

# NEW RELATIVITY

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# Motivation

- Determine nature of inertia
- Eliminate disadvantages of Newtonian mechanics and GTR
- Explanation of known phenomena

## Outline

1. Main equations and hypothesis
2. Coordinate transformation formulas and examples
3. Orbital motion, Flat rotation, Light's effects
4. New force

# Main equations

$$\frac{\partial \rho_m}{\partial t} + \operatorname{div} j_m = 0 \quad \text{Law of charge conservation}$$

$$\operatorname{div}(\Gamma) = \zeta \rho c^2 \quad \text{Poisson equation} \quad \leftarrow \quad \Gamma = \gamma \frac{M}{r^2}$$

## Maxwell form

$$\operatorname{rot}(\Gamma) = -\frac{\partial}{\partial t}(\Omega)$$

$$\operatorname{div}(\Omega) = 0$$

$$\operatorname{rot}(\Omega) = \frac{1}{c^2} \frac{\partial}{\partial t}(\Gamma) + \frac{1}{c^2} \zeta \rho V$$

$$\operatorname{div}(\Gamma) = \zeta \rho c^2$$

Gravitational waves are similar to electromagnetic waves

## Hypothesis

- Inertial forces are inducted by moving bodies
- Inertial frames do not exist

$$F_{in} = -d\Pi / dt = (ma)_{in}$$

$$\Pi_\mu = \frac{1}{c} mA_\mu \quad \mu = 1, 2, 3 \quad \Pi_4 = \frac{i}{c} U$$

# Coordinate transformation

$$x'^{\mu} = \frac{x^{\mu} + ia_{\nu}^{\mu} x^{\nu}}{\sqrt{1 - a_{\nu}^{\mu} \tilde{a}_{\nu}^{\mu}}} \exp i \gamma_{\mu} \quad x^{\mu} = \frac{x'^{\mu} - \tilde{a}_{\nu}^{\mu} x'^{\nu}}{\sqrt{1 - a_{\nu}^{\mu} \tilde{a}_{\nu}^{\mu}}} \exp(-i \gamma_{\mu})$$

