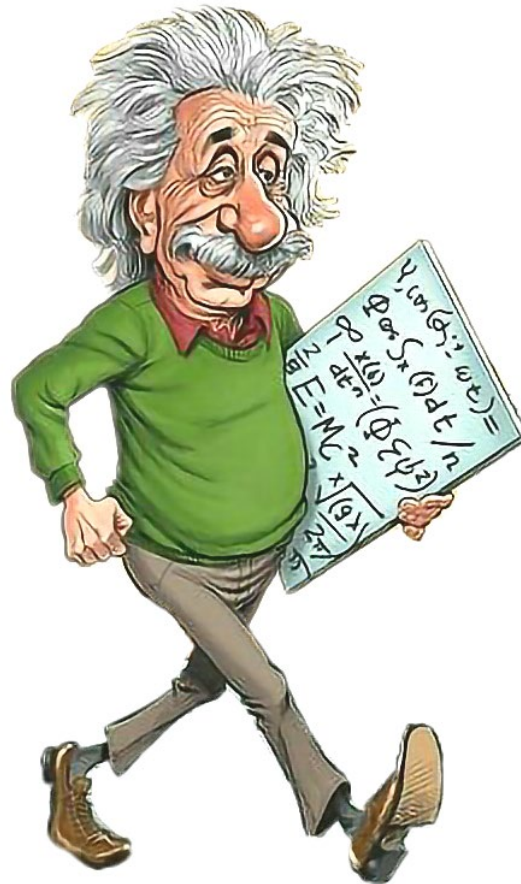
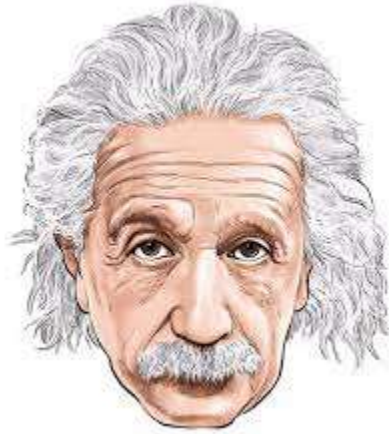


Einstein's 5 Papers That Changed the Face of Physics





In memory of Albert Einstein

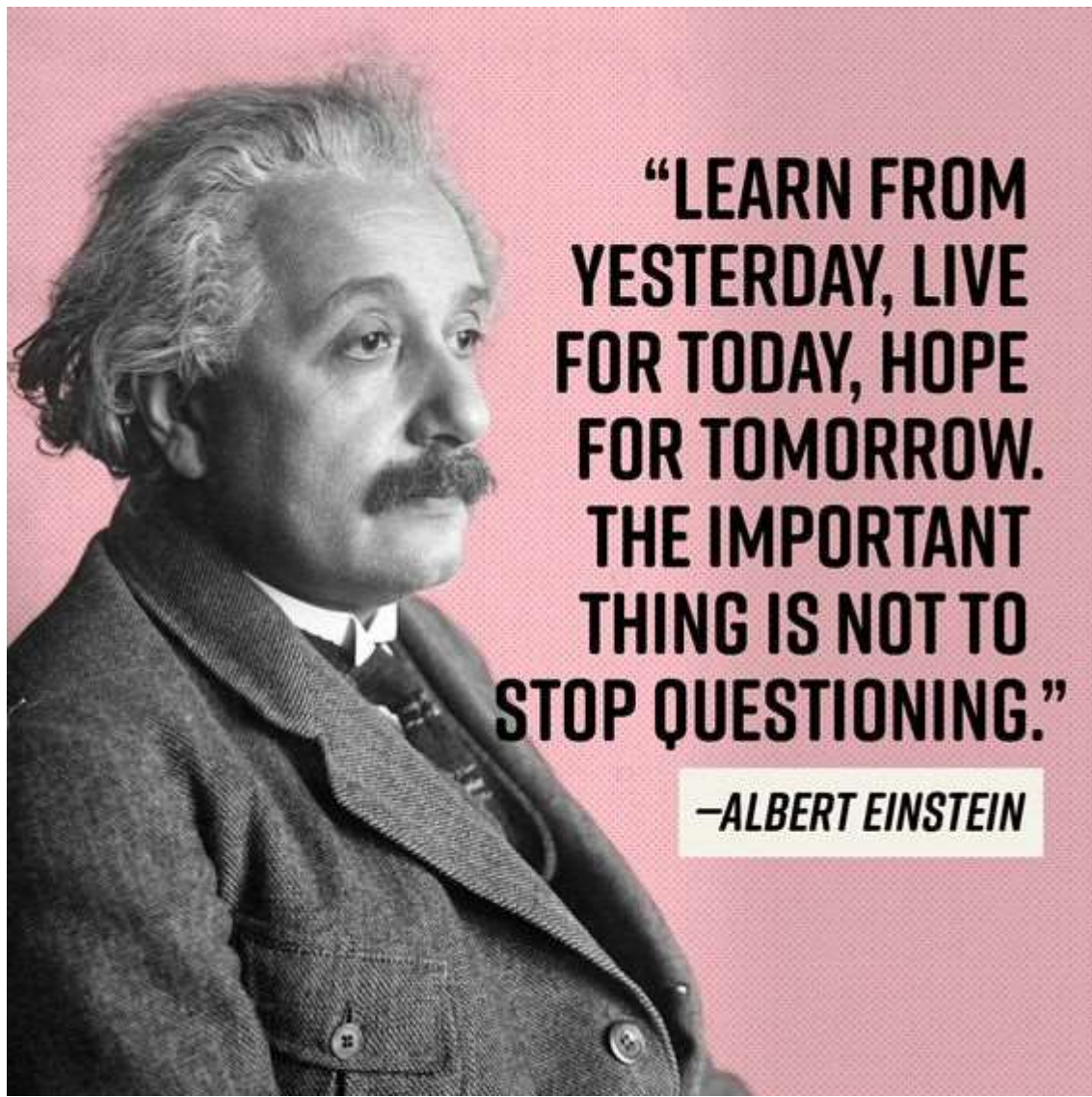
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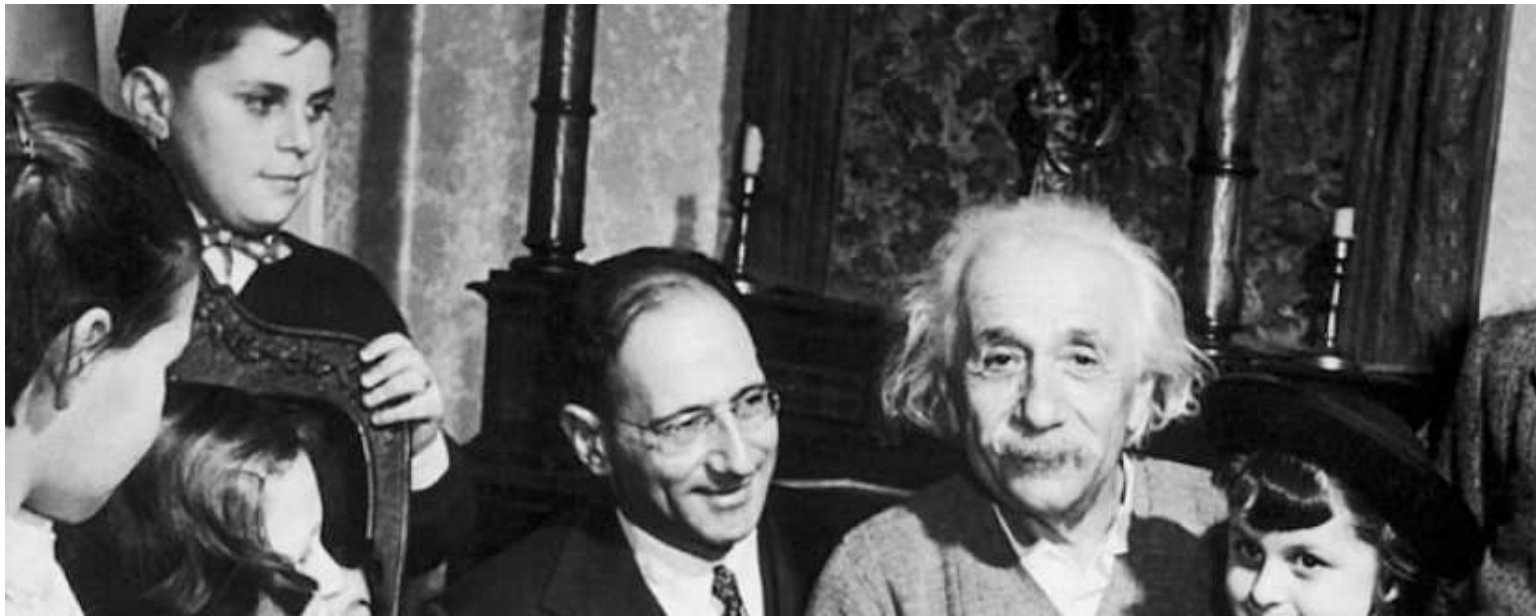


