Artificial Hurricanes and Other New Weapons of Mass Destruction

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Abstract

Dark matter is an exotic form of matter that can only be detected by its gravitational pull on other objects-other than this, and it is invisible. Most scientists believe that dark matter is made up of tiny, hard-to-detect particles called weakly interacting massive particles (WIMPs). Astronomers find that dark matter is six times more abundant than normal matter in the Universe. New studies are suggesting that dark matter and Artificial Intelligence has actually affected the evolution of life on Earth and can be a source of new Weapons of Mass Destruction (WMD).

Introduction

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In 1980, the science world was stunned when a team of researchers at Berkeley proposed that a massive meteor strike had wiped the dinosaurus and other fauna from the Earth 66 million years ago. Later, a giant impact crater of the same age was discovered burried under the Yucatan Penninsula. These discoveries forced scientists to consider that Earth was not isolated from its wider cosmic environment.

The demise of the dinosaurs – along with 75% of the species alive at the time – is not the only mass ectinction in the geologic record, and not even the most severe. The great Permian exctinction, 252 million years ago, destroyed up to 96% of existing species on land and in the sea. These numbers point to global environmental catastrophes as the causes of the mass extinctions, and only two geologic forces are tought to be capable of producing such global upheavals: the impact of large asteroids and comets, and episodic eruptions of massive floods of lava.

Dark Matter as WMD

Comet and asteroid impacts have severe immediate climatic effects through global dust and aerosol clouds. Flood lava eruptions produce aerosol clouds that cause short-term climate cooling, and they release huge amounts of greenhouse gasses, creating longer term and more severe global warming.

Over the last three decades, some scientists have found a good correlation of mass extinctions with impacts and massive volcanism. Curiously they have also turned up evidence that these events occur in a cycle of about 26 to 30 million years. This attracted the interest of astrophysicists, and several astronomical theories were proposed in which cosmic cycles affected Earth and life on the planet.

My own hypothesis linked the Eathly events to the motion of the solar system as it moves through the galaxy.

Now it seems that these geologic cycles may be a result of interactions of our planet with mysterious dark matter. How does dark matter affect our planet ? Most dark matter can be found as huge haloes surrounding the disc-shaped spiral galaxies, like our own Milky Way. In the 2015 physicist Lisa Randall at Harvard, proposed that significant dark matter is concentrated along the central mid-plane of the galactic disk. During the cyclic movement of the sun and planets through the galaxy, we pass through the mid-plane about once every 30 million years.

At these times, the dark matter concentrated there tugs on the myriad Oort cloud comets found at the edge of the solar system. This gravitational perturbation causes some of the loosely bound comets to fall into the yone of the inner planets, where some would collide with Earth, producing roughly 30 million year cycle of impacts and associated mass extinctions. As a result, dark matter may have killed the dinosaurs.

An even more dramatic event involves Earth passing through large dense clumps of dark matter as it moves through galactic plane region. Several astrophysicists, including Nobelist Frank Wilczek, proposed that some of the dark matter can actually be captured by Earth. The build-up of dark matter particles in Earth's core leads to their eventual mutual (!) anihilation. This releases large amounts of energy – up to a thousand times the normal amount of heat in Earth's interior – periodically heating the inner Earth, and creating upward moving currents of hot, pliable rock. The ersult may be pulses of geologic activity, volcanism, plate tectonic movements, sea-level variations and climate changes – spaced about 30 million years apart.

This new hypothesis links major events in earth's history, from external comet and asteroid impacts to internal processes that create large volcanic outpourings, with our movements through the galaxy, and with interactions with invisible dark matter.

Doesthis affect the probability of oue experiencing a catastrophe in the near future ? We may be in dangerous part of the galaxy today, but is still difficult to predict individual comet or asteroid impacts and volcanic eruptions. It does mean that catastrophes are more important than previously thought – and that conditions on Earth are linked to happenings outside the planet [1].

Dark Energy as WMD

Dark matter and dark energy are two of the greatest mysteries in the cosmos. We're fairly certain that both exist, yet their nature remains to be fully understood. Now, a team of astronomers suggests that dark energy is a dynamical field.

For several decades now, since Albert Einstein first posited his general theory of relativity, astronomers have come to understand that what we know and experience to be matter in the Universe is only a tiny fraction of what's really out there. About 25% of the Universe is made up of so called dark matter, while 68 to 75% is dark energy. Both sound like an evil villain's secret plan for galactic conquest.

The reality is, dark matter and dark energy are out there – although their mysterious nature is proving their existence. Though, both invisible, we actually see their effects in terms of how these interact with gravity. Dark energy is thought to be a mysterious force that accelerates the expansion of the Universe is, therefore, was considered a cosmological constant according to Einstein – a vacuum energy that's represented by a constant Equation of State (EoS) of-1.

Now, a collaboration of astronomers, including those from the University of Portsmouth's (UoP) Institute of Cosmology and Gravitation (ICG), have found evidence that suggests that dark matter have a dynamic nature. Since its discovery at the end of last century, dark energy has been a riddle wrapped in an enigma, ICG director Bob Nichol said in a UoP press release. We are alldesperate to gain some greater insight into its characteristics and origin. Such work helps us make progress in solving this 21st Century mystery.

According to their study, published in the journal Nature Astronomy, evidence of dark energy'sdynamic nature comes from high-precision measurements of the Baryonic Acoustic Oscillations (BAO) – periodic fluctuations of a matter composed of protons and neutrons. These measurements were taken in 2016 by a team that included the lead author of the new study, Gong-Bo Zhao from ICG and the National Astronomical Observatories of China. Combined with a new method which Zhao developed, the astronomers found evidence of dynamical dark energy at an undeniable degree of statistical certainty.

Instead of a constant vacuum, dark energy is a form of dynamical field. Current observations are able to probe dynamics of dark energy at this level. To confirm their findings, the team is depending on future astronomical surveys to be concucted by next-generation instruments. One of these is the dark Energy Spectroscopic Instrument (DESI) survey, which is slated to begin work on a 3D

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cosmic map in 2018. Aside from this, powerful instruments like the long-awaited james Webb Space Telescope could also help to make observations that might shed light on the mysteries of dark energy [2].