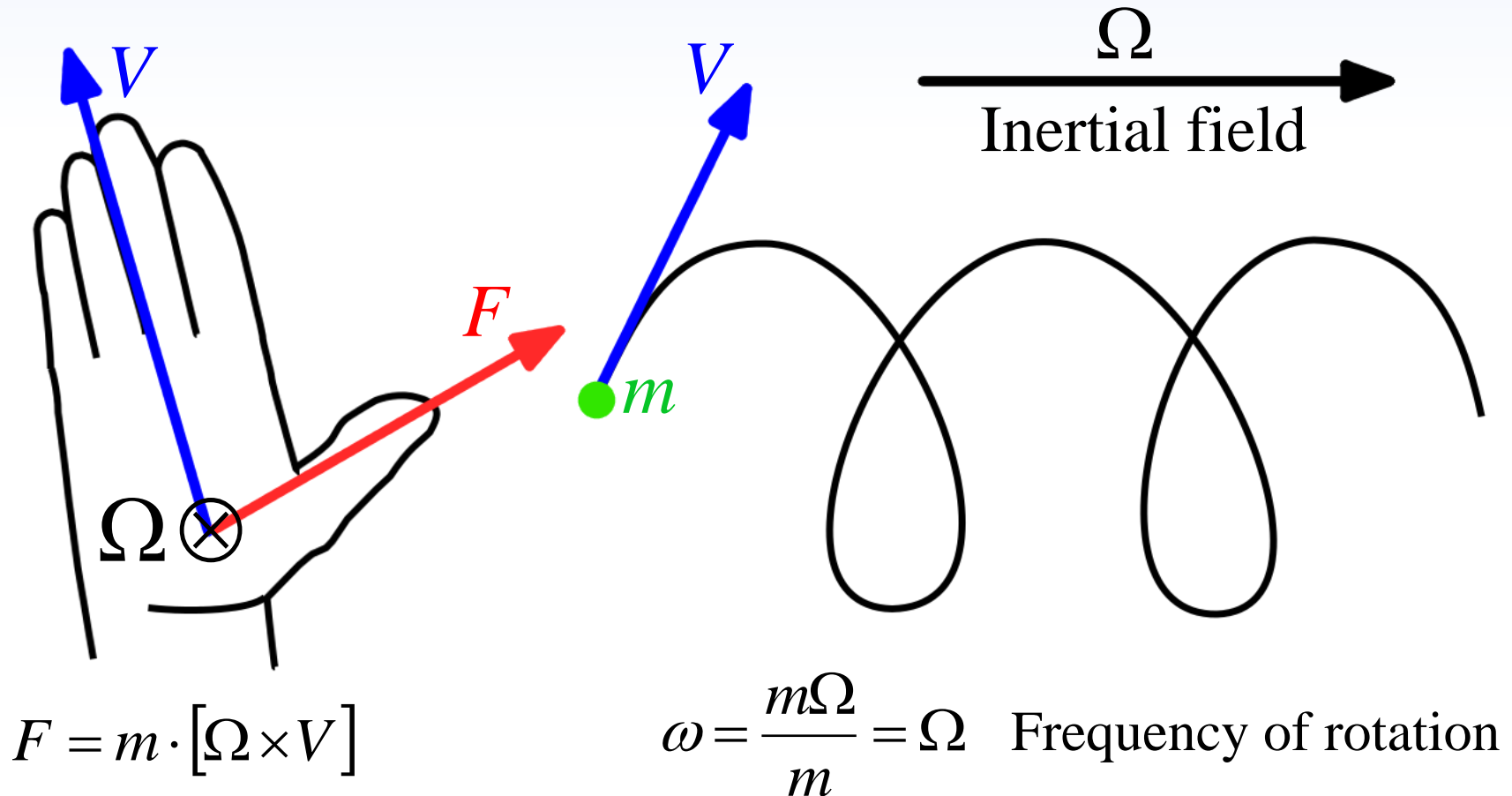
$$a_{\nu}^{\mu} = -\tilde{a}_{\mu}^{\nu} \quad a_{\mu}^{\mu} = -\tilde{a}_{\mu}^{\mu} = -i \quad a_4^{\mu} = -\tilde{a}_{\mu}^4 = -\frac{(m_0 v^{\mu} + \Pi^{\mu})c}{m_0 c^2 + U} \quad \mu = 1, 2, 3, 4.$$

$$K = \frac{m_0 u + \Pi}{\sqrt{1 - a\tilde{a}}} \quad E = mc^2 = \frac{m_0 c^2 + U}{\sqrt{1 - a\tilde{a}}} \quad a\tilde{a} = a_4^p \tilde{a}_4^p \quad p = 1, 2, 3.$$

$$\nabla^2 \Pi_{\mu} - \frac{1}{c^2} \frac{\partial^2 \Pi_{\mu}}{\partial t^2} + \frac{4\pi\gamma\rho}{c^2} \Pi_{\mu} + \frac{1}{c^2} j_{\mu} = 0$$

# Action of inertial field

“Right” hand rule



# Orbital motion in inertial field

$$\ddot{x} = 2\Omega\dot{y} + \Omega^2 x - \frac{\gamma M}{r^3} x$$

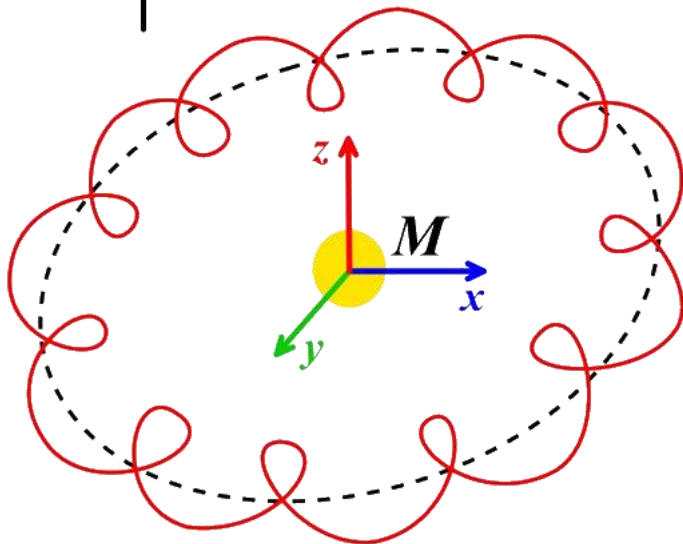
$$\ddot{y} = -2\Omega\dot{x} + \Omega^2 y - \frac{\gamma M}{r^3} y$$

