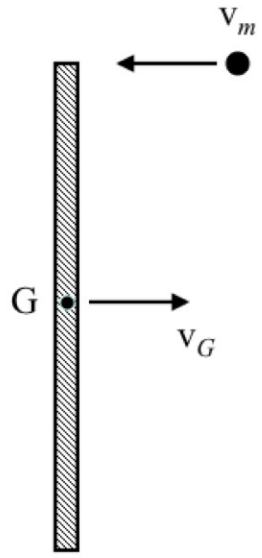
Homework H5.N

Given: A homogeneous, slender bar of mass M and length L is sliding across a frictionless horizontal surface with a speed v_G when it is suddenly struck at its end by a particle of mass m moving with velocity v_m in the direction shown. Assume that the particle sticks to the bar upon impact.

Find: Determine the velocity of the bar's center of mass G and the angular velocity of the bar post-impact.



Use the following parameters in your analysis: $M = 4$ kg, $L = 0.75$ m, $v_G = 5$ m/s, $m = 0.4$ kg and $v_m = 25$ m/s.