

ADDENDUM – The table of all the abbreviations used in the paper “A Bio-Info-Digital Universe Model (BIDUM version 1.1) based on a series of Planck-like informational constants and using the hypothetical gravitonic qubit as the basic unit of the (bio)physical information”

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Dear readers, I appreciate your time and patience to read/try to read my article. However, this is not a simple article: as it describes the universe in informational terms (as it is a model of the universe; Bio-Info-Digital-Universe-Model [BIDUM]) and has almost 60 pages, it tends to be more like a manual in which I have reformulated a lot of classical and modern concepts of physics. Like any manual/book-like article, the abbreviations are inevitable, as I also try to impose new general concepts (together with their abbreviations which I try to propose too). If I had used the classical terms with a minimal abbreviational strategy, the phrases would become very complex and hard to read as the explanations have a lot of parenthesis (as I practice a tree-like multi-level phrase structures). The main abbreviations I have imposed is for fundamental physical concepts I try to present and I always first explain them (and mention them between parenthesis). **These are the most frequent: (elementary) quantum particle ([E]QP), gauge-boson (GB), non-gauge particle (NGP), physical information (quantity/quanta) (PI[q/qua]), biological information (quantity/quanta) (BI[q/qua]), biophysical information (quantity/quanta) (BPI[q/qua]), physical observer (PO), biological observer (BO), Fine Structure Constant (FSC), GCC (gravitational coupling constant), fundamental forces/fields (FFs): strong nuclear force/field (SNF), weak nuclear force/field (WNF), electromagnetic force/field (EMF), (electro)gravitational force/field (EGF), super string theory (SST), M-theory (MT) etc.** The majority of the rest of them are standard abbreviations used in standard physical language. I have also anticipated the difficulty of reading this manual-like article, that is why I have also created this separate file with all the abbreviations used in my BIDUM. **Important remark:** this update is also due **Sergey G. Fedosin**^[1] which I want to thank again as he convinced my once again that this table of abbreviations is a must to share with all my readers.

Table 1. The abbreviations used in BIDUM version 1.1 (with Wikipedia references only)	
	<i>Intentionally left blank</i>
ACP	(The) Anthropic Cosmological Principle/Hypothesis ^[1]
A_{OU}	(the) Age (of the) Observable Universe ^[2]
α	the inverse of Fine Structure Constant (at rest) ^[3] (FSC) (abbreviation chosen for the simplicity and intelligibility of the equations); $\alpha = 1 / FSC = hc / (K_e q_e^2) \sim 137.036$
α_G	the inverse of gravitational coupling constant (GCC) ^[4] (abbreviation chosen for the simplicity and intelligibility of the equations): $\alpha_G = 1 / GCC = hc / (Gm_e^2) = (m_p / m_e)^2 \sim 5.7 \cdot 10^{44}$ $\alpha_{gr} = \alpha g / 2\pi$
BI	Biological information (as defined in BIDUM). See also ^[5]

[1] URL: [researchgate.net/profile/Sergey_Fedosin](https://www.researchgate.net/profile/Sergey_Fedosin)