**“LEARN FROM
YESTERDAY, LIVE
FOR TODAY, HOPE
FOR TOMORROW.
THE IMPORTANT
THING IS NOT TO
STOP QUESTIONING.”**

—ALBERT EINSTEIN



Albert Einstein was a German-born physicist who developed the special and general theories of **relativity and won the **Nobel Prize** for Physics in 1921 for his explanation of the **photoelectric effect**. Einstein is generally considered the most influential physicist of the 20th century.**



$$g_{ik}^k \left\{ \begin{array}{l} g_{+k,l}^k = g_{ik,l} + g_{ik} T_{+l}^0 - g_{ik} T_{+l}^k \\ g_{+k,l}^k = g_{+k,l} + g_{+k} T_{+l}^k + g_{+k} T_{+l}^k \end{array} \right.$$

$$(g_{+k}^k g_{+k}^k)_{,l} = g_{+k}^k g_{+k,l}^k + g_{+k}^k g_{+k,l}^k$$

$$(g_{+k}^k)_{,l} = g_{+k,l}^k - g_{+k,l}^k$$

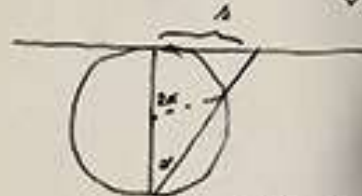
$$+ g_{+k,l}^k$$

$$= g_{+k,l}^k - g_{+k,l}^k$$

$$g_{ik} \left\{ \begin{array}{l} g_{+k,l}^k = g_{+k,l}^k + 2g_{+k,l}^k \\ 2g_{+k,l}^k = 2g_{+k,l}^k - 2T_{+l}^k \end{array} \right.$$

$$2g_{+k,l}^k = 2g_{+k,l}^k - 2T_{+l}^k$$

$$g_{+k,l}^k = 2g_{+k,l}^k - 2T_{+l}^k$$



$$\frac{a \sin \alpha}{r} = \frac{1}{\cos(\frac{\pi}{2} - \alpha)}$$

$$g(\frac{r}{a} - \frac{a}{r}) = \frac{1}{1 + \cos \alpha}$$

$$r = a \frac{1 + \cos \alpha}{1 - \cos \alpha} = a \frac{1 + \cos \alpha}{1 - \cos \alpha} = 2a \frac{1 + \cos \alpha}{(1 - \cos \alpha)^2} = 2a \frac{\cos \frac{\alpha}{2}}{\sin^2 \frac{\alpha}{2}}$$

$$\text{Kugel } Xr^2 = (a^2 + b^2 \sin^2 \alpha) d\alpha^2 + 2ab \sin \alpha d\alpha d\beta$$

$$\text{Projkt. } d\left(\frac{a}{\cos \alpha}\right) d\alpha^2 + 4 \frac{\sin \alpha}{\cos^2 \alpha} d\alpha d\beta$$

$$= \frac{a^2}{\cos^2 \alpha} (d\alpha^2 + 4 \frac{\sin \alpha \cos \alpha}{\sin^2 \alpha} d\alpha d\beta)$$

Wie findet man besserer Kontakt zu den Vorlesungen
des unregelmäßigen Klausurs ja und einem
Studenten, der nicht weiß, dass schon
eine Bescheid.

$$\left\{ \begin{array}{l} (v-v)T = l \\ \frac{l}{v} = \frac{L}{v-v} + \frac{L+L}{v+v} \end{array} \right.$$

