

Index

A

amplitude modulation
9.5: Amplitude Modulation
Angular momentum
5.6: Angular Momentum
angular velocity
5.1: Rotation Basics
7.1: Linear and Angular Velocity

B

Bulk modulus
9.2: The Wave Equation

C

Center of mass
4.1: Center of Mass
central force
6.3: Motion Under the Action of a Central Force
central force field
6.2: General Planar Motion in Polar Coordinates
6.3: Motion Under the Action of a Central Force
Centripetal force
5.2: Centripetal Force
Christiaan Huygens
8.1: Oscillatory Motion
coefficient of kinetic friction
2.2: Force Laws
Compton Scattering
14.5: Totally Elastic Collision - Compton Scattering
conic sections
6.3: Motion Under the Action of a Central Force
Conservation of angular momentum
5.7: Conservation of Angular Momentum
conservation of energy
3.4: Conservation of Energy
Coriolis Force
6.2: General Planar Motion in Polar Coordinates
Coulomb friction law
2.2: Force Laws
Coupled Oscillators
8.4: Coupled Oscillators
Coupled Pendulums
8.4: Coupled Oscillators

D

d'Alembert's equation
9.3: Solution of the One-Dimensional Wave Equation
Damped Harmonic Oscillator
8.2: Damped Harmonic Oscillator
Dimensional Analysis
1.2: Dimensional Analysis
doppler effect
9.7: The Doppler Effect
drag force
2.2: Force Laws

E

Elastic collision
14.5: Totally Elastic Collision - Compton Scattering

Emmy Noether
3.3: Potential Energy
Equations of Motion
2.3: Equations of Motion
Ernst Mach (Physicist)
9.7: The Doppler Effect
Euler's Equations
7.3: Rotations About an Arbitrary Axis

F

fictitious force
7.2: Rotating Reference Frames
Free body diagram
2.4: Multiple Forces
Friction
2.2: Force Laws

G

Galilean transformation
11.1: Classical Case- Galilean Transformations
gravity
2.2: Force Laws
group velocity
9.5: Amplitude Modulation

H

harmonic oscillator
1.2: Dimensional Analysis
harmonic oscillator (classical)
8.1: Oscillatory Motion
Hooke's law
2.2: Force Laws

I

Inelastic collision
14.3: Totally Inelastic Collision
Inelastic Relativistic Collisions
14.3: Totally Inelastic Collision
inertial reference frame
10.1: An Old and a New Axiom

K

Kepler's second law
6.4: Kepler's Laws
Kepler's third law
6.4: Kepler's Laws
Kepler's first law
6.4: Kepler's Laws

L

Length contraction
12.1: Time Dilation and Space Contraction
Revised
Leonhard Euler
7.3: Rotations About an Arbitrary Axis
longitudinal wave
9.1: Sinusoidal Waves
Lorentz contraction
10.2: Consequences of Einstein's Postulates

Lorentz Transformation Matrix
13.2: Lorentz Transformation Matrix and Metric Tensor
Lorentz transformations
11: Lorentz Transformations

M

Minkowski space
13.1: The Position Four-Vector
mode number
9.4: Wave Superposition
modes
9.4: Wave Superposition
Moment of Inertia
5.4: Moment of Inertia
5.6: Angular Momentum
Moment of Inertia Tensor
7.3: Rotations About an Arbitrary Axis

N

natural frequency
8.1: Oscillatory Motion
Newton (unit)
2.1: Newton's Laws of Motion
Noether's Theorem
3.3: Potential Energy
normal modes
8.4: Coupled Oscillators
Nutation
5.9: Precession and Nutation

O

overdamped
8.2: Damped Harmonic Oscillator

P

Parallel axis theorem
5.4: Moment of Inertia
Perpendicular Axes Theorem
5.4: Moment of Inertia
phase velocity
9.5: Amplitude Modulation
Phonons
8.4: Coupled Oscillators
photons
14.2: Photons
potential energy
3.3: Potential Energy
Precession
5.9: Precession and Nutation
principal moments of inertia
7.3: Rotations About an Arbitrary Axis
products of inertia
7.3: Rotations About an Arbitrary Axis
proper time
12.3: Worldlines and Proper Time

R

Radioactive decay
14.4: Radioactive Decay and the Center-of-Momentum Frame

Rayleigh algorithm

[1.2: Dimensional Analysis](#)

Relativistic Collisions

[14: Relativistic Collisions](#)

Relativistic Energy

[13.4: Relativistic Energy](#)

Relativistic Force

[15: Relativistic Forces and Waves](#)

Relativistic headlight effect

[11.3: Some Consequences of the Lorentz Transformations](#)

Relativistic Waves

[15.3: Relativistic Waves](#)

relativity

[15: Relativistic Forces and Waves](#)

Rotating Reference Frames

[7.2: Rotating Reference Frames](#)

Rotation

[5.1: Rotation Basics](#)

S

Sinusoidal Waves

[9.1: Sinusoidal Waves](#)

slip

[5.8: Rolling and Slipping Motion](#)

standing wave

[9.4: Wave Superposition](#)

Statics

[2.5: Statics](#)

superposition

[9.4: Wave Superposition](#)

T

Time Dialation

[12.1: Time Dialation and Space Contraction](#)

Revisited

Torque

[5.3: Torque](#)

Torsional Oscillator

[8.1: Oscillatory Motion](#)

totally inelastic collisions

[4.6: Totally Inelastic Collisions](#)

transverse wave

[9.1: Sinusoidal Waves](#)

V

vectors

[16.A: Math](#)

W

Wave equation

[9.2: The Wave Equation](#)

[9.3: Solution of the One-Dimensional Wave Equation](#)

worldlines

[12.3: Worldlines and Proper Time](#)