$$\ddot{z} = -\frac{\gamma M}{r^3} z$$

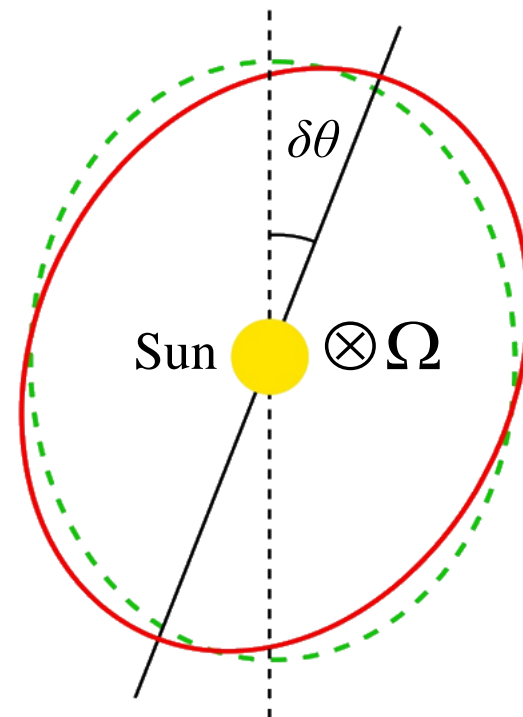
$\uparrow$   
 $\Omega$

$$\delta\theta = \int_{t_1}^{t_2} \Omega dt = \Omega \cdot (t_2 - t_1)$$