$$\frac{L}{v-v}$$

$$\frac{L}{v-v}$$

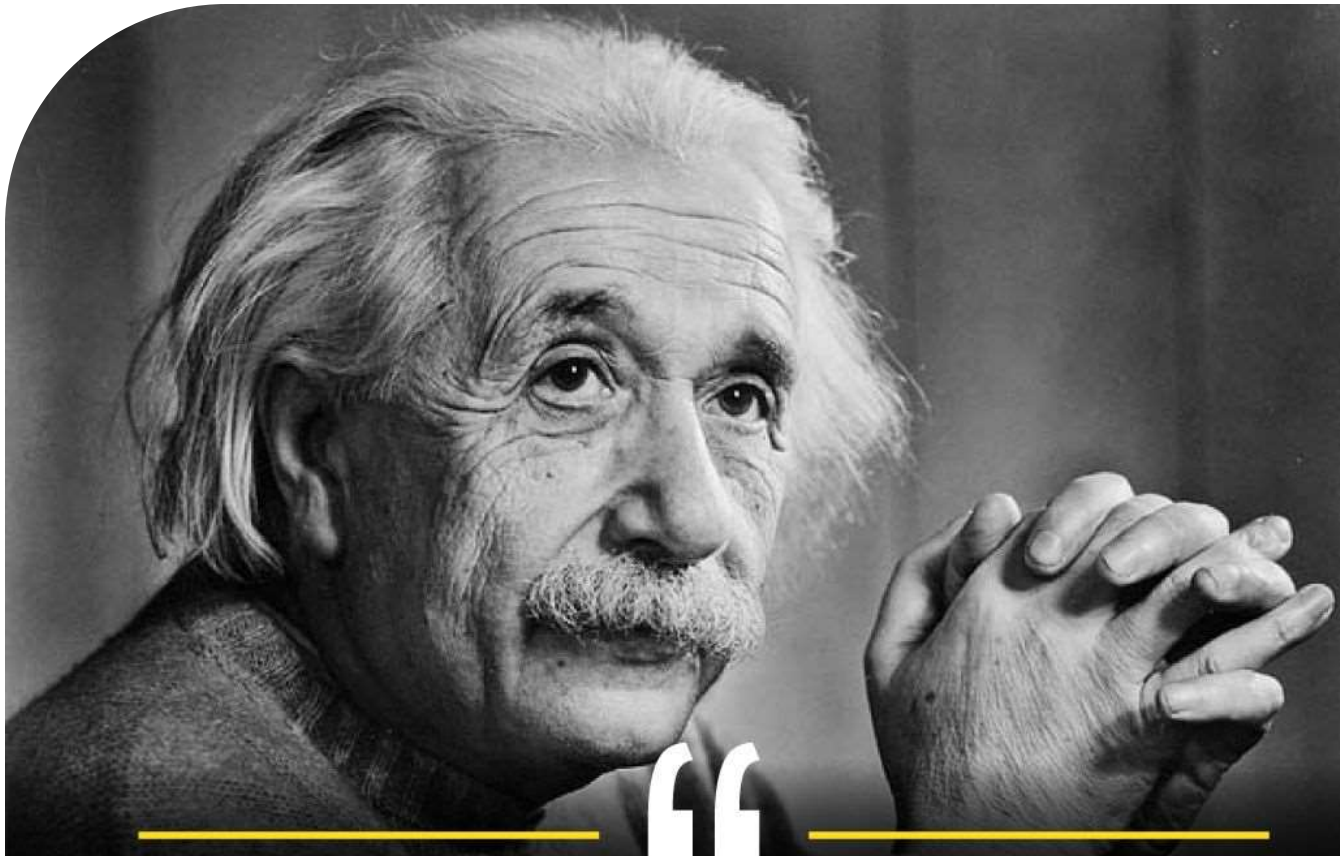
$$r = a - \frac{L}{\sin \alpha}$$

$$r(1 + \frac{1}{\sin \alpha}) = a$$

$$r = a \frac{\sin \alpha}{1 + \sin \alpha}$$

$$= 2a \frac{\sin \frac{\alpha}{2} \cos \frac{\alpha}{2}}{1 - 2 \sin^2 \frac{\alpha}{2} \cos \frac{\alpha}{2}} = \frac{a \sin \alpha}{1 - \frac{1}{2} \sin \alpha}$$

$$= 2a \frac{\sin \frac{\alpha}{2} \cos \frac{\alpha}{2}}{1 - 2 \sin^2 \frac{\alpha}{2} \cos \frac{\alpha}{2}} = \frac{a \sin \alpha}{1 - \frac{1}{2} \sin \alpha}$$



“

To raise new questions, new possibilities, to regard old problems from a new angle, requires creative imagination and marks real advance in science.

