Recent Advances in Nuclear Medicine

***Abstract*—Nuclear medicine has a long and illustrious history that has garnered enormous investment. New nuclear medicine methods have been developed as a result of these investments, which may detect diseases non-invasively and provide information that cannot be obtained with existing imaging technologies, as well as give tailored treatments. Overall, the use of nuclear medicine procedures is rapidly increasing, particularly as new imaging technologies such as positron emission tomography/computed tomography and single photon emission computed tomography/computed tomography improve the accuracy of disease detection, localization, and characterization, and as cyclotron automation and miniaturization, as well as advances in radiochemistry, make radiotracer production more practical. Recent advancements in the life sciences, such as molecular biology, genetics, and proteomics, have sparked the creation of better ways for identifying and treating disease based on a person's unique profile, a concept known as "personalized medicine." Research that provides a better understanding of normal and pathological processes, greater knowledge of the mechanisms by which individual diseases arise, superior identification of disease subtypes, and better prediction of an individual patient's treatment responses will help personalized medicine grow. The process of improving patient care, on the other hand, is complicated and time-consuming. Expanding the use of nuclear medical procedures has the potential to speed up, simplify, and lower the costs of developing and delivering better health care, as well as make customized medicine easier to execute. In this paper we are going to discuss recent advances in the field of nuclear medicine, it's advantage, it's design disadvantages and also walk through the future prospects in the field of nuclear medicine.**

***Index Terms*—**

I. Introduction