$$\Omega = \frac{\delta\theta}{t_2 - t_1}$$

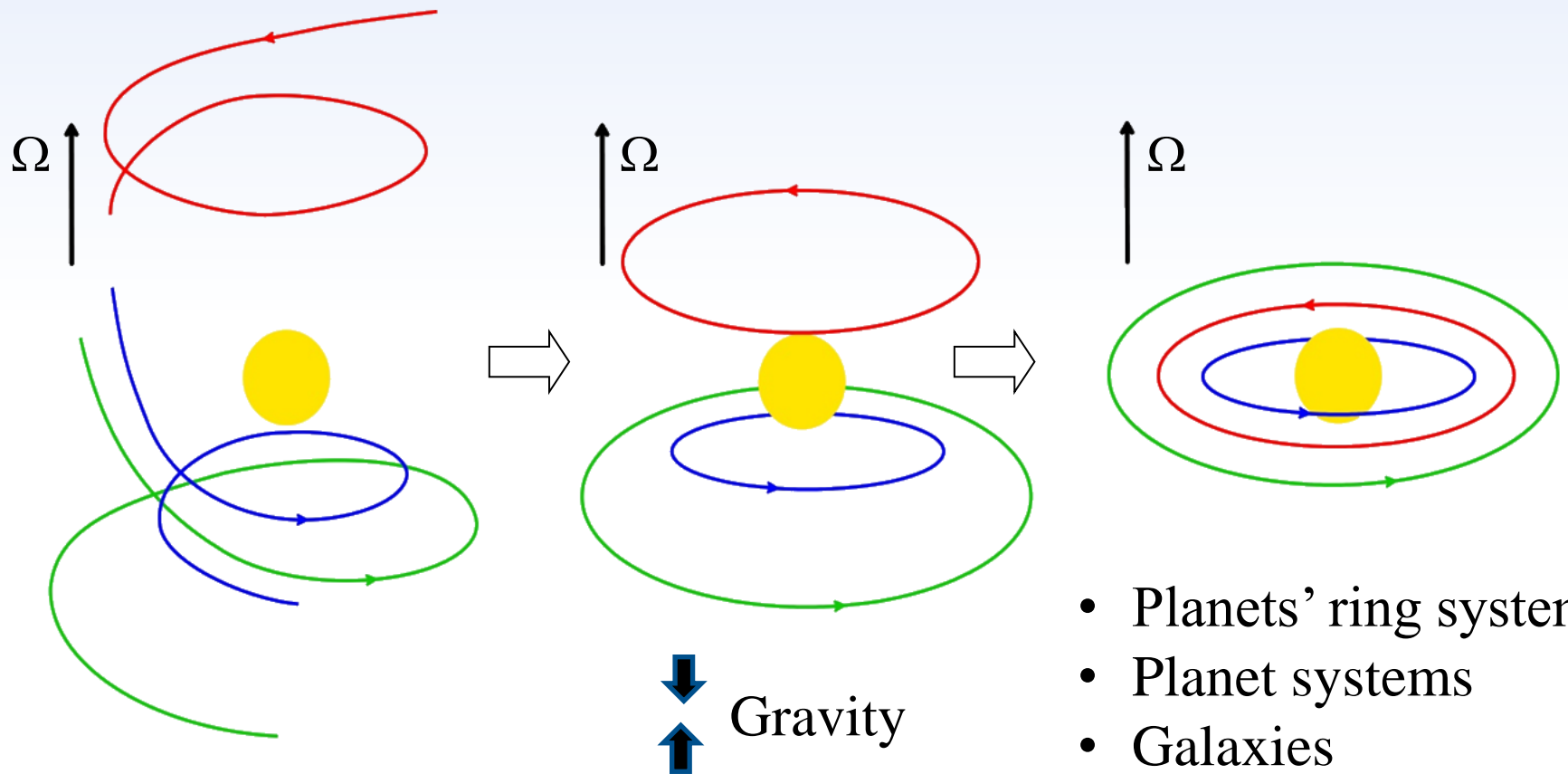


Quake motion



Precession of orbit

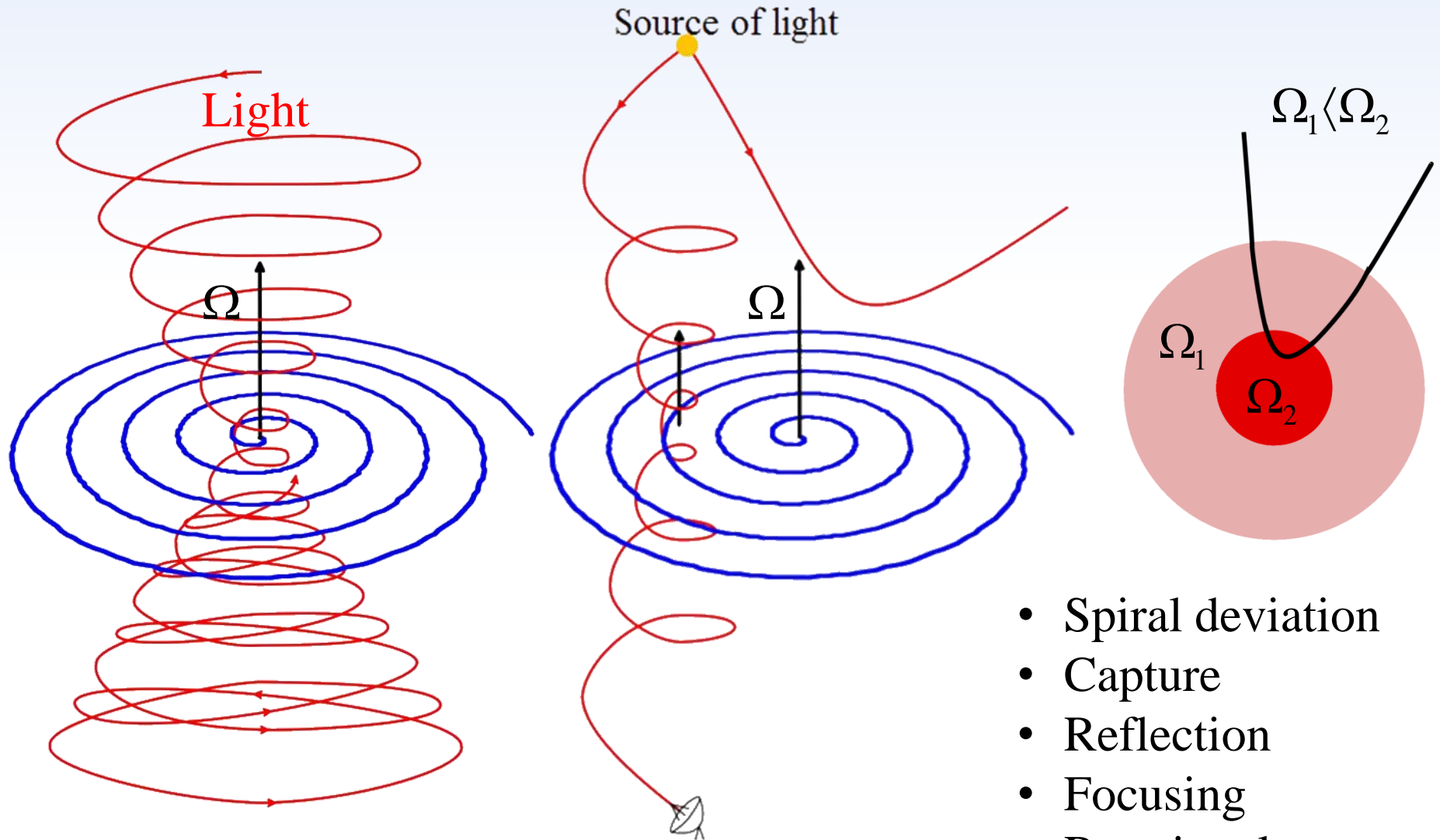
# Flat systems' formation and Dark Matter