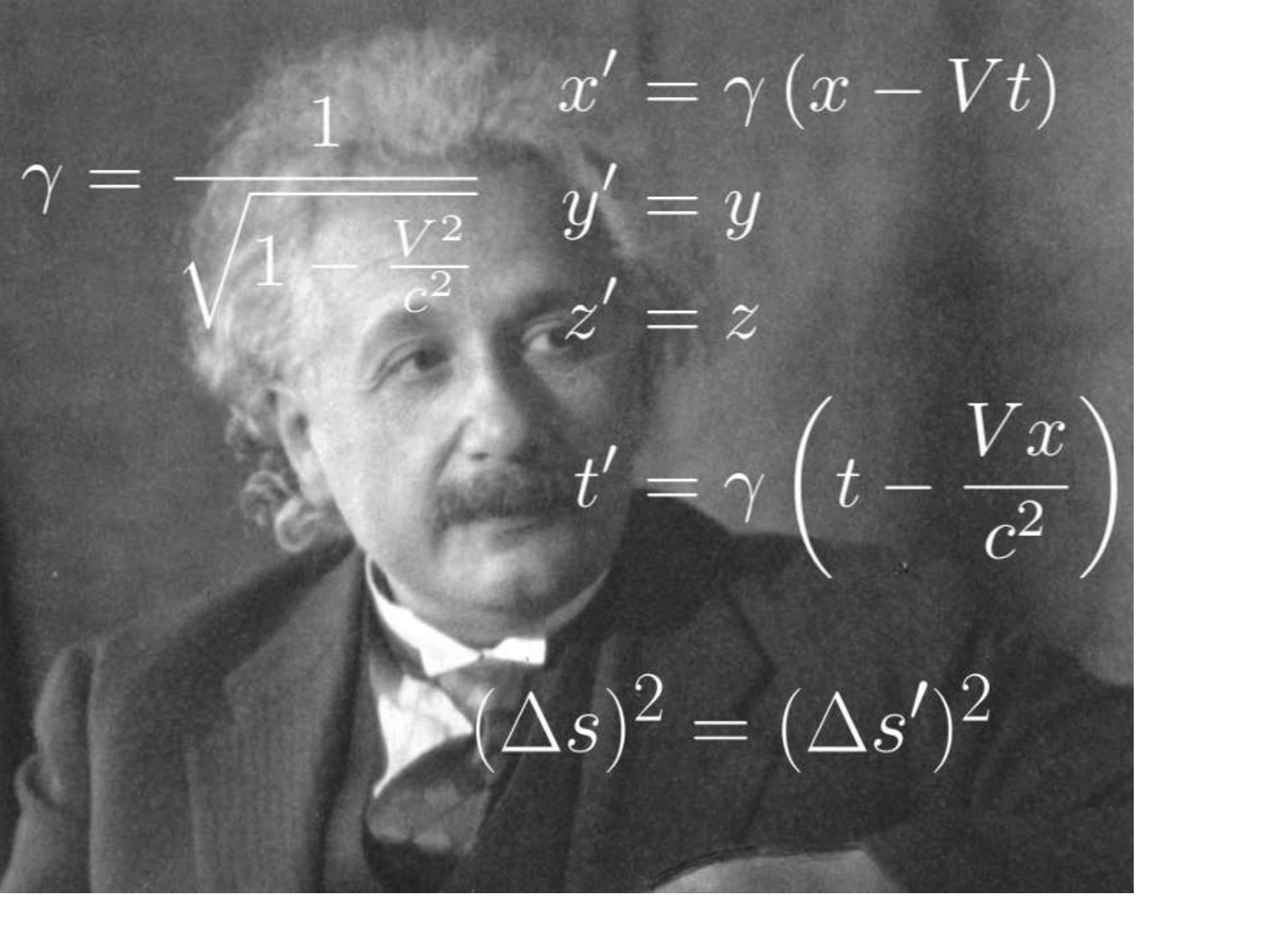
- Albert Einstein

”

On the Electrodynamics of Moving Bodies

It reconciles **Maxwell's equations for electricity and magnetism** with the laws of mechanics by introducing major changes to mechanics close to the speed of light.