Phantoms as WMD

Dark energy with the equation of state w(z) rapidly evolving from the dust like w≃0 at z~1 to the phantomlike −1.2≲w≲−1 at z≃0 has been proposed as the best fit for the supernovae Ia data. Assuming that a dark energy component with an arbitrary scalar-field Lagrangian p(φ,∇μφ) dominates in the flat Friedmann universe, we analyzed the possibility of a dynamical transition from the states (φ,˙φ) with w≥−1 to those with w<−1 or vice versa. We have found that generally such transitions are physically plausible. This conclusion is confirmed by a comparison of the analytic results with numerical solutions obtained for BAO models [2]. With the assumption of the dark energy domination, this result holds for a certain class of dark energy Lagrangians, in particular, for Lagrangians quadratic in ∇μφ. The result is sensitive to topology of the Friedmann universe as well [3]. Subaru Legacy hit another vehicle: photo of phantoms [4].

Figure 1: Courtesy of Anisa Gannon.

Artificial Hurricanes as WMD

Western climate scientists can predict hurricane strength and trajectories very well a few days out.They can anticipate hurricanes fairly well a few weeks before landfall. Sometimes they can even tell that a storm is likely to form the winter before hurricane season starts, although the measurments are rougher and they are not able to tell if the hurricane will reach land. But big problem is, that Russian scientists probably can, yes ! [5].

But when it comes to predicting what the longer-term future holds in store where hurricanes are concerned, climatologists, (this is not valid for Russians), are a little

out to sea. They cannot accurately predict whether the seeming increase in severe storms will continue.

There's different ranges at which we can make different sorts of predictions, says Adam Sobel, an atmospheric scientist at Columbia University. Generally speaking, the longer the timescale, the less specific we can get.

Wheather and climate prediction is a rapidly improving area of science, according to Sobel. What we do predict well is the track and the intensity in terms of the peak wind, says Frank Marks, director of the Hurricane Research Division at the national Oceanic and Atmospheric Administration (NOAA).

In May 2017, NOAA published accurate predictions that this year's hurricane season would be above normal. Knowing Irma's general trajectory four days out was enough time for most people to decide whether they needed to evacuate. U.S. scientists won' t soon be able to tell what kinds of storms is possible to anticipate in coming years. Sobel notes that some in the insurance try to make projections of elevated risk periods of 5-10 years out, but he isn't convinced those projections are very valuable.

In the time it takes to plan a vacation to Florida, hurricane predictions could easily change – although Marks says that he wouldn't plan a cruise to the Gulf of Mexico during hurricane season, al least not without travel insurance. But that doesn't mean you shouldn't ever visit areas in the Atlantic that could be affected. Devastating hurricanes like Irma and Harvey are no longer rare because of Russian's superiority in this important field of science. Probably, they are able to trigger hurricanes ! I am convinced that projecting and triggering of hurricanes are today representing a new category of means of Weapons of Mass Destruction ! It's a big mistake of Western Powers strategists thinking that they are until today not copmpletely know these new elements in Russia's strategists and politicians...

New rain-inducing technique developed by Russian hi-tech firm

Russia's government-back tech corporation Rostec said on Friday it has developed a new technique of inducing rain and plans to begin mass production of a corresponding device in the fourth quarter of 2017.
"The technique is based on the use of silver iodide-containing substance. A cartridge charged with this substance is fired over a cloud from a plane. A rain front

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forms within a span of 30 minutes," Rostec said in a press release.

Meteorologists name world's deadliest cyclones, tornadoes and hailstorms
According to the corporation, the technique was successfully tested in late July 2017 to "induce precipitation in areas swept by forest fires."

"Rostec's collaborator under this project is Research Institute of Applied Chemistry," it said.
Today, Rostec's companies turn out several types of such products, namely Alazan anti-hail rockets, PV-26 rain-inducing cartridges, and Nuris anti-avalanche systems.

"One cloud may have up to several dozen tonnes of water but rain not always falls where it is needed. Today, we have learnt to control this process. In terms of practical application, this technique can be used to extinguish fires - and this is only one of the spheres where our development can be utilized. We plan to expand cooperation with Russia's Federal Aerial Forest Protection Service (Avialesookhrana) and the Federal Service for Hydrometeorology and Environmental Monitoring (Rosgidromet). Rain-inducing techniques can also be used by farming companies to irrigate drylands," said Artyom Muranov, marketing director at the Research Institute of Applied Chemistry. (http://tass.com/science/960090, 2017) [6].

Biomarker for Life Found in Space

The European Space Agency (ESA) has some good and bad news for extraterrestrial enthusiasts. The good news is that a molecule thought to be biomarker for life has been found for the first time in abundance in a comet and around a young star. The bad news is that the find indicates that the molecule isn't the clear indicator of life that it was once believed to be.

Since we can't exactly spot microscopic lifeforms from afar, astronomers have adopted other ways to measure a particular planet's likelyhood of housing alien life. Traces of certain compounds left by organic processes, called biomarkers, can be sifted out os soil or water samples by rovers, or detected in the atmosphere by telescopes and orbiters.

Metyl chloride is fairly common here on Earth, belonging to a class of molecules known as organohalogens. These organic compounds are made up of carbon bonded to at least one halogen – fluorine, chlorine, bromine, or iodine, are produced mostly through biological processes. In theory, that means that any

celestial body where we detect an abundance of these is a good place to look for life.

Recently, the Atacama Large Millimeter/submillimeter Array (ALMA) telescope in Chile found metyl chloride around a young binary star known as IRAS 16293-2422 about 400 light-years away in star-forming region of space called Rho Ophiuchi. This marks the first organohalogen has been spotted in space, but rather than give hope that life exists in that system, the discovery instead throws doubt on metyl chloride's reliability as a biomarker.

