Abstract Submitted
for the APR17 Meeting of
The American Physical Society

Dynamics of Moving bodies PRANOY GHOSH, None — "A problem with defining force as rate of change of linear momentum": Let us consider a body of mass m, moving with velocity u initially, in the next time interval it is acted by a force in the direction of motion, and at instant t+ its mass is M and velocity v. F·t=Mv-mu or,v= m/M.u+F/M.t or,v=B.u+A.t where A=F/M,B=m/M. So other eqn of motion are: dS=vdt or dS=(B.u+A.t)dt or S=B.u.t+A/2.tˆ2 Andvˆ2=Bˆ2 uˆ2+2A·B·u·t+Aˆ2 tˆ2 or,vˆ2=Bˆ2 uˆ2+2A.S However, defining acceleration as rate of change of velocity, we have established an identity v=u+a.t which is independent of choice of v, u. M>>m, B is very small, product B.u or its higher power always tend to be negligible, even in cases when u is finitely large.In cases v→c,F,M→ ∞, thus A becomes indeterminate.There is inconvenience as A, B are not predetermined and are functions of u, v and thus the definition goes in circle. Hence we conclude, our hypothesis that force=rate of change of linear momentum is not sufficient; we would now find trial solutions to define force in most convenient way.

Pranoy Ghosh
None

Date submitted: 17 Nov 2016 Electronic form version 1.4