

## ***Torsion Field Mechanics: Verification of Non-local Field Effects in Human Biology***

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5 December 2000

### **Introduction:**

Over the course of the 20<sup>th</sup> Century, various investigators in different countries, representing a variety of interests, have repeatedly reported the discovery of unusual non-local field effects in human biology which could not be explained in the framework of the Standard Model. Since the investigators and writers could not understand or explain the physics associated with the observed phenomena, they were forced to invent new names for the fields, emanations and energies believed to be responsible for the creation of these phenomena.

### **Background:**

These include N.A. Kozyrev's "time emanation,"<sup>1</sup> W. Reich's "O-emanation" or "orgone,"<sup>2</sup> M.R. Blandlot's "N-emanation,"<sup>3</sup> I.M. Shakhparonov's "Mon-emanation," A.G. Gurvich's "mitogenic emanation,"<sup>4</sup> A.I. Veinik's "chronal field,"<sup>5</sup> the "M field,"<sup>6</sup> A.A. Deev's "D-field," Yu. V. Tszyn Kanchzhen's "biofield", H. Moriyama's "X-agent,"<sup>7</sup> V.V. Lensky's "multipolar energy,"<sup>8</sup> "radiesthetic emanation,"<sup>9</sup> "shape power," "empty waves,"<sup>10</sup> "pseudomagnetism,"<sup>11</sup> H.A. Nieper's "gravity field energy,"<sup>12</sup> T.T. Brown's "electrogravitation,"<sup>13</sup> "fifth force,"<sup>14</sup> "antigravitation,"<sup>15</sup> and "free energy."<sup>16</sup> The list includes more than 50 such appellations which attempt to describe each of the observed phenomena in terms of the researcher's name, some attribute of the phenomenon or other abstract constructions.

Spin-spin interactions of spin-polarized particles with spin-polarized nuclear targets, and the distant correlations of nuclear spin states, were discovered and investigated as result of theoretical and experimental investigations which began in the mid-60's. Research groups led by V. G. Baryshevsky<sup>17</sup> and the G.V. Skrotsky group<sup>18</sup> in the USSR, by the A. Abragam and M. Goldman group in France<sup>19</sup> and others have published reports on their findings. These interactions are referred to in their literature as "pseudomagnetism."<sup>20</sup> In one case, the "pseudomagnetic field" was interpreted as a Coulomb exchange interaction and in other cases as the result of nuclear interactions. During this period, many investigators believed that spin-spin interactions were manifestations of more than one set of dynamics.<sup>21</sup> During early experimental work, a clear understanding of the mechanisms which govern spin-spin interactions simply did not exist. Later, major investigations of spin-spin interactions between ensembles of particles were conducted by a number of investigative teams.<sup>22</sup> Distant spin-spin interactions were theoretically and experimentally examined during investigations of nuclear spin waves and nuclear magnetic resonance.<sup>23</sup>

In 1977, A.C. Tam and W. Happer showed experimentally that two circularly polarized laser beams attract or repel, depending on the mutual orientation of their circular polarization.<sup>24</sup> They discovered and verified that if the direction of rotation is similar,

then these beams attract, and if the rotation of their respective polarizations is opposite, then they repel.<sup>25</sup> These results, which have been repeated and experimentally verified many times, violate a number of rules embodied in the standard model of electrodynamics and could not adequately be explained at the time this work was originally being conducted.