$$\gamma = \frac{1}{\sqrt{1 - \frac{V^2}{c^2}}}$$

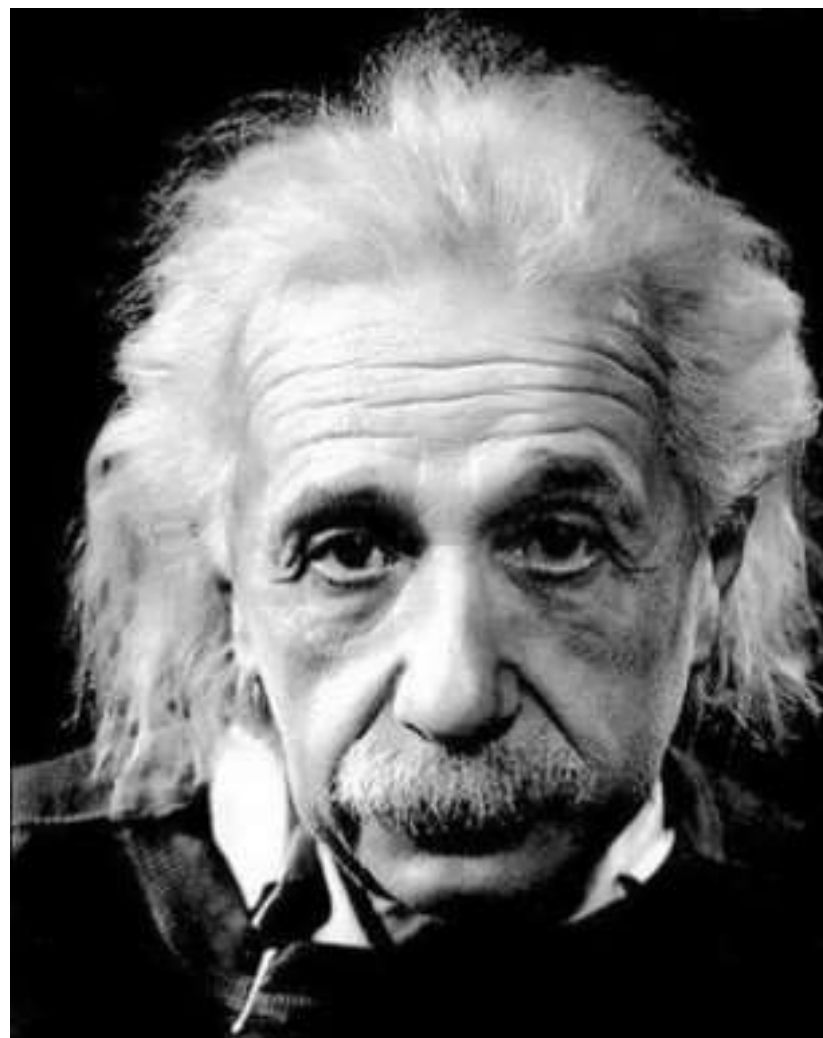
$$x' = \gamma (x - Vt)$$

$$y' = y$$

$$z' = z$$

$$t' = \gamma \left(t - \frac{Vx}{c^2} \right)$$

$$(\Delta s)^2 = (\Delta s')^2$$



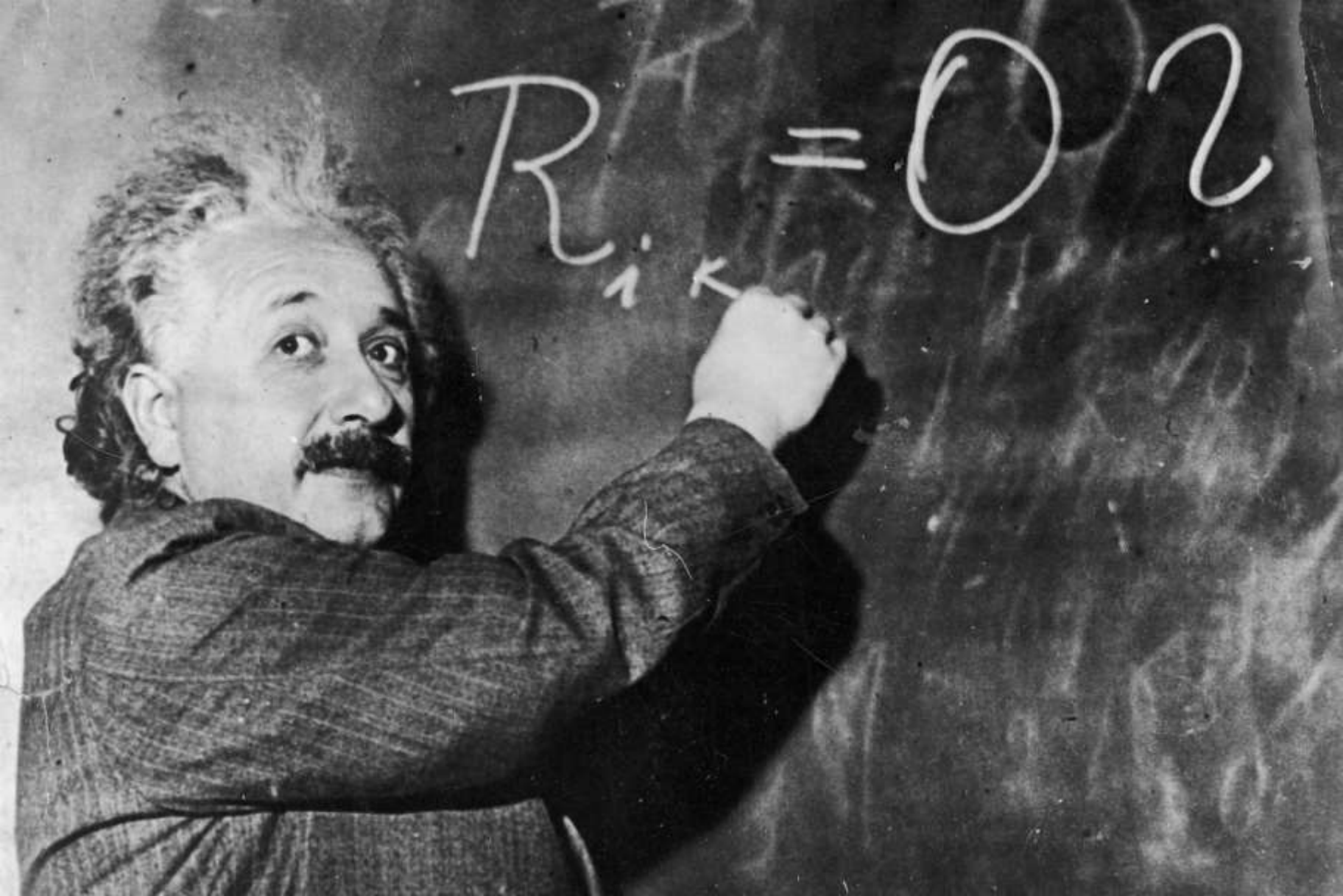
**ANYONE WHO
HAS NEVER MADE
A MISTAKE HAS
NEVER TRIED
ANYTHING NEW.**

Albert Einstein

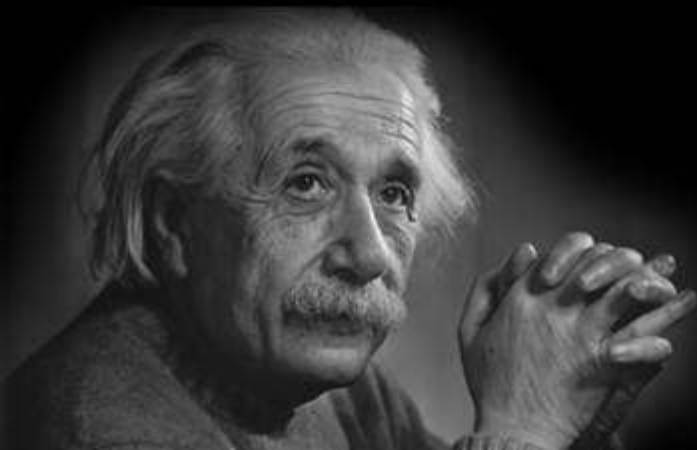
Does the Inertia of a Body Depend on Its Energy Content?



It sets forth that the energy of a body at rest (E) equals its mass (m) times the speed of light (c) squared, or $E = mc^2$



**The most beautiful thing
we can experience is the
mysterious. It is the
source of all true art and
science.**

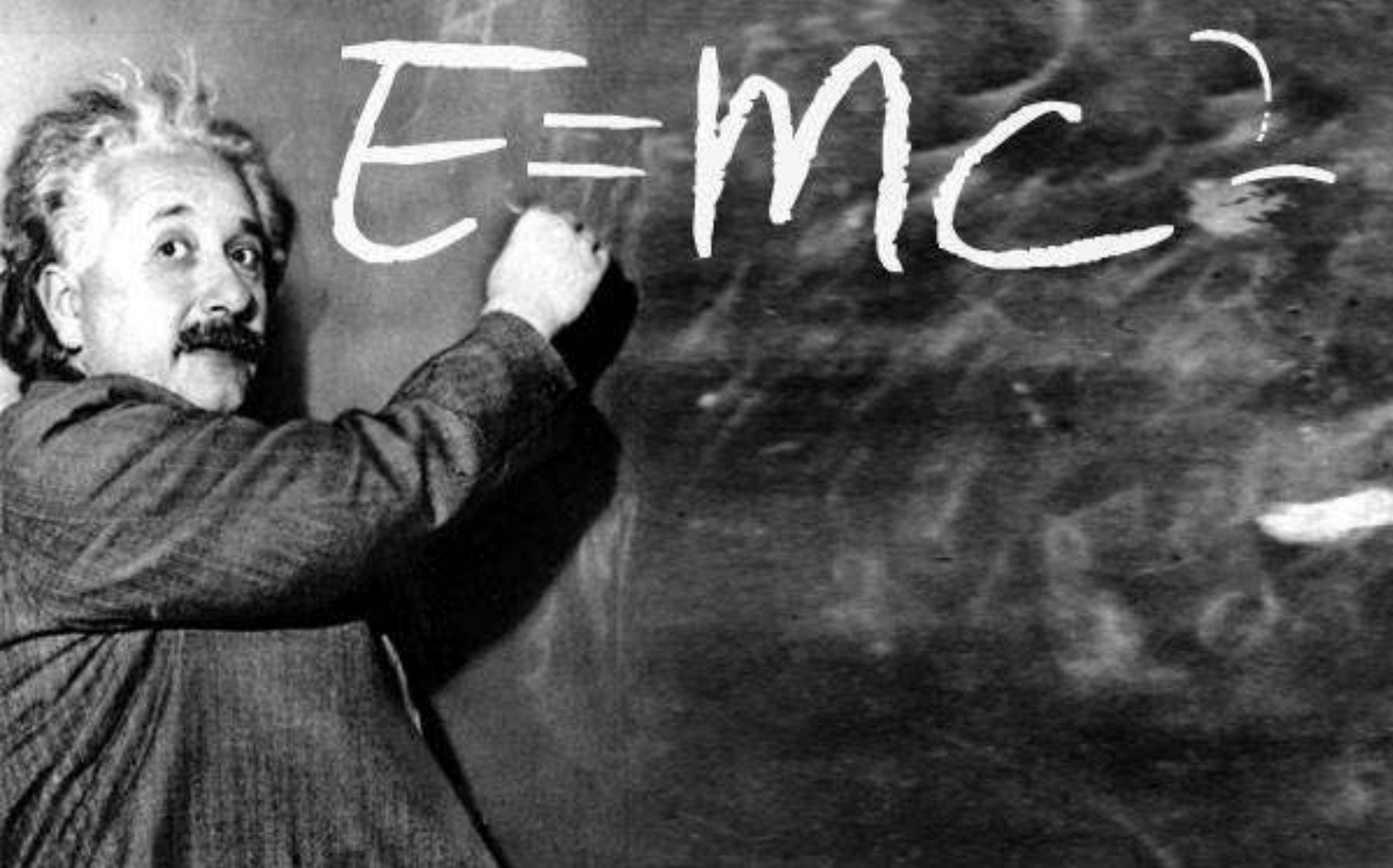


Albert Einstein
German Theoretical-Physicist
(1879-1955)

