17 Equations that changed the world. Is there one more?

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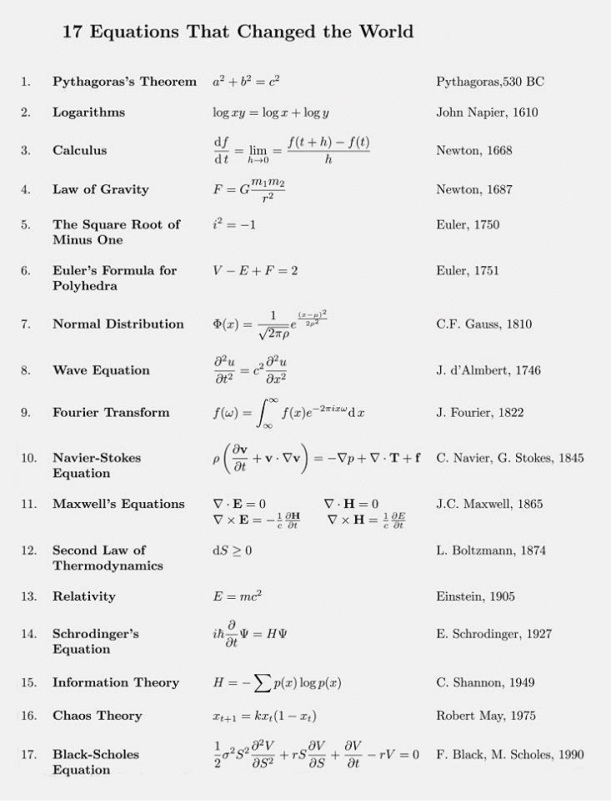
GALVESTON, TEXAS, UNITED STATES, March 30, 2023 /EINPresswire.com/ -- In recent years, the processes that make up life have been the subject of extensive research. Previously, physicist Herbert Fröhlich proposed that in water, biological molecules (proteins, DNA, and RNA) that oscillate at the same frequency, can selectively recognize and attract one another through a resonant interaction. This hypothesis was recently confirmed. The experiments showed that biological molecules generate oscillations in the terahertz range that are transmitted through the aqueous medium to distances up to 1000 Å, allowing resonant attractive interaction between molecules (https://project-links.eu/). It was shown that the electronic properties of proteins, DNA, and RNA molecules control this long-range interaction that powers life (http://electronicbiology.org).



17 Equations That Changed the World

1.	Pythagoras's Theorem	$a^2 + b^2 = c^2$	Pythagoras,530 BC
2.	Logarithms	$\log xy = \log x + \log y$	John Napier, 1610
3.	Calculus	$\frac{\mathrm{d}f}{\mathrm{d}t} = \lim_{h \to 0} = \frac{f(t+h) - f(t)}{h}$	Newton, 1668
4.	Law of Gravity	$F = G\frac{m_1 m_2}{r^2}$	Newton, 1687
5.	The Square Root of Minus One	$i^2 = -1$	Euler, 1750
6.	Euler's Formula for Polyhedra	$V - E + F = 2$	Euler, 1751
7.	Normal Distribution	$\Phi(x) = \frac{1}{\sqrt{2\pi\rho}} e^{\frac{(x-\mu)^2}{2\rho^2}}$	C.F. Gauss, 1810
8.	Wave Equation	$\frac{\partial^2 u}{\partial t^2} = c^2 \frac{\partial^2 u}{\partial x^2}$	J. d'Almbert, 1746
9.	Fourier Transform	$f(\omega) = \int_{\infty}^{\infty} f(x) e^{-2\pi i x \omega} \mathrm{d}\,x$	J. Fourier, 1822
10.	Navier-Stokes Equation	$\rho\left(\frac{\partial \mathbf{v}}{\partial t} + \mathbf{v} \cdot \nabla \mathbf{v}\right) = -\nabla p + \nabla \cdot \mathbf{T} + \mathbf{f}$	C. Navier, G. Stokes, 1845
11.	Maxwell's Equations	$\nabla \cdot \mathbf{E} = 0$ $\nabla \times \mathbf{E} = -\frac{1}{c}\frac{\partial \mathbf{H}}{\partial t}$ $\nabla \cdot \mathbf{H} = 0$ $\nabla \times \mathbf{H} = \frac{1}{c}\frac{\partial E}{\partial t}$	J.C. Maxwell, 1865
12.	Second Law of Thermodynamics	$\mathrm{d}S \geq 0$	L. Boltzmann, 1874
13.	Relativity	$E = mc^2$	Einstein, 1905
14.	Schrodinger's Equation	$i\hbar\frac{\partial}{\partial t}\Psi = H\Psi$	E. Schrodinger, 1927
15.	Information Theory	$H = -\sum p(x) \log p(x)$	C. Shannon, 1949
16.	Chaos Theory	$x_{t+1} = kx_t(1 - x_t)$	Robert May, 1975
17.	Black-Scholes Equation	$\frac{1}{2}\sigma^2 S^2 \frac{\partial^2 V}{\partial S^2} + rS\frac{\partial V}{\partial S} + \frac{\partial V}{\partial t} - rV = 0$	F. Black, M. Scholes, 1990

This discovery builds upon the electron-ion interaction potential (EIIP) proposed 50 years ago (https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.29.105), which is determined solely by the atomic number of elements. The EIIP has allowed the study of complex phenomena in solid-state physics and material science using only data from Mendeleev's Periodic Table. Moreover, EIIP has been used in the study of various biological phenomena such as protein-protein and protein-DNA interactions, the design of drugs and vaccines, functional mapping of DNA, the design of novel proteins, the study of the biological effects of mutations, and investigation of properties of food nutrients.

In 2013, mathematician Ian Stewart summarized the seventeen equations that form the basis for life as we know it (https://www.softouch.on.ca/kb/data/17%20Equations%20That%20Changed%20The%20World.p

df).
The simple equation determining EIIP could be included in this list as it connects the basic properties of chemical elements determined by Mendeleev's Periodic Law with the essential properties of biomolecules that separate living from non-living matter.

Dr. Veljko Veljkovic
Biomed Protection, LLC
Email: veljko@biomedprotection.com

Veljko Veljkovic
Biomed Protection
veljko@biomedprotection.com