In the mid-80's, the A.D. Krisch group was experimentally investigating the interactions between spin-polarized protons and a spin-polarized proton target.<sup>26</sup> It was found that the observed process of spin-spin interaction could not be described in the framework of the quark model developed by Gell-Mann and FermiLab. The experimental results did not conform with the standard model of chromodynamics and could not be explained in terms of any other generally accepted models of physics. Analogous results were contemporaneously observed in the USSR during experiments conducted at Dubna and Protvino.<sup>27</sup>

During this time, theoretical models were developed which allowed spin-spin interactions to be described as the manifestation of an independent, fundamental characteristic [albeit not clearly understood] of matter. These investigations showed that numerous spin-related phenomena, which could not be explained in terms of the standard model of quantum mechanics, demonstrated a rigorous adherence to the theoretical interpretation provided by emerging torsion field theories. The theoretical results which allowed researchers to understand the Tam-Happer effect were first produced by P.C. Naik and T. Pradhan in the USA<sup>28</sup> and then by P.I. Pronin, Yu. N. Obukhov and I.V. Yakushin in the USSR. Later, De Sabbata and C. Sivaram in Italy<sup>29</sup> and then E.A. Gubarev, A.N. Sidorov and G.I. Shipov in Russia,<sup>30</sup> integrated torsion theories with their models to produce a theoretical interpretation of the experimental results obtained by A.D. Krish<sup>31</sup> and others.<sup>32</sup>

It is worth noting that a number of experiments have been reported which demonstrate effects usually interpreted as the manifestation of a so-called "fifth force."<sup>33</sup> The first research generally credited with the discovery of the 5<sup>th</sup> force at the end of the 19<sup>th</sup> Century was a professor of the Russian Physical-Chemical Society by the name of N.P. Myshkin.<sup>34</sup> In 1990, De Sabbata and C. Sivram conclusively demonstrated that phenomena connected with the 5<sup>th</sup> Force can be interpreted as a manifestation of torsion fields.<sup>35</sup> It is also important to make reference to the body of experimental work which investigates the anomalies demonstrated by gyroscopes and gyroscopic systems. Probably the first researcher to establish that the behavior of gyroscopic systems cannot be explained in the framework of Newton's classical laws of mechanics was Russian astrophysicist N.A. Kozyrev.

In the early 50's, N.A. Kozyrev conducted an extended series of experiments with gyroscopes and found that the gyroscope evidences variations in weight, which varies as a function of angular velocity and the direction of rotation.<sup>36</sup> Later, Kozyrev's results were completely and independently confirmed by a member of the Belarus Academy of Sciences, A.I. Veinik, who in the 60's-80's conducted a major experimental investigation of the anomalies demonstrated by gyroscopic systems.<sup>37</sup>

In 1989, H. Hayasaka and S. Takeuchi published the results of their experiments in which the fall time of freely falling spinning gyroscopes was published. These experiments showed that the fall time varies significantly, depending on the angular velocity and the direction of rotation.<sup>38</sup> The unusual behavior of spinning gyroscopes was also observed by S.M. Polyakov in the USSR<sup>39</sup> and many others. This phenomenon was interpreted as a manifestation of antigravitation but the dynamics which supported it could not be explained in terms of the standard model of gravitational force [ECT]. In 1991, G.I. Shipov showed that the violation of Newton's laws of mechanics demonstrated by gyroscopic systems was caused by torsion fields, generated by the spinning of masses.

From the mid-50's to the late 70's, N.A. Kozyrev [with V.V. Nasonov] conducted astronomical observations using a receiving system of an entirely new and novel variety. When his telescope was directed at a selected star, the detector [designed by N.A. Kozyrev and V.V. Nasonov] positioned within the telescope registered the incoming signal even if the main mirror of the telescope was shielded by dense metal screens. This strategy relied on the notion that electromagnetic waves [in the form of light] embody an intrinsic component which cannot be shielded by dense metallic screens. When the telescope was directed not at the visible position but at the true position of the star, calculated from sidereal tables and ephemeris charts, the detector then registered an incoming signal that was much stronger than the one received by targeting the apparent visible location. The detection of the true positions of different stars using this means could only be interpreted as a function of the detection of radiation emitted by the star which exhibited transport velocities billions of times greater than the speed of light. Kozyrev also found that the detector registered an incoming signal when the telescope was directed at a position symmetrical to the visible position of a star, relative to its true position. This fact was interpreted as a detection of the future positions of stars.<sup>40</sup>