On a Heuristic Point of View Concerning the Production and Transformation of Light

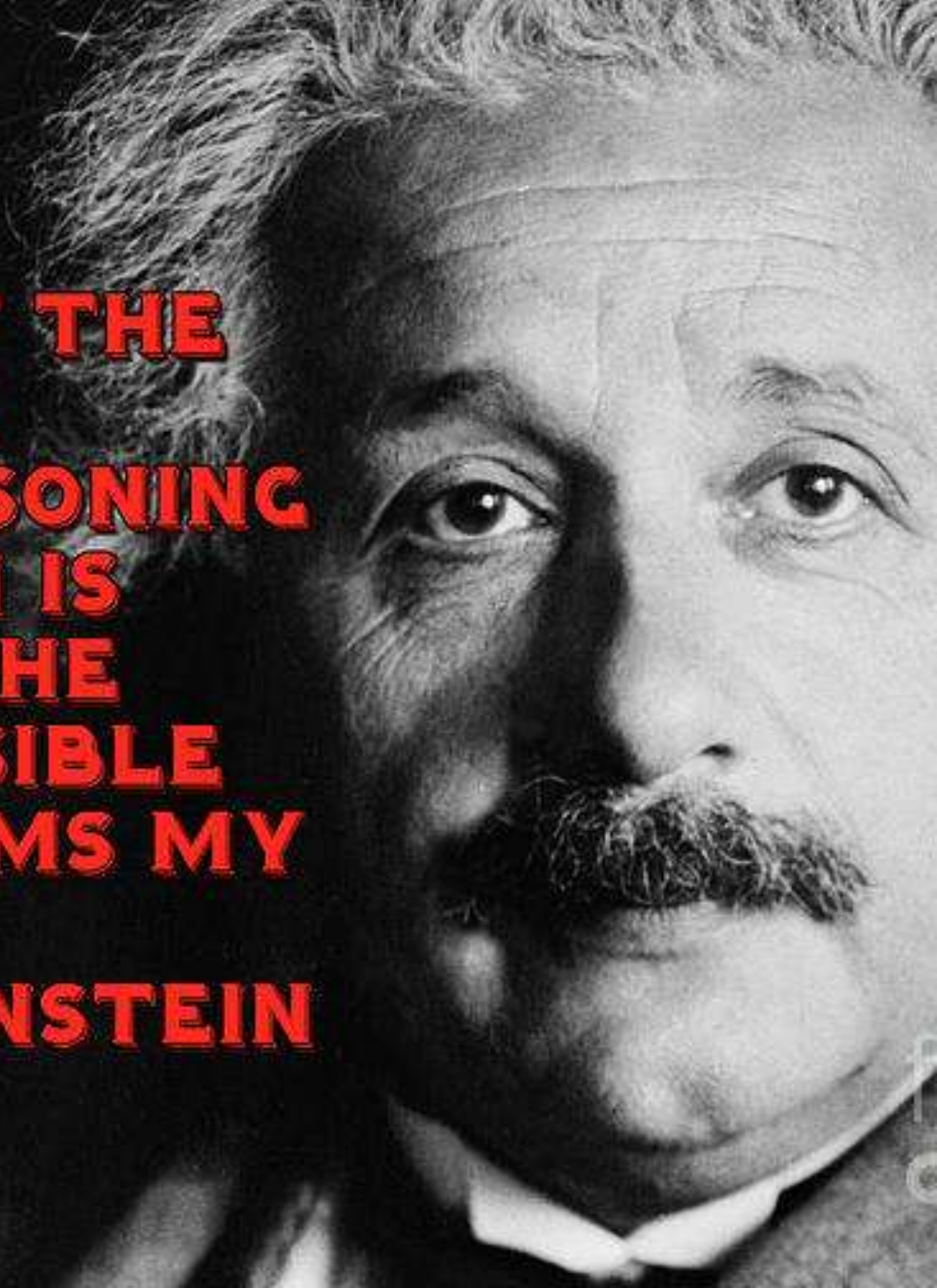
In this paper, **Albert Einstein challenged the wave theory of light, suggesting that light could also be regarded as a collection of particles. This helped to open the door to a whole new world—that of quantum physics.**





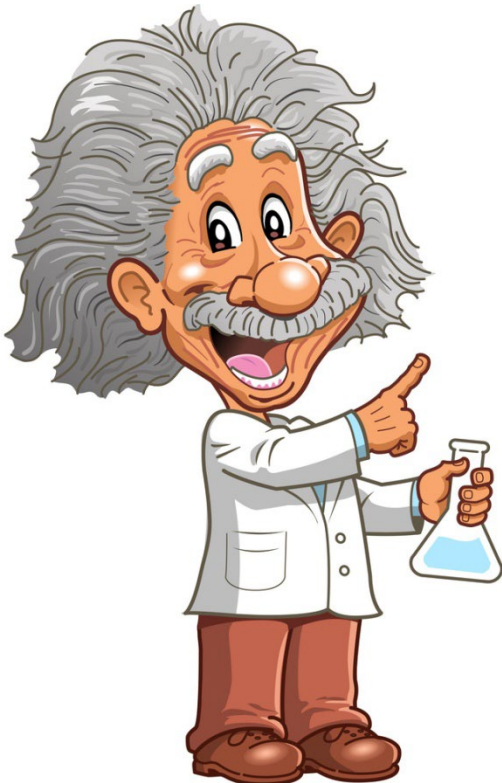
**"THAT DEEP
EMOTIONAL
CONVICTION OF THE
PRESENCE OF A
SUPERIOR REASONING
POWER, WHICH IS
REVEALED IN THE
INCOMPREHENSIBLE
UNIVERSE, FORMS MY
IDEA OF GOD."**

ALBERT EINSTEIN



4

On the Movement of Small Particles Suspended in Stationary Liquids Required by the Molecular-Kinetic Theory of Heat