- Planets' ring systems
- Planet systems
- Galaxies
- Other flat formations

$$V_{Galaxy} = \Omega(r) \cdot r \pm \sqrt{\gamma M / r} \quad \text{Velocity is determined by inertial field at big } r$$

# Light inertial field



- Number of objects is much less than observed images
- Relict radiation is light of stars scattered by the inertial field

- Spiral deviation
- Capture
- Reflection
- Focusing
- Rotational
- Pulsar picture



# Shift of spectra

$$\frac{K'^4}{K^4} = \frac{\hbar\omega' + U'}{\hbar\omega + U} = \frac{1 - ea}{\sqrt{1 - a\tilde{a}}}$$

$$ea = \frac{eu}{c} + \frac{ea_{\parallel}t}{c} + \frac{e(\Omega \times r)}{c}$$

$$a\tilde{a} = \frac{(u + a_{\parallel}t)^2}{c^2} + \frac{\Omega L}{E_0}$$

$$a\tilde{a} \ll 1$$

$$L = \frac{\hbar\omega r}{c}, E_0 = \hbar\omega$$

$u$  - velocity of source

$$F_{in} = -d\Pi / dt = (ma)_{in}$$

$$a_{\parallel} = -\frac{1}{m} \frac{d\Pi_{\parallel}}{dt}$$

- United Doppler and Einstein's effect
- Shift is provided by motion, gravitational and inertial fields
- Impossibility to identify motion

