wad DJ: [wɔd] 軟填料;(棉花、縐紙等的)(一)團
s'ticky 黏的. clay 黏土;泥土
ve'locity 速度
mount 架置;登上,爬上;騎上. axle DJ: ['æksl] 車軸,輪軸
run through 穿過. pro'jectile DJ: [prə'dʒektil] 拋射體;發射體
strike 打,擊,

39. Q|C S A wad of sticky clay with mass m and velocity $\vec{\mathbf{v}}_i$ is fired at a solid cylinder of mass M and radius R (Fig. P11.39). The cylinder is initially at rest and is mounted on a fixed horizontal axle that runs through its center of mass. The line of motion of the projectile is perpendicular to the axle and at a distance $d < R$ from the center. (a) Find the angular speed of the system just after the clay strikes and sticks to the surface of the cylinder. (b) Is the mechanical energy of the clay–cylinder system constant in this process? Explain your answer. (c) Is the momentum of the clay–cylinder system constant in this process? Explain your answer.

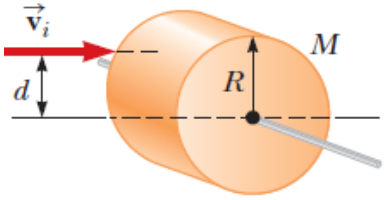

Figure P11.39

puck (冰上曲棍球用)橡皮圓盤
at'tach 裝上,貼上,繫上,附加
taut DJ: [tɔ:t] 拉緊的,繃緊的. taut cord 緊繃的繩索
'orbit n.運行軌道. vt.環繞(天體等)的軌道運行
pull 拉， pulled from below 被自下方向下拉
'tension 張力

52. **M** A puck of mass $m = 50.0$ g is attached to a taut cord passing through a small hole in a frictionless, horizontal surface (Fig. P11.52). The puck is initially orbiting with speed $v_i = 1.50$ m/s in a circle of radius $r_i = 0.300$ m. The cord is then slowly pulled from below, decreasing the radius of the circle to $r = 0.100$ m. (a) What is the puck's speed at the smaller radius? (b) Find the tension in the cord at the smaller radius. (c) How much work is done by the hand in pulling the cord so that the radius of the puck's motion changes from 0.300 m to 0.100 m?

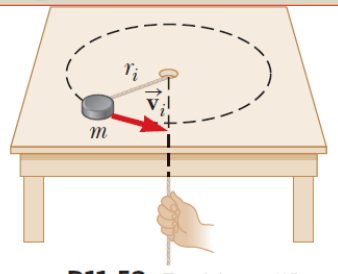

Figure P11.52 Problems 52 and 53.

disk 碟子
hori’zontal 水平的
re’lease 放開
take place 發生
‘fraction 小部分、片段、碎片、[數]分數。
‘fractional 分數的、少量的、部分的。Fractional change 百分變化
‘interval 間隔、區間。 time interval 時間間隔

61. **S** A uniform solid disk of radius R is set into rotation with an angular speed ω_i about an axis through its center. While still rotating at this speed, the disk is placed into contact with a horizontal surface and immediately released as shown in Figure P11.61. (a) What is the angular speed of the disk once pure rolling takes place? (b) Find the fractional change in kinetic energy from the moment the disk is set down until pure rolling occurs. (c) Assume the coefficient of friction between disk and surface is μ. What is the time interval after setting the disk down before pure rolling motion begins? (d) How far does the disk travel before pure rolling begins?

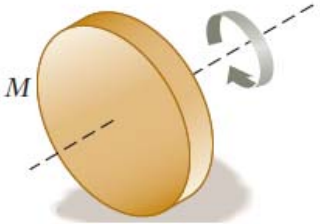

Figure P11.61

cube 立方體
slide 滑行
‘obstacle 障礙物、妨礙
tilt 傾斜
tip v.使傾斜。 tip over 翻倒
e’lastic 彈性的。 ine’lastic 非彈性的
co’llision DJ: [kə'liʒən] 碰撞、（意見、利益等的）衝突

63. **S** A solid cube of side $2a$ and mass M is sliding on a frictionless surface with uniform velocity $\vec{\mathbf{v}}$ as shown in Figure P11.63a. It hits a small obstacle at the end of the table that causes the cube to tilt as shown in Figure P11.63b. Find the minimum value of the magnitude of $\vec{\mathbf{v}}$ such that the cube tips over and falls off the table. *Note:* The cube undergoes an inelastic collision at the edge.

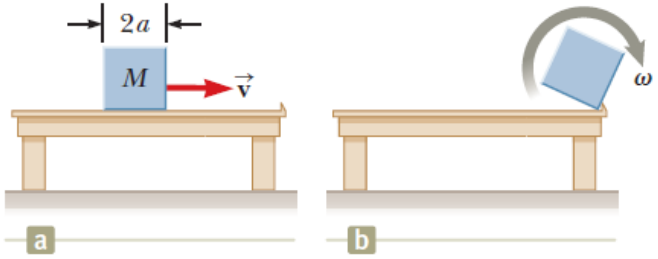

Figure P11.63