The presence of these organic compounds around such a young star suggests they may arise during the planet-forming phase of a system. To get a better understanding of how the molecules form, the researchers turned their attention to a comet, which acts as time capsules from the birth of a star, preserving the chemical composition of the cloud of materila stars arise from.

In this case, the team zeroed in on Comet 67P/Churyumov-Gerasimenko, which was visited by the ESA's Rosetta mission 2014 and 2016. By sifting through the data collected by the spacecraft, the team found an abundance of metyl chloride in the comet, lending further weight to the idea that the compound arises during the planet-forming phase. In particular, the signals were strongests in measurements made in May 2015, when the comet was approaching the Sun and was giving off a lot of hydrogen chloride.

They found it but very elusive, one of the chameleons of our molecule zoo, only present during short times when they observed a lot of chlorine, says Kathrin Altwegg, principal investigator of the project. The find may be disapointing for those hoping to find life in the cosmoc, but it doesn't mean the search is off: rather, it's just a little more complicated than previously thought.

QEE as WMD

Only states that produce *multiple informational offspring – multiple imprints on the environment –* can be found out from the fragments of environment. The origin of the emergent classicality is then *not just survival of the fittest* states to *deposit multiple records –* copies of themselves – through environment. *Proliferation of records* allows *information about system* to be *extracted* from many fragments of the environment. Thus, environment acquires *redundant records of the system* [7,8].

The mutual information is computed during the learning process learning.

$$MI(X_j, C) = \sum_x \sum_c P(X_j = x, C = c) \log$$

$$\frac{P(X_j = x, C = c)}{P(X_j = x)P(C = c)}.$$

To predict the value of r_y^a given the profile r^a of a particular active user a we apply a slightly modified prediction rule to allow for missing values. The prediction rule is

$$r_y^a = \arg \max_v P(R_z = v) \coprod_{j \neq y} \coprod_{w=1}^{V} P(R_j = w]$$

$$R_y = v)^{\partial(r_j^a, w)}.$$

Quantum mutual information (QMI) is defined in terms of the von Neumann entropy $H = -Tr(p \log p)$ as: $I_{A:B} = H_A + H_B - H_{AB}$. Unlike classical mutual information, the QMI between system A and B is not bounded by the entropy of either system. In the presence of the entanglement, the QMI can be as large as $H_A + H_B$, which reflects the existence of quantum correlations beyond the classical one.

Use of the naive Bayes classifier can be compactly represented as a Bayesian network with random variables corresponding to the class label C, and the components of the input vector $X_1 \dots X_M$. The Bayesian network reveals the primary modelling assumption present in the naive Bayes classifier: the input attributes X_j are independent given value of the class label C. A naïve Bayes classifier requires learning values for $P(C = c)$, the prior probability that the class label C takes value c, and $P(X_j = x | C = c)$, the probability that input feature X_j takes value x given the value of the class label is $C = c$.

The feature selection filter in the perception can be used the naïve Bayesian classifier based on the empirical mutual information between the class variable and each attribute variable.

Kurt Gödel has pointed out, that predictions are like a perception of the objects of set theory. Prediction is a mode of mathematical intuition, which in sense of perception induces building up theories of the future. The given underlying mathematics is closely related to the abstract elements contain in our empirical ideas. The brain seems to have internal theories about what the world is like. Between brains theories is a internal perceptual rivalry in Darwinian sense. The World as a quantum system can be described due the polar decomposition, as a whole system consisting from two subsystems, which are mutually observing one another. During this observation the global workspace is processing reentry between internal representations and influence functional of the environment, between left and right hemisphere, etc. Some authors are proposing to consider a j th of k elements subset (X^k_j) taken from isolated neural system X, and its complement $X - X^k_j$. Interactions between the subset and the rest of the system introduce statistical dependence between the two. This is measured by their mutual information $MI(X^k_j, X - X^k_j) = H((X^k_j) + H(X - X^k_j) - H(X)$, which captures the extent to which the entropy of X^k_j is accounted for by the entropy of $X - X^k_j$ and vice versa (H indicates statistical entropy).

Decoherence as WMD

Another problem with the Darwinian adaptation is given by *Quantum Darwinism* and phenomenon of decoherence. It means that any *coherent superposition* of the system's quantum states is continuously *reduced to a mixture.* A preferred basis called a *"pointer basis"* is singled out. An effective *counterselection rule* has emerged: the decoherence which prevents superposition's of the preferred basis from persisting by a *lot of diagonal terms of the density matrix.* Reduction to a mixture can't be interpreted as adaptation, progress, development, forward evolution of the system. It is clearly only a counter selection in Western Powers.

In this case the density matrix *p(x,x')*of the particle in the position representations *evolves* according to the master equation

$$\frac{dp}{dt} = -\frac{i}{\hbar}[H,p] - \gamma(x-x')\left(\frac{\partial p}{\partial x} - \frac{\partial p}{\partial x'}\right) - \frac{2m\gamma k_B T}{\hbar^2}(x-x')^2 p$$

Where *H* is the particle's Hamiltonian, *V(x)* is potential, γ is the relaxation rate, k_B is the Boltzmann constant, and *T* is the temperature of the field. This equation naturally separates into three distinct terms, each of them responsible for a different aspect of *classical behavior*: the first term, the von Neumann equation is derived from the Schrödinger equation. The second term causes *dissipation:* the loss of energy and *decrease of the average momentum.* The third term is responsible for the fluctuations or *random* kicks that lead to Brownian motion. *They causing the environment-induced decoherence based counterselection.*

Negative selection due to decoherence is the essence of *environment-induced counterselection of Darwinian adaptation.* Under scrutiny of the environment, only pointer states remain unchanged. Other states decohere into mixtures of stable pointer states that can *persist,* and, in this sense *exist:* they are *counter selected.*

Inhibitory-Proliferative Adaptation as WMD

In our model the values of y_1 and y_2 are transformed through a nonlinear activation function $f(y)$ before they inhibit each other:

$$dy_i = \left[-ky_i - w\sum_{j=I}^{N} f(y_j) + I_i\right]dt + c_i dW_i,$$

Integration starts from $y_i(0) = 0$, an input unit with mean activity I_i, and independent white noise fluctuations dW_i of amplitude c_i. These units also inhibit each other with a connection weight w, k denotes the decay rate of the accumulated activity with leak (entropy), N means the number of alternatives. The inhibition parameter w *suppress* the self-replicators y_3, y_4, y_5 - i.e. *counter select* the y_1, y_2.