# New force

$$F_z = I_z \omega_z \frac{\partial \Omega}{\partial z}$$

Inertial susceptibility

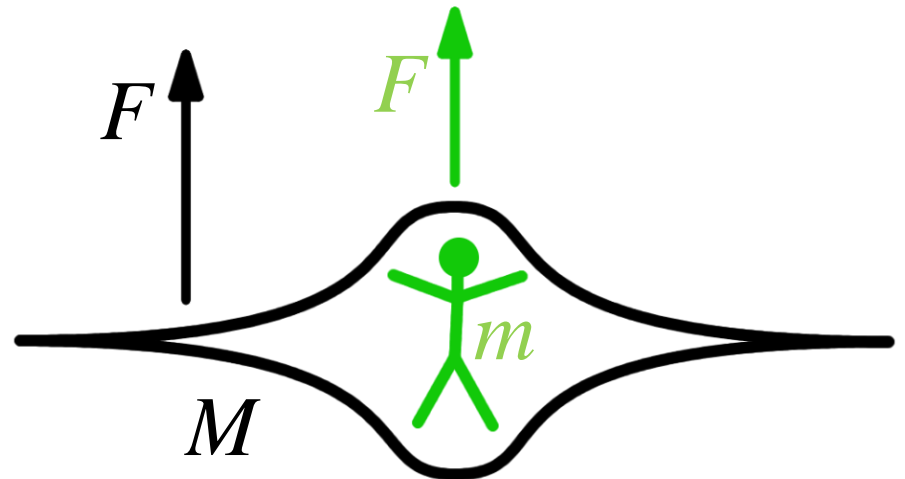
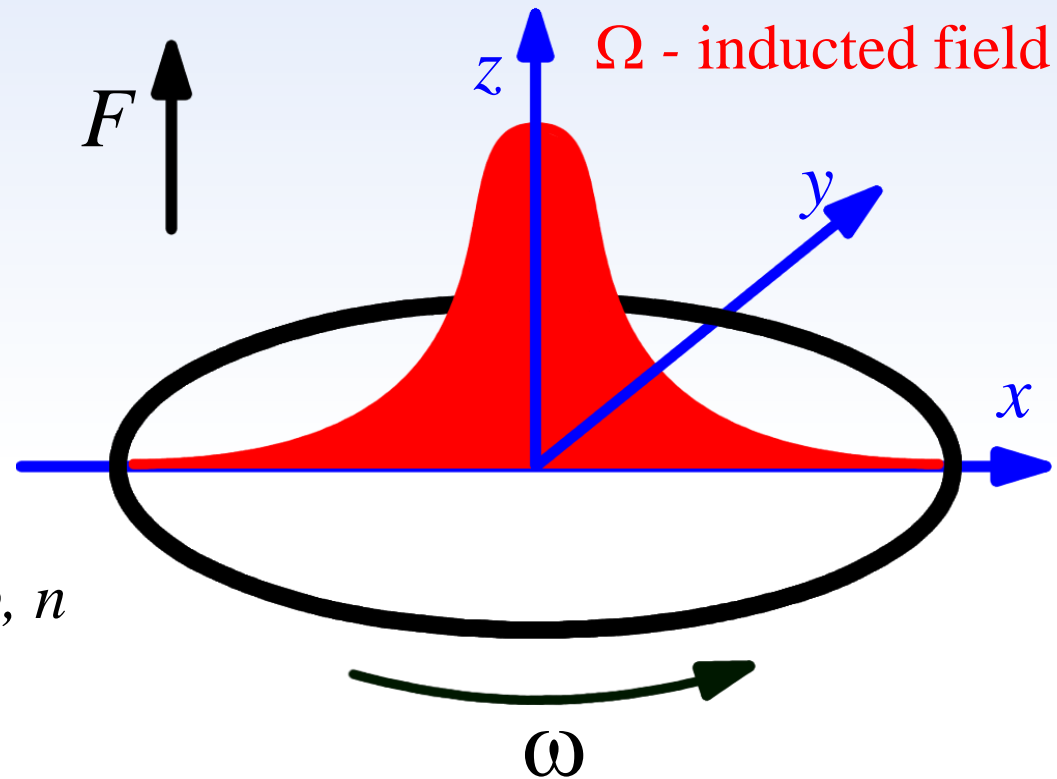
$$\zeta = \frac{M_{\text{int}}}{\Omega} \quad \leftarrow \text{Spin of } p, n$$

$$\Omega = \omega \cdot f \quad f \text{ is formfactor}$$

Equal acc.  $\Rightarrow f = \frac{I_z m}{\zeta M}$

$$F/m = F/M$$

- High energy cosmic rays
- Motion with huge acceleration



# Conclusion

- Full relativity
- Absence of exotic objects (Dark Matter, Black Holes, etc)
- Easy to use (All is made for Electrodynamics)
- Clear Physics
- Simple Math
- New sense of known phenomena
- New phenomenon