BIq	Biological information quantity (as defined in BIDUM)
BIqua	A specific Biological information quantity/quanta (as defined in BIDUM)
BO	(the) bio-observer (as defined by BIDUM)
BPO	(the unified) bio-physical-observer (as defined by BIDUM)
BPI	(unified) Bio-physical information (as defined in BIDUM)
BPIq	Bio-physical information quantity (as defined in BIDUM)
BIF	Biological information field/force (as defined in BIDUM)
BIDUM	A Bio-Info-Digital Universe Model (a model of the physical universe using a PI quantity scalar based on the quantum angular momentum and using the hypothetical graviton as a quantum/subquantum informational unit)
BL-TH	The binary logarithmic (variant of) Teller's hypothesis (TH) (as defined by BIDUM). See TH .
c	the speed of light in vacuum ^[6]
DAH	Drăgoi's alpha (constant) hypothesis (my hypothesis based on a binary logarithm subvariant of Teller's hypothesis) (as defined in BIDUM)
DLNH	Dirac's large number hypothesis ^[7]
e	Euler's (transcendental) number (the base e of the natural logarithms and natural base-e exponentials) ^[8]
ϵ_0	vacuum permittivity ^[9]
$E_{ph}(\lambda)$	the energy of a single photon ^[10] : $E_{ph}(\lambda) = hc / \lambda = h\nu$, with $\nu = c / \lambda$
EFE	Einstein Field Equations ^[11]
EQP	Elementary quantum particle
eg	(hypothetical) electrograviton (a hypothetical graviton with a specific scalar, as defined in BIDUM)
EGF	(The) Electrogravitational (fundamental) force/field (as defined in BIDUM)
EMF	(the) ElectroMagnetic (fundamental) force/field
EFW	(the unified) ElettroWeak (fundamental) force/field ^[12]
ν_{PI}/f_{PI}	Planck Frequency ^[13]
FBD	fermionic/bosonic dichotomy of quantum particles ^[14]
FF(s)	(physical) Fundamental force/field(s) ^[15]
FPF(s)	Fundamental physical force/field(s)
FSC	the Fine Structure Constant (at rest) ^[16] ; $FSC = K_e q_e^2 / (\hbar c) \sim 1/137.036$
G	the classical (Newtonian) experimentally determined G
G_{qe}	The DAH/MBL-TH-based (for DAH/MBL-TH see above/below) quantum gravity scalar for the Newtonian universal gravitational constant: „a quantum big G”) as defined in BIDUM
GCC	the gravitational coupling constant ^[17] ; $GCC = \alpha_G = Gm_e^2 / (\hbar c) = (m_e / m_p)^2 \sim 1 / (5.7 \cdot 10^{44})$
GCCr	the gravitational coupling constant ^[18] redefined in BIDUM

GB(s)	gauge boson(s)
GP(s)	gauge-particle(s)
GRT	(Einstein's) General Relativity Theory ^[19]
GUT	Grand Unification Theories ^[20]
ILF(s)	Individual Life Form(s) ^[21]
IP(s)	(physical) information pack(s). See LMI and LMIP .
h / ħ	Planck constant ^[22] / the reduced Planck constant ($\hbar = h/[2\pi]$)
FTU	The Fine-tuned Universe (observation) ^[23]
HUP	The Heisenberg's Uncertainty principle ^[24]
K_e	Coulomb (electrostatic) constant
LBIF	Layer of Biological information flow/field/force (as defined in BIDUM)
LMI	location-and-(angular)momentum information (as defined in BIDUM)
LMIP	location-and-(angular)momentum information pack (as defined in BIDUM)
LP(s)	Life phenomenon(s) (the phenomenon(s) of Life) ^[25]
LF(s)	Life form(s) ^[26]
l_p	Planck length/distance ^[27] (I have chosen „P _I ” abbreviation instead of „P” abbreviation, so that Planck length[l _p] not to be confounded with the ray/diameter of the proton[r _p and d _p or l _p], as capital „P” may strongly resemble lowercase „p” when used as index/subscript)
log₂(x)	the 2-base (binary) logarithm of x>0 ^[28]
ln(x)	the e-base (natural) logarithm of x>0 ^[29]
m_n / m_p / m_e / m_{p_I}/m_{qu}/m_{qd}	(free) neutron ^[30] / proton ^[31] / electron ^[32] / Planck rest mass ^[33] / up quark rest mass ^[34] / down quark rest mass ^[35] (I have chosen „P _I ” abbreviation instead of „P” abbreviation, so that Planck (rest) mass [m _{p_I}] not to be confounded with the (rest) mass of the proton[m _p], as capital „P” may strongly resemble lowercase „p” when used as index/subscript)
MBL-TH	The Main Binary Logarithmic Teller-like Hypothesis as defined in BIDUM (as called Drăgoi's Alpha Hypothesis (DAH))
MT	M(membrane)-theory (which considers that the 1D strings predicted by SSTs are really 1D slices of a 2D membrane vibrating in an 11D space) ^[36]
NBE	(average) nuclear binding energy (per each nucleon, for each type of nucleus) (also called: the average nuclear mass defect per each nucleon for each type of nucleus) ^[37]
NGP(s)	non-gauge-particle(s) (as defined in BIDUM)
NL-TH	(the original) natural logarithm (variant of) Teller's hypothesis (TH). See TH .
OU	Observable Universe ^[38]
PAPP	particle-antiparticle pair ^[39]
Pep(s)	Proton-electron pair(s) (also called STA as defined by BIDUM)
PEPF	Pauli Exclusion Principle of the (two identical fermions) Fermions ^[40]
PI	physical information (as defined in BIDUM)
PIq	physical information quantity (as defined in BIDUM)

