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Concept of mass and the generalized form of law of Motion. AKM HARUN-AR-RASHID[1], Faculty of Mechanical Engineering, University of Ontario Institute of Technology, Oshawa, ON L1H 7K4, Canada — Newton's laws of motion play a vital role in classical physics and astronomy. However, Newton's second law of motion is found crippling and MOdified Newtonian Dynamics (MOND) is proposed. The above law is also considered the limiting case of Einstein's relativistic motion for small velocity compared to the speed of light $(v^2/c^2 << 1)$. This study proposes a generalized form of law of motion $vF = ma$ and hence, $v = v_0 e^{\frac{F}{m}t^0\sqrt{1-\frac{v^2}{c^2}}}$ which gives both Newton's law and Einstein's law of relativity as the limiting case. The above equation can explain the real world applications. The concept of mass in mechanics is also important. However, there is still debate over the relativistic and non-relativistic masses. If the concept of mass in mechanics is not clear, the application of these laws would produce huge controversial results. This study has provided the clear idea about mass which may help to get conclusion of the debate.

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