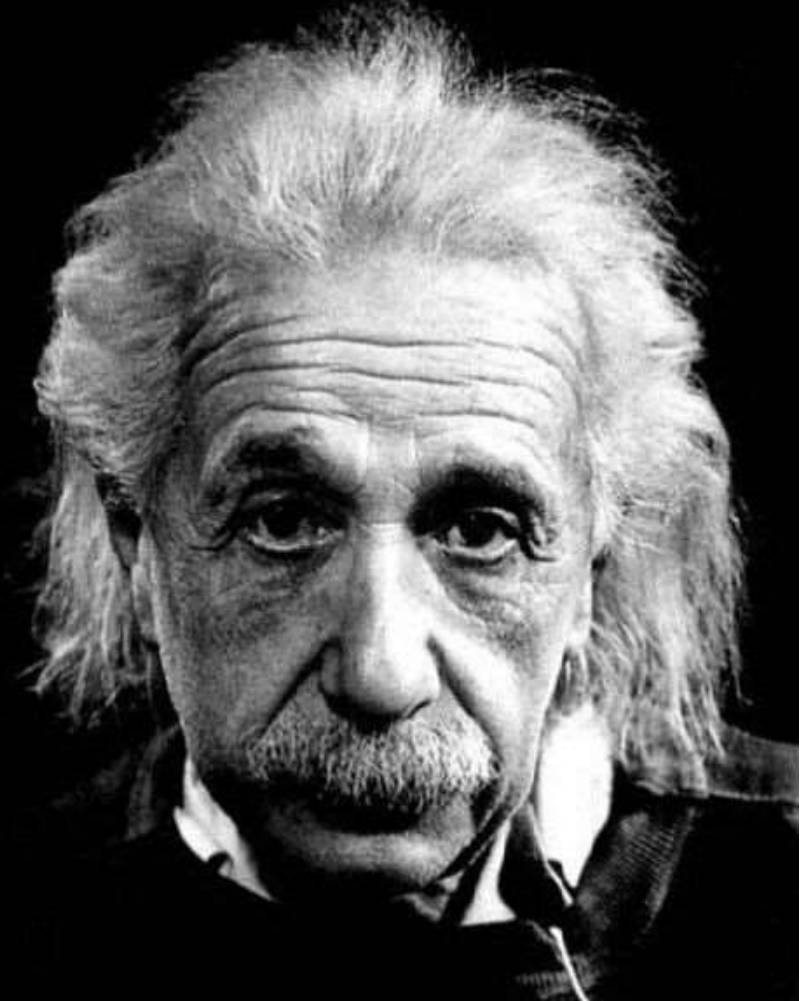


This paper demonstrated how **Brownian motion offered experimentalists the possibility to prove that molecules existed, despite the fact that molecules themselves were too small to be seen directly.**



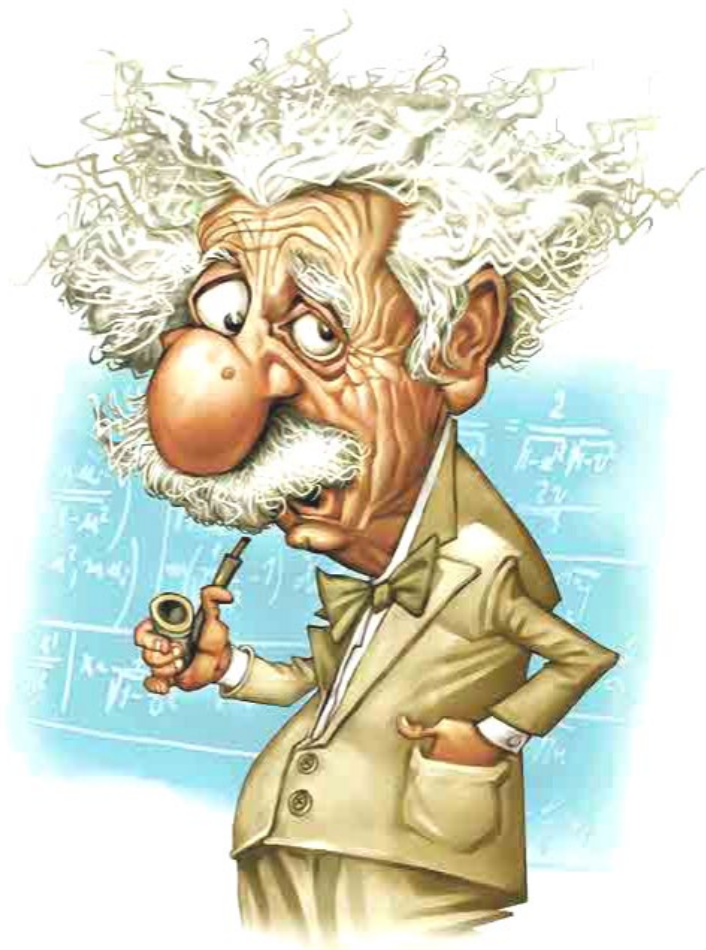
“I believe in God -
who reveals himself in the orderly
harmony of the universe.”

Albert Einstein



A New Determination of Molecular Dimensions

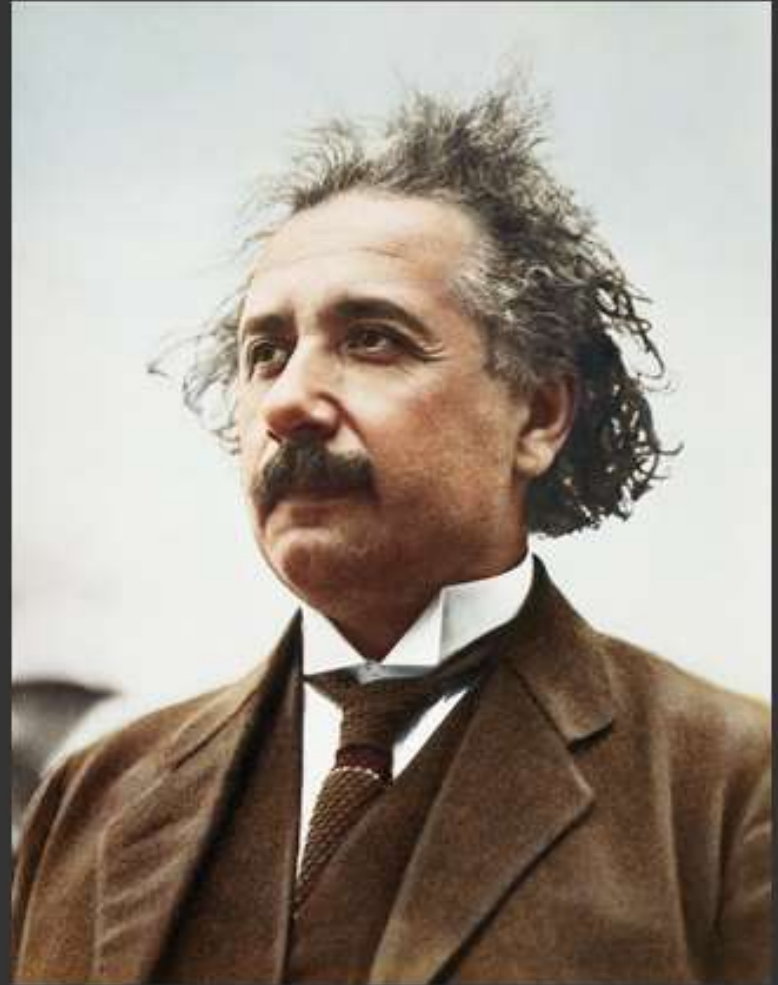
It shows how to calculate **Avogadro's number** and the size of molecules.