PIqua	A specific physical information quantity/quanta (as defined in BIDUM)
PO	(the) physical-observer (as defined by BIDUM)
PLUS	(the generalized) Planck-Like Units System
PUS	Planck Units System (as derived from Planck System of Units) ^[41]
q_e	the elementary charge (so that not to be confused with Euler number e)
QE	Quantum Entanglement ^[42]
QP	Quantum Particle ^[43]
QS	Quantum System ^[44]
QV	Quantum Vacuum ^[45]
R_e	the classical electron radius
SG/SGF/SGC	Strong Gravity ^[46] / Strong Gravitational Force/Field / Strong Gravitational Constant
SH	Simulation Hypothesis ^[47]
SM	(the) Standard Model (of particle physics) ^[48]
SNF	(the) Strong Nuclear (fundamental) force/field ^[49] ; see also the nuclear force which is essentially a residual strong (nuclear) force ^[50]
SRT	(Einstein's) Special Relativity Theory ^[51]
ST	Spacetime (3D space with a temporal 1D)
STA(s)	spacetime atom(s) (also called pep as defined by BIDUM)
SST(s)	Super Strings Theory (theories) ^[52]
SUSY	SUperSYmmetry ^[53]
SUSYB	SUperSYmmetry Breaking ^[54]
t_{PI}	Planck time ^[55] (I have chosen „PI” abbreviation instead of „P” abbreviation, so that Planck time [t _{PI}] not to be confounded with the lower bound of the mean lifetime of the proton[t _p], as capital „P” may strongly resemble lowercase „p” when used as index/subscript)
TH	The Edward Teller's ^[56] Hypothesis on a logarithmic relation between the fine structure constant (FSC) and the parameter $G \cdot m_N^2 / (h \cdot c) \sim 10^{-39}$ of the form $\alpha \sim \ln[G \cdot m_N^2 / (h \cdot c)]$, with m_N being the mass of a nucleon (proton or neutron)
VSG/VSGF/VSGC	Very Strong Gravity ^[57] / Very Strong Gravitational Force/Field / Very Strong Gravitational Constant
VQP	Virtual Quantum Particle ^[58]
WNF(s)	(the) Weak Nuclear (fundamental) force/field ^[59]

