Abstract:

Medical physics has advanced significantly over the past hundred years. Imaging and radiation therapy have significantly improved quality of patient care by improving survival and reducing treatment related complications. A journey through this transition mainly in radiation therapy is provided from two dimensional (2D), three-dimensional conformal radiation therapy (3DCRT), intensity modulated radiation therapy (IMRT), volumetric modulated arc therapy (VMAT) and particle beam therapy. Importance of medical physics for inhomogeneity corrections and advances in treatment planning calculation algorithms will be highlighted. Currently a convergence between imaging and therapy is taking place through MRI-linac that will be discussed. New trends in artificial intelligence for automated treatment planning to image texture analysis in Radiomics for the outcome analysis will be elaborated.

Bio: Dr Indra J Das is Vice Chair, Professor and Director of Medical Physics at NYU Langone Medical Center. He is a graduate of the Universities of Wisconsin (MS) and Minnesota (PhD). Dr. Das has worked in many institutions such as the University of Massachusetts Medical Center, Fox Chase Cancer Center, University of Pennsylvania, and Indiana University School of Medicine. He was director of the Proton Center in Bloomington, Indiana, before it was closed.