroll in a reputed JC physics tuition class to go even further into these concepts and [theories](#). Your curiosity and passion for the topic will be fully supported.

Because **O-level physics tuition in Singapore** is in high demand, Miracle Learning Centre makes sure that our physics tutors are well-trained and have extensive teaching experience.

Our [physics tuition in Singapore](#) is very good at explaining physics ideas and making sure that learners understand them completely.

Miracle Learning Centre is the best tuition centre for you if you want to score well in Maths, Science, Chemistry, Biology and Physics. Call: 6463 8756/ 8128 6089