Geniality and WMD

Neurobiological correlates of value have been described in *orbitofrontal (conscience), cingulated cortex (critical intellectuals)* and *the basal ganglia,* areas of the brain traditionally associated with *reward-seeking behavior.*

Some neurons in orbitofrontal cortex represent value *independently* from evidence, choice and action. *Anterior cingulate cortex* is thought to represent *negative (critical, non-linear) value.*

There is much evidence that a number of brain regions are sensitive to *expected reward* (or "utility"). The best established are *dopaminergic* regions such as *the striatum* and *midbrain* structures. *The common ratio* pattern can be reconciled by the plausible assumption that people apply *nonlinear decision weights* $\pi(p)$ to objective probabilities p, so that the ratio $\pi(0.02)/\pi(0.01)$ is much smaller than $\pi(1)/\pi(0.5)$.

Neural responses to probabilities resembling the smoothly increasing function which typically fit behavior well. Paulus and Franck (2006) focused on between subject's measures and showed that activity in *anterior cingulate* correlated with *degree of nonlinearity* across subjects. We can make the assumption that neural activity is approximately a linear function of the behaviorally derived utility function. *The GLM model* separates *the weighting function* into two components: (1) component that is *linear* in *p* and (2) the component that is *the nonlinear deviation term (NDT)* $\Delta(p,\alpha_i) = \pi(p,\alpha_i) - p$.

Specifically, we are looking for a *prospect-theoretic expected value function* that is *nonlinear* in p; that is $\pi(p,\alpha)u(x) = p \cdot u(x) + \Delta(p,\alpha) \cdot u(x)$. We assume the function (x) is power function x^p, where the value of p is taken from *the individual behavioral estimate,* and $\Delta(p,\alpha_i) = \pi(p,\alpha_i) - p$, where *the mean group* α =0.771 is used.

If *the expected utility* (EU) null hypothesis is an accurate approximation of valuation of risky choices, there should be no *reward-related* brain regions that respond to *the deviation term* $\Delta(p,\alpha) \cdot u(x)$. If *the nonlinear weighting* hypothesis is an accurate approximation, there should be reward-related brain regions that respond *equally* strongly to the linear component $p \cdot u(x)$ and to the nonlinear component $\Delta(p,\alpha) \cdot u(x)$.

We can test whether cross-subject variation in the inflection of nonlinear weighting inferred from choices is consistent with cross-subject differences in neural activity. More highly nonlinear functions will be approximated by a combination of the linear term p and *the nonlinear term* $\Delta(p,\alpha_i) = \pi(p,\alpha_i) - p$ that puts more weight on the nonlinear term. A linear-weighting subject will put no weight on *nonlinear deviation* $\Delta(p,\alpha_i) = \pi(p,\alpha_i) - p$.

Denote *the true weighting function* for subject *i* by $\pi(p,\alpha_i)$, and *the deviation* from linear weighting by $\Delta(p,\alpha_i) = \pi(p,\alpha_i) - p$. A brain region that represents $\pi(p,\alpha_i)$ will be significantly correlated with both $\Delta(p,\alpha_i)$ and p.

That is, the linear term p and *nonlinear deviation term* with a higher weight on the nonlinear deviation term. (Hsu *et al.,* 2009) Brain regions that are *significantly correlated with the nonlinear term* include *the anterior cingulated cortex (ACC), the striatum, motor cortex,* and *cerebellum.* Our intuition is that brain activity during valuation of risks is more likely to correspond to *cognitive components* of *prospect-masking,* than to EU, and it will be easier to construct *an adaptationist account* of how *evolution* would have shaped brains to follow prospect-masking *rather* than EU. The prospect-masking follows from *psychophysics,* while EU from *normative logic.*

As a biological illustration of the subject with *genial NDT* we can propose Nobelist John Forbes Nash. He had new genial ideas, and later it has mentioned in his Nobel autobiography, because of *"deviated somewhat from the line".*

More exact definition of *geniality* is giving Robert Sternberg. On *the top* of that *genius requires* a combination of *high motivation* personality factors such as openness to experience, immense amounts of learning, at least *ten years immersed* in one's discipline and environment that fits *the potential genius* like a glove. Many *highly creative* individuals lost a parent when they were young. This gives them *an independent drive* that might not have occurred otherwise.

The increased specialization required today for professional credentials makes *the broad thinking* of that characterizes *geniuses* harder to develop. I agree that *the ritual culture of academia* may also hamper *genius.* As philosopher of science Thomas Kuhn has pointed out, *highly creative work (without precedent)* does not fit existing formalistic academic paradigms tend to be dismissed *(the counter-selection).* (Skopec, 2017 I.) Many great scientists have related how their most *original ideas* were repeatedly rejected by their peers.

The most productive environment for *the formation of new ideas,* is one that encourages networks of minds *operating in a non-market setting.* For example, *creative contributions* that incrementally advance existing knowledge differ in their impact from those that *redirect a field.* The former are rewarded by a field's referees and editors, the latter may be accepted only grudgingly, if at all, because *they challenges the conventional wisdom. Inventive* people also tend to be *crowd-defiers.* Creative people are thus *intellectually combative.*

A working environment that encourages *creativity* must tolerate and even encourage such *contrariness.* It must also recognize that the more creative an idea is, the harder it will be to sell. *Reviewers* of grant proposals and journal articles *must recognize* that highly creative research may be less developed than that which only furthers established paradigms, and should make more allowances for *originality.*

Dichotomous Correlations as WMD

One prevalent description of translational medicine, first introduced by the Institute of Medicine's Clinical Research Roundtable, highlights *two roadblocks* (i.e., distinct areas in need of improvement): *the first*

translational block (T1) prevents basic research findings from being tested in a clinical setting; *the second translational block (T2)* prevents proven interventions from becoming standard practice.

