

## **The Four Fundamental Points of the PPC Law of Gravity**

(Pawan Upadhyay's Pressure–Curvature Law of Gravity)

### **1. Mass Creates Pressure, and Pressure Causes Curvature**

Mass-energy density generates intrinsic pressure.

That pressure acts upon the fabric of spacetime, producing curvature — the geometric shape we observe as gravity.

### **2. Mass Bends Space by Its Pressure**

It is not mass alone that curves space, but the pressure field produced by mass-energy. Spacetime bends as a direct response to this internal gravitational pressure.

### **3. Mass Applies Pressure**

Every mass continuously applies a pressure equal to its energy density:

$$P_g = \rho c^2$$

### **4. The Force of That Pressure Creates the Shape of Curvature**

The gradient of pressure ( $F = \nabla P_g$ )

The gradient of pressure generates a force that sculpts the curvature of spacetime. This curvature determines the paths (geodesics) that all bodies follow under gravity.

### **One-Line Summary**

“Mass applies pressure; pressure generates force; force shapes curvature; and curvature governs motion.”

— Pawan Upadhyay (2025)

### **Full Process Flow of the PPC Law of Gravity :-**

# Full Process Flow of the PPC Law of Gravity

## ◆ Conceptual Sequence

Mass → Pressure → Force → Curvature → Spacetime Curvature → Geodesic Motion

## ◆ Scientific Meaning of Each Step

### 1. Mass ( $\rho$ )

Every form of mass-energy possesses density ( $\rho$ ), which is the source of gravitational pressure.

### 2. Pressure ( $P_{(g)} = \rho c^2$ )

Mass generates pressure proportional to its energy density.

This pressure is the internal “push” that acts upon spacetime itself.

### 3. Force ( $F = \nabla P_{(g)}$ )

The gradient of pressure produces a physical force that acts through spacetime.

This is the *mechanical link* between pressure and geometry.

#### 4. Curvature (via Stress–Energy Tensor)

The pressure and energy distribution determine the spacetime curvature tensor:

$$T_{\mu\nu} = \left( \rho + \frac{p}{c^2} \right) u_{\mu} u_{\nu} + p g_{\mu\nu}$$

#### 5. Spacetime Curvature (Einstein's Field Equation)

The force of pressure manifests geometrically through:

$$G_{\mu\nu} = \frac{8\pi G}{c^4} T_{\mu\nu}$$

$$\nabla^2 \Phi = 4\pi G \left( \rho + \frac{3p}{c^2} \right)$$

#### 6. Geodesic Motion

Particles move along the curved geometry created by this pressure-induced force field:

$$\frac{d^2 x^{\mu}}{d\tau^2} + \Gamma_{\alpha\beta}^{\mu} \frac{dx^{\alpha}}{d\tau} \frac{dx^{\beta}}{d\tau} = 0$$

### ♦ **Simplified Physical Explanation**

Mass generates pressure.

The gradient of that pressure creates force.

The force shapes curvature.

The curvature forms spacetime geometry.

Motion follows the geodesics of that geometry.

### ♦ **One-Line Law Summary**

“Gravity is the motion produced by the force of mass pressure shaping the curvature of spacetime.”

— Pawan Upadhyay (2025)