In the late 80's and early 90's, astronomical observations using Kozyrev-type detectors were successfully conducted by a group of academicians supported by the Russian Academy of Sciences under the direction of M.M. Lavrentiev. While the sky was scanned by the shielded telescope equipped with a Kozyrev-type gravimetric detector, it registered signals coming from the visible position of each star, the true position and also a position symmetrical to the visible position of the star relative to its true position. M.M. Lavrentiev could not provide a theoretical interpretation for these observed results.<sup>41</sup>

In 1992, these experiments were successfully repeated by the A.E. Akimov group at the Main Astronomical Observatory of the Ukraine Academy of Sciences [Kiev] and at the Crimean Astrophysical Observatory [Nauchnyi]. The results obtained from these experiments were interpreted as torsion wave detections. Stars are objects which demonstrate significant angular momentum.<sup>42</sup> It is also interesting to note that detection of future star positions has also been subjected to rigorous theoretical interpretation. When considered in the context of G.I. Shipov's "Physical Vacuum Theory," it can be shown that torsion fields propagate in both the future and in the past.<sup>43</sup> There exist both theoretical and experimental evidence to support the notion that various psychophysical phenomena [e.g., precognition] are implicated by certain manifestations of torsion fields.

The connection between psychophysical phenomena and torsion field dynamics are discussed in the papers produced by Akimov et al under the title “*Consciousness and the Physical World*.”<sup>44</sup> Dr. Tom Bearden’s work supports Akimov’s independently obtained results.<sup>45</sup>

The concept of torsion fields is not new. Torsion field theory has been the subject of scientific investigation by theoretical physicists since at least 1913. A. Einstein demonstrated the existence of a close interconnection between gravitational forces and the curvature of space-time. At about the same time, E. Cartan demonstrated that a connection may exist between some physical values and another geometric abstraction which he called “torsion”.<sup>46</sup> E. Cartan performed the first theoretical work devoted to developing a theory of gravitation demonstrating torsion, but in its early stages Cartan’s gravitation theory did not achieve a level of general acceptance because the phenomenon of spin had not yet been discovered. Nevertheless, Cartan was the first to point to the possibility of the existence of fields generated by spin polarity and angular momentum density [stated in terms of weighted waveform vector velocities].

In the late 50’s and 60’s, a number of attempts were made to complement Einstein’s theory of gravitational forces with torsion components. The first such attempts were made by T.W. Kibble<sup>47</sup> and D.W. Sciama.<sup>48</sup> But the explosive increase in the number of publications devoted to exploring torsion theory only occurred after the first sensational reports of the dynamics involved in the torsion effect were released by Trautman and Kopczynski in 1973. In the works of A. Trautman and W. Kopczynski, it was persuasively demonstrated that the torsion of space-time have been shown to eliminate the cosmological singularities which are essential to non-stationary models of the Universe.<sup>49</sup> After the work of Trautman and Kopczynski was published, hundreds of other papers, books and monographs devoted to the theory of gravitation with torsion components were published over a short period. The so-called Einstein-Cartan theory [ECT – in some papers and references, Sciama-Tribble is also included] became the best known and most widely circulated of these reports.<sup>50</sup>

In the framework of the ECT, spin-torsion interaction is described as a contact spin-spin interaction. Accordingly, the torsion of space-time fails to propagate in this theory as the potential separating quantum points approaches zero. In ECT, the constant of spin-torsion interactions is said to be proportionate to the product of the gravitational constant  $G$  and Planck’s constant  $h$ . Thus, in ECT the constant of spin-torsion interactions is approximately 27 orders of magnitude weaker than the constant of gravitational interactions. Accordingly, many authors have erroneously asserted, based on this result, that experimentally observed phenomena cannot be explained by torsion theories because torsion effects are much too weak to be observed or exert any meaningful influence on spin-spin interactions.