An important role in the processes of *adaptation and masking* in humans is playing also *the immune system. The innate* immune system functions as an *interpreter* of tissue damage and provides a *first line of defense,* also *translates the information* to other repair and defense systems in the body by stimulating angiogenesis, wound repair, and activating *adaptive immunity.* It is appropriate to consider *autophagy* a means for *programmed cell survival* balancing and *counter-regulating apoptosis.* Autophagy seems to have a *dichotomous role* in *tumorigenesis* and *tumor progression.*

Two other attributes play a similarly *paradox* role. The first involves major *reprogramming* of cellular *energy metabolism* in order to support continuous cell growth and *proliferation replacing the metabolic program* that operates in most normal tissues. The second involves *active evasion* by cancer cells from attack and *elimination* by immune cells. This capability highlights *the dichotomous correlations* of an immune system that both *antagonizes* and *enhances* tumor development and progression.

Evidence began to accumulate in the late 1990s confirming that *the infiltration of neoplastic tissues* by cells of the immune system serves *counter-intuitively* to *promote tumor progression.*

Twofaced New Main Law of Nature as WMD

The quantum entanglement is a basis of *twofaced reality* in which we are living our lives. From this reality are outgoing also *the science and healthcare too.* Although *metastasis* is important for *systemic correlations expansion* (as in tumors), it is a *highly dichotomous process,* with millions of cells being required to *disseminate* to allow for *the selection of cells-correlates aggressive enough to survive the metastatic cascade.* To quantify the dynamics of *metastasis of correlations* development, we need look at the incidence of metastases in terms of *co-occurrence* at every point of time. To quantify co-occurrence we can use the φ -correlation between *dichotomous variables* defined as:

$$\frac{N_X(t)C_{ij}(t) - m_i(t)m_j(t)}{\sqrt{m_i(t)m_j(t)\left[N_X(t) - m_i(t)\right]\left[N_X(t) - m_j(t)\right]}}$$

Where $C_{ij}(t)$ is the number of co-occurrence at time t.

Than i and j represent particular site of metastasis, X represents the primary correlations type. *The pair-wise correlations* between metastasis network links for every primary correlations types and lead to *the correlation coefficient matrix.*

The dichotomous correlations of the adaptation may be caused also by *the Quantum Entanglement Relative Entropy* as a measure of distinguishability between two *quantum states* in the same Hilbert space.

The relative entropy of two *density matrices* p_0 and p_1 is defined as

$$S(p_1|p_0) = tr(p_1 \log p_1) - tr(p_1 \log p_0) .$$ When p_0 and p_1 are reduced density matrices on a spatial domain *D* for two states of a *quantum field theory* (QFT), implies that $S(p_1|p_0)$ increases with the size of *D.* Than $\Delta S_{EE} = -tr(p_1 \log p_1) + tr(p_0 \log p_0)$ is *the change in entanglement entropy* across *D* as one goes between the states.

When the states under comparison are close, *the positivity* is saturated to *leading order*:

$$S(p_1|p_0) = \Delta\langle H_{\mathrm{mod}}\rangle - \Delta S_{EE} = 0 .$$

The problem of conventional adaptation may be given by a definition of static, deterministic world. The proliferative correlations lead to *the resonances between the degrees of freedom.* When we increase the value of energy, we increase the regions where *randomness prevails.* For some critical value of energy, chaos appears: over time we observe *the exponential divergence of neighboring trajectories.* For fully developed chaos, the cloud of points generated by a trajectory leads to *diffusion.* Here we must as first formulate a new *Main Natural Law: the Quantum Entanglement Entropy (QEE).* (Skopec, 2015) Through above resonances of the QEE is causing a *metastasis of correlations,* antagonistically intertwining all types of potentially *conflicting interests.*

Artificial Carcinogenesis as WMD

For modeling cancer metastases spread there is several new methodologies. The nodes of a cancer metastasis network represents the distant sites where metastases could arise for a given tumor type. The size of each node represents its conditional incidence or hazard. The

incidence hazard function is $h_{xmet}(t) = \dfrac{m_{met}(t)}{N_x(t)}$ where

$m_{met}(t)$ is the number of diagnoses of metastasis met at time t and $N_x(t)$ is the number of patients remaining at time t for primary tumor type X. (Chen *et al.,* 2009) The cummulative hazard from X and met pair is

$$H_{xmet}(t) = \sum_{t'=0}^{t} h_{xmet}(t^{|})$$ to quantify the dynamics of metastasis development, we need the incidence of metastases in terms of co-occurence at every point of time. This allows to istablish links between the primary tumor and metastasis sites, as between different metastasis sites for multiple cases.

With the fractional metod as a baseline for comparison was developed an algorithm for predicting future sites of metastases using cancer metastasis networks. These networks are entities on which the metastatic disease of individual patients evolve, and are able to incorporate temporal dynamics, and subtle relational properties.

Between anti-inflammatory receptors on macrophages of particular interest is CD200, whose by the endogenous ligand CD200L sends stop signal to macrophages suppressing production of proinflammatory mediators. CD200L expressed on activated immune cells provides a mechanism to dampen macrophage activation after initiation of the inflammatory response. Another receptor involved in negative regulation of inflammation is the recepteur d'origine nantis (RON), or stem cell-derived tyrosine kinase (STK) receptor in the mouse. The ligand for this receptor is macrophage-stimulating protein (MSP), a serum protein generated during the coagulation cascade. Even TLRs have the capacity of inducing expression of anti-inflammatory mediators, like IL-10. The signaling pathway used by TLRs to activate expression of pro- and anti-inflammatory cytokines diverges at the level of the TRAF3 and TRAF6 proteins, because TRAF3 is critical for induction of IL-10 expression. In its absence, expression of the TRAF6-dependent proinflammatory cytokines IL-6 and IL-12 is dramatically *upregulated.*

Recent experiments have shown that nutrient starvation may induce intense autophagy which is causing cancer cells to shrink and adopt a state of reversible dormancy. These cells may exit from this state and resume active growth and proliferation after changes in tissue microenvironment (access to more nutrients). Each type of disseminated cancer cell needs to develop its own set of ad hoc solutions to the problem of thriving in the microenvironment of foreign tissue.