ENDNOTE BASIC REFERENCES FOR ALL THE ABBREVIATED CONCEPTS/TERMS/NOTIONS USED IN BIDUM

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- [1] URL: en.wikipedia.org/wiki/Anthropic_principle
- [2] URL: https://en.wikipedia.org/wiki/Observable_universe
- [3] URL: en.wikipedia.org/wiki/Fine_structure_constant
- [4] URL: en.wikipedia.org/wiki/Gravitational_coupling_constant
- [5] URL: <http://plato.stanford.edu/entries/information-biological/>
- [6] URL: en.wikipedia.org/wiki/Speed_of_light
- [7] URL: en.wikipedia.org/wiki/Dirac_large_numbers_hypothesis
- [8] URL: [en.wikipedia.org/wiki/E_\(mathematical_constant\)](https://en.wikipedia.org/wiki/E_(mathematical_constant))
- [9] URL: en.wikipedia.org/wiki/Vacuum_permittivity
- [10] URL: en.wikipedia.org/wiki/Photon
- [11] URL: https://en.wikipedia.org/wiki/Einstein_field_equations
- [12] URLs: [1] en.wikipedia.org/wiki/Electroweak_interaction; [2] hyperphysics.phy-astr.gsu.edu/hbase/forces/unify.html; [3] arxiv.org/abs/hep-ph/0502010v1
- [13] URL: https://en.wikipedia.org/wiki/Planck_units
- [14] URLs: [1] en.wikipedia.org/wiki/Fermion; [2] en.wikipedia.org/wiki/Boson
- [15] URLs: [1] en.wikipedia.org/wiki/Fundamental_interaction; [2] <http://hyperphysics.phy-astr.gsu.edu/hbase/forces/einun.html#c1>; [3] <http://hyperphysics.phy-astr.gsu.edu/hbase/astro/unify.html#c1>
- [16] URL: en.wikipedia.org/wiki/Fine_structure_constant
- [17] URL: en.wikipedia.org/wiki/Gravitational_coupling_constant
- [18] URL: en.wikipedia.org/wiki/Gravitational_coupling_constant
- [19] URLs: [1] https://en.wikipedia.org/wiki/General_relativity; [2] <http://www.space.com/17661-theory-general-relativity.html>
- [20] URLs: [1] <http://hyperphysics.phy-astr.gsu.edu/hbase/forces/unify.html#c5>; [2] https://en.wikipedia.org/wiki/Grand_Unified_Theory
- [21] URL: en.wikipedia.org/wiki/Outline_of_life_forms
- [22] URL: en.wikipedia.org/wiki/Planck_constant
- [23] URL: en.wikipedia.org/wiki/Fine-tuned_Universe
- [24] URL: en.wikipedia.org/wiki/Uncertainty_principle
- [25] URL: en.wikipedia.org/wiki/Life
- [26] URL: en.wikipedia.org/wiki/Outline_of_life_forms
- [27] URL: en.wikipedia.org/wiki/Planck_length
- [28] URL: https://en.wikipedia.org/wiki/Binary_logarithm
- [29] URL: https://en.wikipedia.org/wiki/Natural_logarithm
- [30] URL: <https://en.wikipedia.org/wiki/Neutron>
- [31] URL: <https://en.wikipedia.org/wiki/Proton>
- [32] URL: <https://en.wikipedia.org/wiki/Electron>
- [33] URL: https://en.wikipedia.org/wiki/Planck_mass
- [34] URL: https://en.wikipedia.org/wiki/Up_quark
- [35] URL: https://en.wikipedia.org/wiki/Down_quark
- [36] URL: en.wikipedia.org/wiki/M-theory
- [37] URL: en.wikipedia.org/wiki/Nuclear_binding_energy
- [38] URL: https://en.wikipedia.org/wiki/Observable_universe
- [39] URLs: [1] en.wikipedia.org/wiki/Pair_production; [2] en.wikipedia.org/wiki/Antiparticle
- [40] URL: en.wikipedia.org/wiki/Pauli_exclusion_principle
- [41] URL: https://en.wikipedia.org/wiki/Planck_units
- [42] URL: en.wikipedia.org/wiki/Quantum_entanglement
- [43] URL: en.wikipedia.org/wiki/Subatomic_particle
- [44] URLs: [1] en.wikipedia.org/wiki/Quantum_system; [2] en.wikipedia.org/wiki/Open_quantum_system

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- [45] URLs: [1] https://en.wikipedia.org/wiki/Vacuum_state; [2] <https://en.wikipedia.org/wiki/Vacuum>
- [46] URL: en.wikipedia.org/wiki/Strong_gravity
- [47] URL: en.wikipedia.org/wiki/Simulation_hypothesis
- [48] URL: en.wikipedia.org/wiki/Standard_Model
- [49] URL: en.wikipedia.org/wiki/Strong_interaction
- [50] URL: en.wikipedia.org/wiki/Nuclear_force
- [51] URLs: [1 – Wikipedia page] https://en.wikipedia.org/wiki/Special_relativity; [2] www.einstein-online.info/elementary/specialRT; [3] <http://scienceworld.wolfram.com/physics/SpecialRelativity.html>; [4] <http://scienceworld.wolfram.com/physics/SpecialRelativity.html>; [5] www.dummies.com/how-to/content/einsteins-special-relativity.html; [6 – The Experimental basis of Special Relativity – web article] <http://math.ucr.edu/home/baez/physics/Relativity/SR/experiments.html>
- [52] URLs: [1] en.wikipedia.org/wiki/Superstring_theory; [2] en.wikipedia.org/wiki/String_theory
- [53] URL: <https://en.wikipedia.org/wiki/Supersymmetry>
- [54] URLs: [1] https://en.wikipedia.org/wiki/Supersymmetry_breaking; [2] https://en.wikipedia.org/wiki/Soft_SUSY_breaking; [3] https://en.wikipedia.org/wiki/Supersymmetry_breaking_scale
- [55] URL: en.wikipedia.org/wiki/Planck_time
- [56] URL: en.wikipedia.org/wiki/Edward_Teller
- [57] URLs: en.wikipedia.org/wiki/Strong_gravity
- [58] URLs: en.wikipedia.org/wiki/Virtual_particle
- [59] URLs: [1] en.wikipedia.org/wiki/Weak_interaction; [2] thestargarden.co.uk/Weak-nuclear-force.html