However, this conclusion holds true only for those theoretical considerations which consider the torsion field to be a static field, which cannot be dynamically propagated [as in ECT]. After the initial development of ECT, which describes torsion fields generated by spinning objects without propagation, a large number of non-linear torsion theories

were developed. These theories described the dynamics associated with spinning sources which dynamically radiate torsion field waves. It has been clearly demonstrated that the Lagrangian of a spinning source which is dynamically propagating radiation contains a large number of terms with constants which do not depend on  $\mathbf{G}$  or  $\mathbf{h}$ . Thus, the constant of a spin-torsion interaction can be a significant, meaningful and measurable value at all scales. For instance, according to G.I. Shipov's torsion theory,<sup>51</sup> the constant of dynamic spin-torsion interactions must be valued at no less than  $10^{-5}$  to  $10^{-6}$ . It should be noted here that the correctness of this evaluation has been confirmed experimentally by a number of researchers.<sup>52</sup>

E. Cartan was the first to theoretically investigate the physical properties of fields generated by the spin-polarity and angular momentum density of rotating objects. The phenomena presented in the experimental investigations of gyroscopic systems appeared to be the natural manifestation of propagating torsion fields. Probably the first researchers to interpret the observed "anomalous" variations in gyroscopic weight as a manifestation of torsion fields [generated by spinning gyroscopes] were Hayasaka and Takeuchi. It is important to note that in order to demonstrate the effect described by Hayasaka, the gyroscope must be subjected to a non-stationary rotation.<sup>53</sup> For instance, N.A. Kozyrev and A.I. Veinik employed specially engineered vibrations to create a dynamic environment. In Hayasaka's experiments, free-falling gyroscopes were used.<sup>54</sup> This important condition has not been taken into consideration by those researchers who have reported the absence of any weight variation in their experiments.

Torsion fields have been experimentally shown to be generated by a classical spin<sup>55</sup> or by the spin-polarity and angular momentum density demonstrated on a macroscopic scale. Torsion field characteristics differ substantially from the characteristics of electromagnetic and gravitational fields. Torsion fields demonstrate axial symmetry, unlike electromagnetic and gravitational fields which demonstrate central symmetry. There exist both left and right torsion fields, depending on the classical spin orientation or rotational orientation. If the rotation of a gyroscope [for example] including classical spin components is stationary [i.e., if the angular velocity is constant], the rotating mass is distributed uniformly relative to the rotational axis. If precession and nutation<sup>56</sup> are absent, then this object will demonstrate a static torsion field. The static torsion field exists in the region of space within a certain distance from the source. If the rotation is non-stationary, however, then this object generates a propagating torsion radiation known as a torsion wave.

Unlike electromagnetic waves, torsion waves transmit information without transmitting energy. They propagate through physical media without interacting in the traditional sense with the media. But propagating torsion fields have been shown by many experimenters to alter the spin state of physical media. Thus, torsion fields can be detected by various types of detectors. Torsion fields cannot be shielded by most materials, but they can be shielded by materials having certain spin-structures.<sup>57</sup> The lower bound of torsion signal velocity is estimated at  $10^9 \times C$ , where  $C$  is the velocity of light. This is due to the fact that torsion fields are identical to the transverse spin polarization of the physical vacuum.<sup>58</sup> When considered in terms of time-polarization of

the transverse EM wave functions, torsion fields have been shown to operate at infinite distances without measurable time differentials or significant field attenuation.<sup>59</sup>