Executioner Protein causes cancer cells to self-destruct Researcher have discovered a way to use the executioner protein BAX to induce apoptosis in cancer cells while leaving healthy cells intact. The treatment has so far been applied only to acute myeloid leukemia (AML) cells but may have broader uses.

NIH Albert Einstein College of Medicine researchers have induced cancer cells to commit suicide with a new compound that leaves healthy cells untouched. They deployed their novel treatment approach against AML cells, which kill more than 10,000 Americans, and makes up about one-third of all new cases of leukemia, each year. Patients survive AML at a rate of only about 30%, making effective new treatments a hot commodity. Altough the team has only tested the treatment on AML, it could have the potential to succesfully attack other varieties of cancer cells.

Researchers are hopeful that the targeted compounds they're developing will prove more effective than current anti-cancer therapies by directly causing cancer cells to self-destruct, associate professor of medicine and biochemistry and senior author Evripidis Gavathiotis said in a press release. Ideally, this compounds would be combined with other treatments to kill cancer cells faster and more efficiently – and with fewer adverse effects, which are an all-too-common problem with standard chemotherapies.

The new compound fights cancer by triggering apoptosis: a natural process the body uses to get rid of maffunctioning and unwanted cells. Apoptosis also takes place during embryonic development: trimming excess tissue from the growing embryo. While certain existing chemotherapy drugs induce apoptosis indirectly by damaging the DNA in cancer cells, this new treatment directly triggers the process intentionally by activating BAX, the executioner protein.

Pro-apoptotic proteins activate BAX in cells. Once BAX molecules go to work, they find the mitochondria of target cells and drill lethal holes into them, scuttling their ability to produce energy. Cancer cells resist BAX and this process by producing large quantities of anti-apoptotic proteins that suppress BAX and even the proteins that activate it. The process discovered by the team of professor E. Gavathiotis wakes BAX again and sends it back to work against cancer cells.

Their novel compounds revives suppressed BAX molecules in cancer cells by binding with high affinity to

BAX's activation site. BAX can then swing into action, killing cancer cells while leaving healthy cells unscathed.

In 2008, Dr. Gavathiotis was part of the team that first described the BAX's activation site's shape and structure. He has been searching for small molecules to activate BAX and produce sufficient activity to overpower the natural resistance cancer cells mount to apoptosis. His team screened more than one million compounds and narrowed the field to 500, many of them synthesized by the team, and then evaluated them. These results reveal the outcome of that search.

BTSA1 (BAX Trigger Site Activator 1), was the best compound against several diffrent human AML cell lines, including those found in high-risk AML patients. BTSA1 was also able to induce apoptosis in AML cells without affecting healthy stem cells. In AML mice treated with the compound, there was a significantly longer survival rate: 43% of to control group was alive and AML-free after 60 days. The BTSA1-treated mice also exhibited no signs of toxicity.

BTSA1 activates BAX and causes apoptosis in AML cells while sparing healthy cells and tissues – probably because the cancer cells are primed for apoptosis. Next the team plans to test BTAS1 on other types of cancer using animal models. (Gavathiotis *et al.,* 2017)

Artificial Metastatic Colonization as WMD

Macroscopic metastases may erupt decades after a primary tumor was surgically removed, or pharmacologically destroyed. These metastatic growths evidently reflect dormant micrometastases that have solved, after much trial and error, the complex problem of tissue colonization. This may support our hypothesis that tumor like an organ can be seen as a *UTM programmed* to make decisions outgoing from *the Hayflick limit* and trying to solve *the Entscheidungsproblem.* These *adaptations require hundreds of distinct colonization programs,* each *dictated by the type of disseminating cancer cells* and the nature of the tissue microenvironment. The colonization we can model with vectors. Let x be a vector of observed variables, z be a vector of latent variables, and θ be the model parameters. Lwt $y = (x, z)$ be a vector of all variables in the model. If y were completly observed we could apply standard maximum likelyhood estimation to obtain:

$\theta = \text{argmax}_\theta \log P(y | \theta)$. The z is unobserved, y becomes a random variable and there must be apply the Expectation Maximization (EM) algorithm. For more complex models, the free energy approach leads to more flexible model fitting. The standard EM is equivalent to performing coordinate ascent on the energy function

$$F[q, \theta] = E_q \left[\log P(x, z | \theta)\right] + H[q], \text{ where } H[q] = -E_q \left[\log q(z)\right].$$

Beyond the timing we must know where cancer cells achieve the ability to colonize foreign tissue as macroscopic tumors. It may be during primary tumor formation when these cells enter into the circulation and are fortuitously endowed with capability to colonize distant tissues. The ability to colonize may also develop in response to the selective pressure [2] on disseminated cancer cells to adapt to growth in foreign tissue microenvironment. Tissue–specific colonization programs are evident in cells within primary tumor, may originate from emigrants returned home.

The phenotypes and underlying gene expression programs of cancer cells within primary tumors may be modified by *reverse migration* of their distant metastatic progeny. In this self-seeding process the supportive stroma (arising in a primary tumor) contributing to acquisition of its malignant traits make possible reseeding and colonization by circulating cancer cells from metastatic lesions. *The regulatory programs enabling metastatic colonization* emerging in an important agenda for future research. Above metioned multitude of colonization programs are unlikely to depend only on cell-autonomous processes. The process of colonization probably encompass a large number of cell-biological programs, which are nonlinear and diverse. The numerous signaling molecules affecting cancer cells as nodes and branches of the elaborate integrated circuits which are reprogrammed derivatives of the circuits operating in normal cells.

