Title: Reinterpreting Gravity: A Universal Pressure Flow Model Inspired by Bernoulli's Principle and Qur'anic Reflection

Author: M. A. Ishaaq (M – Family Initial, A – Father's Name Abdul Wahab)

First Conceptualized: Circa 2015 (10 years before this publication)

Finalized and Uploaded: July 2025

Abstract:

This paper proposes a novel re-interpretation of gravity as not an intrinsic pulling force from Earth, but as a pressure-based phenomenon originating from a universal fluid-like medium. Drawing inspiration from Bernoulli's principle in fluid dynamics and theological reflections from the Qur'an, the model suggests that what we perceive as gravity is the result of an external pressure gradient acting upon Earth and its inhabitants. This theory aligns the constant value of 9.81 m/s^2 with a stabilized external flow field, maintained by the Earth's rotation and motion through space. We explore this model's conceptual foundation, present a preliminary mathematical formulation, and compare its implications with standard Newtonian and Einsteinian models of gravity.

---

1. Introduction

Modern physics explains gravity through either Newton's law of universal gravitation, as a force between masses, or Einstein's general relativity, where mass curves space-time, and objects follow these curves. While mathematically robust, both models imply that gravity is an intrinsic feature of Earth and other celestial bodies.

This paper offers an alternate hypothesis: gravity is not a pull from within Earth, but a push from an external universal force field, possibly fluid-like in nature. The observed downward acceleration (9.81 m/s^2 on Earth) may be the result of an energy flow acting upon Earth, stabilized by Earth's rotation and motion through the cosmic system. This interpretation is supported both by fluid dynamic principles (specifically Bernoulli's theorem) and a philosophical reading of Qur'anic verses that suggest creation is held up not by itself, but by an external, constant force.

---

2. The Standard Gravity Models

Newton proposed that every mass attracts every other mass with a force proportional to their mass and inversely proportional to the square of their distance. Einstein later redefined gravity as the warping of

space-time by mass-energy. Both models have immense experimental success but share a common trait: gravity originates from the body itself.

However, neither theory fully explains *why* the gravitational constant is what it is, or what gravity “really is” in a mechanistic sense. In contrast, a pressure-based model may offer a physical medium to describe gravitational effects.

---

3. Pressure-Based Gravity Model: Conceptual Foundation

This model assumes the universe is filled with a continuous, fluid-like medium (referred here as the "universal pressure field"). Rather than objects pulling each other, this field exerts pressure gradients, pushing objects towards denser centers like Earth. The value of 9.81 m/s² arises from a stable difference in this field's pressure between upper and lower atmospheric levels.

Earth's rotation and revolution contribute to the stability of this field, similar to how spinning stabilizes gyroscopic motion. Just as Bernoulli's principle explains pressure drops with increased flow velocity in fluids, the rotation and forward motion of Earth in the galaxy may maintain the constant pressure profile we interpret as gravity.

---

4. Mathematical Analogy with Bernoulli's Theorem

In classical Bernoulli's theorem:

$$P + \tfrac{1}{2}\rho v^2 + \rho g h = \text{constant}$$

This equation balances pressure energy, kinetic energy, and potential energy in a fluid. Inspired by this, we propose:

$$g = \tfrac{1}{\rho} \cdot \tfrac{dP}{dh}$$

Where:

- g : observed gravitational acceleration
- ρ : density of the universal pressure field
- $\frac{dP}{dh}$: vertical pressure gradient

Here, gravity is explained as the result of a pressure gradient rather than a pull force. This shift allows the same 9.81 m/s² to emerge from external conditions.

---

5. Earth’s Motion and the Flow Direction

The Sun is moving through the galaxy, and the Earth follows a complex spiral trajectory while rotating. This motion may contribute to the shape and direction of the external pressure field, similar to how flow shapes lift in aerodynamics.

If the universal field flows in a specific direction relative to the Earth, then the front-facing side experiences a stabilizing input, while the back side experiences a pressure trailing effect. This could explain why the pressure gradient remains constant globally.

Example Extension: V-Shape Bird Flight and Earth Flow

Birds fly in a V-formation to reduce air resistance. The front bird splits the air, and others follow with less effort due to the reduced pressure and turbulence behind. Similarly, Earth moves through the universe like the front bird, facing incoming universal pressure.

This flow compresses Earth from the front, and its continuous rotation causes centrifugal force outward. However, the universal pressure is greater than the centrifugal force, pushing objects down instead of letting them fly off.

Additionally, when the Moon passes behind Earth (relative to the universal flow), it disrupts the trailing edge of this field. This causes fluctuations in pressure — especially on water, which is more responsive — resulting in tides. This effect mimics Bernoulli's principle: a temporary pressure shift due to obstruction in the flow.

Aerodynamic Surface Analogy with Airplanes

Just as an airplane remains on the ground until it begins forward motion, the Bernoulli effect does not initiate until velocity is involved. Once it moves, the pressure above the wings drops due to increased air speed, generating lift.

Similarly, the universal fluid-like field does not exert directional force on Earth until Earth begins moving through it. As Earth moves, the universal field compresses at its front and creates a pressure flow field. Earth's own rotation helps spread the compression across its surface, creating a constant downward force. Near the surface of a fast-moving plane, air density and motion differ slightly from free air — this behavior mirrors how the universal fluid interacts near Earth.

Following the Big Bang, celestial bodies exploded outward and started independent motion. Each mass influenced local paths, creating shared curvatures — like stars guiding orbiting planets. This reinforces the concept that motion through an external medium determines interaction paths and flow forces.

---

6. Philosophical and Qur'anic Reflection

The Qur'an frequently speaks of the universe being upheld by divine order:

> "Indeed, Allah holds the heavens and the earth lest they cease. And if they should cease, no one could hold them [in place] after Him." (Qur'an 35:41)

Another verse further supports this model:

> "Each [celestial body] is floating in its own orbit." (Qur'an 36:40)

This implies that not only is creation externally maintained, but also in continuous, ordered motion — like objects moving within a flowing medium. This reinforces the fluid-flow pressure interpretation presented here.

These verses suggest that the natural stability and movement we observe (such as gravity, orbits, and planetary motion) are not self-originating but are instead **externally controlled and harmonized**. The idea that "nothing is steady by itself" aligns well with a pressure-based theory, where gravity is a *result*, not a *source*.

This theory was inspired by Qur'anic reflection, but its formulation, values, and conclusions emerged after applying Bernoulli's theorem. Therefore, while the philosophy guided the direction, the validation came from physical modeling.

---

7. Conclusion and Next Steps

This paper presents a new hypothesis on gravity, interpreting it not as an internal force of attraction but as a product of external pressure flow from a universal medium. The theory is inspired philosophically by the Qur'an and physically modeled using principles from Bernoulli's fluid dynamics. The value of gravity (9.81 m/s^2) is seen as the result of a stable external pressure gradient maintained by Earth's motion and orientation within this medium.

This hypothesis opens a new path for interpreting cosmic behavior, where mass does not inherently pull, but is instead positioned within a universal energy system that generates directional pressure. As a hypothesis, it stands to be tested and developed further.

Future work should:

- Define the physical properties and scope of the universal pressure field
- Develop simulations using fluid dynamics software
- Compare gravitational behavior under this model with satellite and planetary data
- Integrate theological and scientific insights for a richer cosmological view

---

[Note: Diagram and Tamil-English translation sections available separately.]