It should be noted that the spatial configuration of the torsion field generated by a spinning particle differs from the spatial structure of an “artificially” rotated object such as a gyroscope. Torsion fields are generated not only by a single spinning particle, but also by an ensemble of particles. This situation is similar to that demonstrated by electricity, where we often encounter the collective electric fields generated by an ensemble of electrical charges such as atomic nuclei, atoms, charged bodies, etc. Thus, any nuclear spin—polarized target is the source of a torsion field. This fact has been repeatedly observed and verified by numerous research groups. Since analogous spins attract and opposite spins repel,<sup>60</sup> the interaction of a spin-polarized particle with a spin-polarized target nucleus results in the appearance of “anomalous” forces which depend on mutual spin orientation of the particle and the target, as demonstrated by the experiments of A.D. Krisch.<sup>61</sup> Since all substances [except perhaps some amorphous materials] have their own unique stereochemistry, which determines not only the location of atoms in molecules but also determines their mutual spin orientation, the superposition of the torsion fields generated by the atomic and nuclear spins of each molecule determines the intensity of the torsion field in the space surrounding each molecule. The superposition of all these torsion fields determines the intensity and spatial configuration of the characteristic torsion field for that substance. Thus, each substance possesses its own uniquely configured torsion field and, by definition, each physical object in living or non-living nature also can be described and recognized in terms of its unique torsion field signature.

The torsion fields associated with any physical object can be detected by a variety of methods.<sup>62</sup> Torsion fields can be observed visually by the Kirlian method.<sup>63</sup> Torsion fields of various objects can also be visually observed by humans adept at certain “psychic” skills. This is usually interpreted as an “aura” observation.<sup>64</sup>

The property which is open to influence by torsion fields is defined as the spin. Thus the structure of the torsion field of every physical object can be altered by the influence of an external torsion field. As a result of such an influence, the configuration of the torsion field will be fixed as a meta-stable state [as a transverse spin polarization state] and will remain intact even after the dynamic source of the external torsion field is moved to another region of space. Thus, torsion fields of certain spatial configurations can be “recorded” on any physical object. This fact has been repeatedly observed and experimentally verified by a number of credible researchers.<sup>65</sup>

The magnetization of ferromagnets results in the appearance of a collective magnetic field. But as a matter of fact, the sequencing of the orientation of magnetic moments automatically results in a sequencing of classical spins which are generated by the motion of electrons in circular molecular currents. Accordingly, the magnetization of ferromagnets results not only in the appearance of a collective magnetic field, but in the appearance of a collective torsion field as well. Thus, any permanent magnet possesses its



own torsion field. This fact was first experimentally discovered by A.I. Veinik<sup>66</sup> and experimentally satisfies the requirements of complementarity.

Since every physical object possesses its own torsion field, then the torsion field of a permanent magnet is able to affect any physical object. Understanding this important property of magnetic fields enables us to understand a variety of otherwise inexplicable phenomena such as the anomaly known as the “magnetism of water,” which consists of altering the biological activity of water [including distilled water] by subjecting it to the influence of a magnetic field. Since distilled water is diamagnetic, then the process of influencing it with a magnetic field makes no sense from a classical point of view. But the magnetization of water effect can be clearly detected by a variety of methods.<sup>67</sup> In this case, the effect is caused not by a magnetic field but rather by a torsion field which alters the dynamically propagated attributes of the torsion field of the water.

In the framework of the theory of electro-torsion interactions,<sup>68</sup> it is shown that if an electrostatic or electromagnetic field exists in one region of space, then a torsion field must always exist in that region of space as well. The law of complementarity demands it. Electrostatic or electromagnetic fields without a torsion component do not exist. This was rigorously demonstrated by G. I. Shipov.<sup>69</sup> Strong torsion fields are generated by high electrical potentials and by devices having organized circular or spiral electromagnetic processes. The first researcher known to have investigated and successfully harnessed the torsion fields created by such devices was Nikola Tesla.<sup>70</sup> In Russia, similar results were obtained by S.V. Avramenko, G.F. Ignatjev and others.

Using the principles associated with torsion fields as described above, it is possible to classify at least three different types of torsion generators. The first type employs materials/ objects having specially organized spin polarization [e.g., permanent monopolar magnets]. In the second type of generator, the torsion component of electromagnetic or electrostatic fields is employed [e.g., generators design engineered by S.V. Avramenko, G.F. Ignatjev, G.A. Sergejev, S.N. Tarakhtiy and others]. The third type of torsion generator employs a specially organized rotation of a material substances, such as generators design-engineered by A.I. Venik,<sup>71</sup> K.N. Perebeinos' generators with mechanically rotating masses,<sup>72</sup> and V.M. Yurovitsky's generators, which are based on the rotation of magnetic fields.