Bacterial starvation and general stress responses also promote mutagenesis during stress.Include the stringent and competence starvation-stress responses in *Bacillus subtilis*, and RpoE membrane-protein stress response in *E.coli*. These examples illustrate the multiple evolutions of mechanisms that couple genomic instability pathways with stress responses and stress. The importance of all of these is that genetic diversity is generated preferentially when cells are maladapted to their environment: when stressed.

BAO as WMD

A doctor who evaluated American and Canadian diplomats working in Cuba diagnosed them with conditions as serious as mild traumatic brain injury and damage to the central nervous system, CBS News said on

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Wednesday, citing medical records it reviewed. The diplomats had complained of symptoms including hearing loss, nausea, headaches and balance disorders after what were described as "incidents" that began affecting them in Havana beginning in late 2016.

Officials are investigating whether the diplomats were targets of some form of sonic (acoustic) attack directed at their homes. Incidents had continued to occur on the island and some US diplomats had cut short their assignments. The state department did not immediately respond to requests for a comment on the CBS News report. The department said earlier this month that a number of Americans serving in Cuba had returned to the United States for "medical reasons" that were not life-threatening.

Heather Nauert, State Department spokeswoman, said two weeks ago the state department learned of incidents at its embassy in Havana in late 2016. She said the source or cause of the "incidents" was unknown but they "caused a variety of physical symptoms" in US government employees. Several US citizens at the embassy were evacuated to the United States over the past six months for treatment of a variety of complaints. Some subsequently received hearing aids. The United States expelled two Cuban diplomats over the incidents. Cuba said it was investigating the US allegations but insisted it would

"never ... allow the Cuban territory to be used for any action against accredited diplomatic agents or their families."

CBS News said one doctor who reviewed the medical records warned about the health risks of future exposures. An American doctor also visited Havana to assess US Embassy workers, the source said.

The closest analogy to a sophisticated electromagnetic pulse (EP) anti-personnel weapons is provided by powerful chemical weapons, such as nerve gases having rapid, fatal effects at extremely low concentration. In the latter case, the effect is mediated by molecules which enter nerve synapses and other critical areas and disrupt normal functions without massive destruction of tissue. The poison acts on the higher levels of organization of living process. It should be understood that molecules themselves are nothing but electromagnetic configurations. That is, the molecules (like the nerve gas) act via electromagnetic fields, by exchange of the electromagnetic energy with other molecules. It should hardly be surprising to discover that the same effects can be induced by electromagnetic radiation alone – without the presence of the molecules. In principle it suffices to identify the precise geometrical characteristics of the electromagnetic action associated with the given substance, and then just mimic molecular action by a carefully tailored signal. The brain is a key target of EP weapons.

Purported victims of psychological warfare have written to the paper. From Voronezh, Russia comes this letter: „They controlled my laughter, my thoughts, and caused pain in various parts of my body. It all started in October 1985, after I had openly critized the first secretary of the City Comitte of the CP. Sometimes voices can be heard from the effect of microwave pulse radiation which causes acoustic oscillations in the brain," explained Gennady Schelkunov, a radio electronics researcher from the Istok Association. Numerous sufferers from this alleged manipulation have set up a public movement."

A flat Friedmann–Robertson–Walker universe dominated by a cosmological constant (Λ) and cold dark matter (CDM) has been the working model preferred by cosmologists since the discovery of cosmic acceleration. However, tensions of various degrees of significance are known to be present among existing datasets within the ΛCDM framework. In particular, the Lyman-α forest measurement of the baryon acoustic oscillations (BAO) by the Baryon Oscillation Spectroscopic Survey3 prefers a smaller value of the matter density fraction Ω_M than that preferred by cosmic microwave background (CMB). Also, the recently measured value of the Hubble constant, $H_0 = 73.24 \pm 1.74$ km s^{-1} Mpc^{-1}, is 3.4σ higher than the 66.93 ± 0.62 km s^{-1} Mpc^{-1} inferred from the Planck CMB data. In this work, we investigate whether these tensions can be interpreted as evidence for a non-constant dynamical dark energy. Using the Kullback–Leibler divergence to quantify the tension between datasets, we find that the tensions are relieved by an evolving dark energy, with the dynamical dark energy model preferred at a 3.5σ significance level based on the improvement in the fit alone. While, at present, the Bayesian evidence for the dynamical dark energy is insufficient to favour it over ΛCDM, we show that, if the current best-fit dark energy happened to be the true model, it would be decisively detected by the upcoming Dark Energy Spectroscopic Instrument survey.

Out of Vernadsky's program came the Soviet military slogan: „He who controls the entire electromagnetic spectrum will dominate the world." It was Vernadsky who coined the now-common term „biosphere", emphasizing the fact that the totality of living matter on the Earth forms a coherent process in powerful mutual interaction with the climate and geophysical conditions of the planet.

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This work was the basis of the concept of „planetary war" advocated by marshal Ogarkov, according to which all available scientific knowledge concerning the biosphere is to be mobilized in war in order to crush the enemy. This includes development of means of weather modification, manipulation of the ionosphere and other layers of the atmosphere, large-scale biological warfare, triggering of natural disasters, as well as the global electromagnetic warfare.

It can be critically adressed to a major stumbling-block of Western biophysical research: the absurd, but stubborn insistence on the part of the Western research establishment, that electromagnetic radiation could have „no other effect on a living organism than to increase its temperature" (i. e. in Koldayev's words, the termal conception). As a result of this blind spot, mane Western specialists still refuse to accept the existence of precisely those kinds of effects upon which the most lethal Russian EP weapons function. (Tennenbaum, 2000)

Artificial Intelligence is Key to Future Geopolitical Power

Cloud computing has already permeated every facet of online activity. Recent developments in artificial intelligence (AI) and the increasing sophistication of programmers, presages a a new age of cloud computing.

