9.4: Energy of a Rotationg Body

Alex L.

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Definition: (Moment of Inertia) The **moment of inertia** of a given body is a measure of how far mass is distributed through an axis of rotation. It is given by

$$I = m_1 r_1 + m_2 r_2 + ... + m_n r_n$$

where m is an infintesimal particle and r is the distance of that particle from the axis of rotation.

Definition: (Kinetic Energy of a Rotating Body) The **kinetic energy** of a rotating body is given by:

$$K = \frac{1}{2} I \omega^2$$