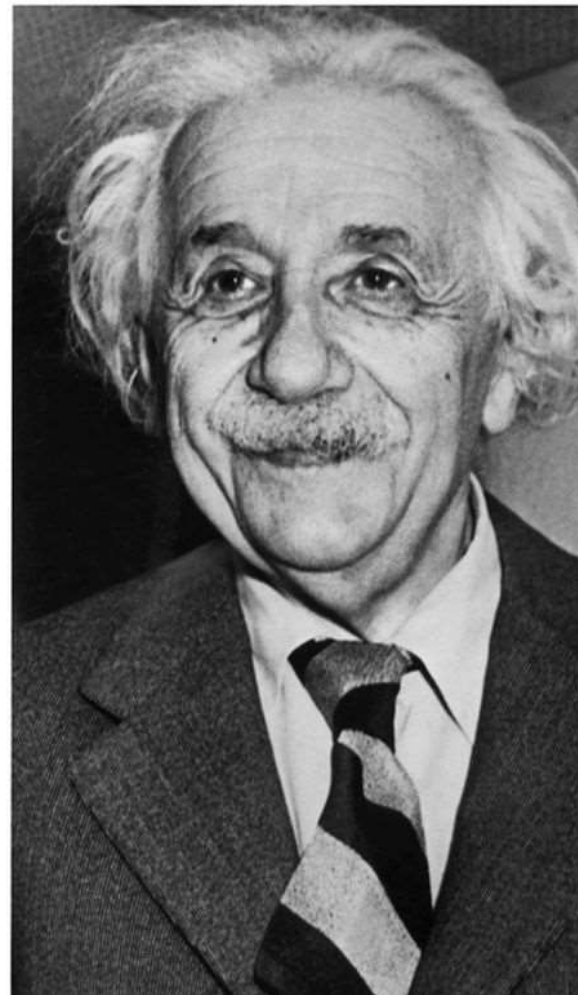
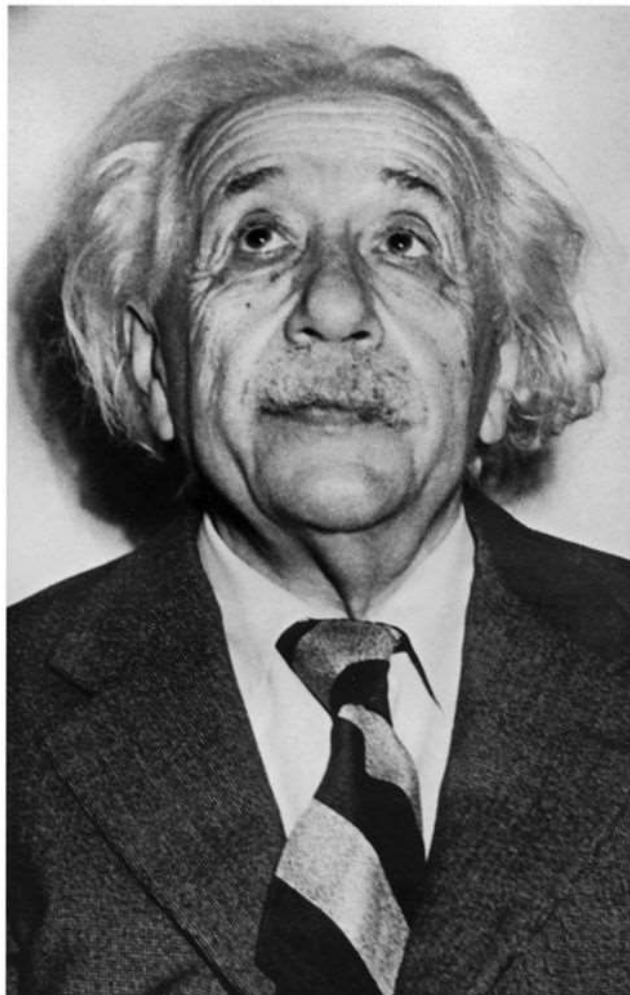
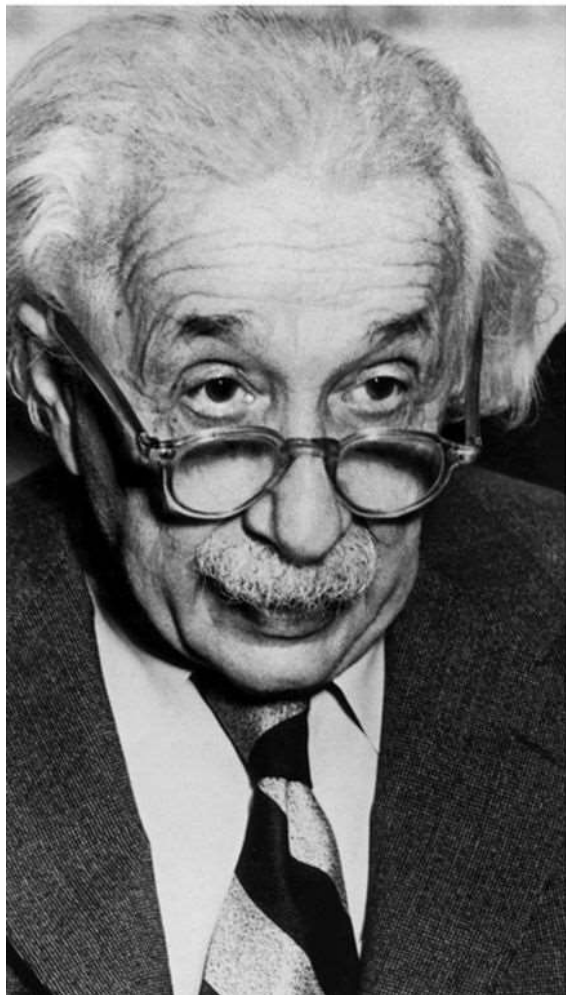




“The world will not be destroyed by those who do evil, but by those who watch them without doing anything.”

– Albert Einstein





“

The most beautiful experience we can have is the mysterious... Whoever does not know it and can no longer wonder, no longer marvel, is as good as dead, and his eyes are dimmed.”

EINSTEIN on mystery