Every tech guru knows about the potential of cloud technology and how it has already affected how business and individuals store data and existing workloads. But beacause thecloud is a new technology, companies have to think about how it will continue to evolve over time. Trends like the rise of mobile inplace of computers and the Internet of Things have made small changes to cloud technology. But now the big dream is how artificial intelligence could improve cloud technology, just as cloud technology has improved AI development.

IBM, one of the biggest cloud companies out there, states that the fusion of AI and cloud computing promises to be both a source of innovation and a means to accelerate change. The cloud can help provide Ais with the information which they need to learn, while the AI can provide data which can give a cloud more data. This symbiotic relationship can transform development of AI, and the efforts of cloud companies like IBM to delve into AI research shows these are not empty words.

One of the biggest transformation in AI development has been how tech companies can create AI which can finally learn. One well-known example of this new

machine learning occurred earlier this year when an AI defeated the world's best Go player. Instead of brute-forcing the best moves like Deep Blue did in chess about 20 years ago, The AI learned by playing millions of games with itself (self-learning !) and figuring out strategies which even Go players had not considered.

Machine learning has far more useful practical purposes than playing games. One of the biggest fields is the field of conversation, where voice-responsive AI systems can respond to human commands.

While we already have personal assistants like Cortana which can respond to voice commands, technology companies are interested in developing AI systems which can learn new words and how to respond differently. The goal is to construct an AI which can comminicate like a normal human.

Cloud computing could help immensely with this goal. The many, disparate servers which are part of cloud technology hold the data which an AI can access and use to make decisions and learn things like how to hold a conversation. But as the AI learns this, it can impart this new data back to the cloud, which can thus help other Ais learn as wll.

The potentials of the AI and the cloud means that companies which specialize in one of those two are puting more work into getting involved with both. Many of these cloud AI technologies take on two forms. They are cloud machine learning platforms like Google Cloud Machine Learning which combinemachine learning with the cloud but do not have deap learning frameworks, or they are AI cloud services like IBM Watson.

The later in particular is interesting because of the numerous applications throgh which business can use AI cloud services. For example, how organizations are relying on IBM Watson to help fight cybercrime. This is not as simple as plugging Watson into USB and letting it go work. Researcher have to teach Watson various parts of how to deal with hackers and criminals, where it becomes steadily more effective as it stores information through the network.

What is incredible about this learning process is that while Watson knows so much there is still an important role for humans to play. Watson could read far more reports than a human could, but he still makes basic, fundamental mistakes like thinking that ransomware indicates a place. The researchers help Watson and guide the data so that he learns to think correctly.

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In every step of the way, the AI, the cloud technology and humans are all needed. The AI is needed to learn, the cloud technology is needed so that the AI can access more data about cybercrime than could be stored on a server, and humans help the AI when it makes mistakes. This sort of cooperation and technological development can apply to almost field which we can think of today, as well as some which we may not even conceive of now.

Combining AI, machine learning, and the data stored with technology means that both AI and humans can analyze and gather more data than ever before. Tech experts have indicated that 2017 could be the year when AI becomes a ubiquitous part of our daily lives, and AI capabilities will only be inproved with the development of cloud technology. So pay attention to companies like Google and IBM as they work on combining the two. The result will be a world which transforms how we view both AI and the cloud.

Artificial Intelligence is the future

Russian President Vladimir Putin adressed 16,000 schools in his country with the statement: „Artificial intelligence is the future, not only for Russia but for all humankind," he said, via live video beamed to students of the selected schools. „Whoever becomes the leader in this sphere will become the ruler of the World."

There is a intensifying race among Russia, China, and the US to accumulate military power based on artificial intelligence. All three countries have proclaimed intelligent machines as vital to the future of their national security. Technologies such as software that can sift intelligence material or autonomous drones and ground vehicles are seen as ways to magnify the power of human soldiers.

Researchers in the field of Artificial Intelligence (AI) have demonstrated significant technical progress over the past five years, much faster than was previously anticipated. Most of this progress is due to advances in the AI sub-field of machine learning. Most experts believe this rapid progress will continue and even accelerate.

Existing capabilities in AI have significant potential for national security. Existing machine learning technology could enable high degrees of automation inlabor-sensitive activities such as satelite imagery analysis and cyber defense. Future progress in AI has the potential to be a transformative national security technology, on a par with nuclear weapons, aircraft, computers, and biotech. Each of these technologies led to significant changes in the strategy, organization, priorities, and allocated

resources of the national security community. We argue future progress in AI will be at least equally impactful.

Advances in AI will affect national security by driving change in three areas: military superiority, information superiority, and economic superiority.

For military superiority, progress in AI will both enable new capabilities and make existing capabilities affordable to a broader range of actors. Commercially available, AI-enabled technology (such as long-range drone package delivery) may give weak states and non-state actors access to a type of long-range precision strike capability.

In the cyber domain, activities that currently require lots of high-skill labor, as Advanced Persistent Threat operations, may in the future be largely automated and easily available on the black market.

For information superiority, AI will dramatically enhance capabilities for the collection and analysis of data, and also the creation of data.

In intelligence operations, this will mean that there are more sources than ever from which to discern the truth. However, it will also be much isier to lie persuasively.

AI-enhanced forgery of audio and video media is rapidly improving in quality and decreasing in cost. In the future, AI-generated forgeries will challenge the basis of trust across many institutions.

For economic superiority, we find that advances in AI could result in a new industrial revolution.

Former U.S. Treasury Secretary Larry Summers has predicted that advances in AI and other related technologies will lead to dramatic decline in demand for labor such as USA may have a third of men (between the ages of 25 to 54) not working by the end of this half century.

In July, China's State Council released a detailed strategy designed to make the country „the front-runner and global innovation center in AI" by 2030. It includes pledges to invest in R&D that will „through AI elevate national defense strength and assure and protect national security." (Allen & Chan, 2017)

Acknowledgement

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