V.M. Yurovitsky was the first to point out that many otherwise inexplicable phenomena could be explained as a result of a manifestation of long-range fields generated by classical spin or spin-polarity and angular momentum density.<sup>73</sup> Later generators based on mechanically rotating magnets were developed by V.V. Bobyr and others. As a result of a series of experiments conducted at the I.N.Frantsevich Institute for Problems of Materials Sciences in Kiev, Ukraine, it was established that torsion radiation produced by this sort of generator is able to alter the inner spin-structure of any substance. It was also established that an identical alteration of the structure of various substances can be achieved by “sensitives” [people gifted with psychic abilities], and could not be achieved by the use of any other known technologies.<sup>74</sup>

A fourth type of torsion field generator is also known to exist. Torsion fields can be generated as the result of a distortion of the geometry of the physical vacuum. Every object having a certain surface geometry [archetypal form] will simultaneously generate left and right torsion fields of a certain configuration, depending on the geometry of the object. This can be detected by various types of physical, chemical and biological indicators. The unusual effects demonstrated by pyramids, cones, cylinders, flat triangles, etc. have been repeatedly observed and documented by many researchers in different countries. Researchers have described these phenomena by giving them names associated with the observed effects. For example, terms commonly used in the literature include “radiesthesiatic radiation,”<sup>75</sup> “cellular and hollow structure effect,”<sup>76</sup> “shape power,” “pyramid power,” etc. In the USSR, the effects demonstrated by objects with various geometries have been investigated by A.I. Veinik,<sup>77</sup> V.S. Grebennikov,<sup>78</sup> Yu.V. Tszyan Kanchzhen, I.M. Shaktparonov, A.A. Beridze-Stakhovsky and others.

In the mid-80’s, V.S. Grebennikov found that the empty honeycomb of certain bees could have an influence on biological objects placed in close proximity, ranging from micro-organisms to humans. The affected person basically felt sickness, illusions of falling, flying, etc.<sup>79</sup> The observed influence could not be shielded by Faraday-type EM cages or any known materials. As the result of the experiments he conducted, it was determined that the effect was caused by the shape/ form of the bee’s honeycomb. This construction of the experimental evidence facilitated the development of various types of devices having certain geometric proportions which have been shown to demonstrate the same effects. V.S. Grebennikov has interpreted the discovered effect as a “resonance interaction” between an organism and objects of a certain specific shape.

In the late 80’s, an experimental investigation of the torsion fields generated by objects having various surface geometries was conducted by A.E. Akimov and his group at the Physics Institute of the Ukraine Academy of Sciences and at Chernovitsky University. In particular, the influence of torsion fields generated by cones of different sizes and proportions upon various processes was investigated. It was experimentally established that objects having geometrical sizes that obey the rule known as the “golden section”<sup>80</sup> can be described as passive torsion generators.<sup>81</sup>

Experts in meditation have long known that the shape of the building in which they mediate plays an important role in the process of meditation. Thus the spires and domes of churches and temples [as well as pyramids] can be considered “passive” torsion field generators. The torsion fields propagated by a meditating person can be significantly magnified if the meditation takes place in a building having particular geometric proportions.<sup>82</sup> This fact is employed in the generators developed by A.A. Beridze-Stakhovsky. Over the course of the last 30 years, torsion generators based on the shape effect have been developed by a number of specialists.

The fifth type of torsion field generator employs a combination of the principles embodied in the first four. For instance, a combination of high frequency electromagnetic oscillations and topological effect [archetypal shape effect] is used in the generators



developed by Yu.V. Tszyan Kanchzhen. The operation of his devices has been interpreted a means for facilitating “high frequency bio-communication.”<sup>83</sup>

An analogous effect was discovered in the 60's by the V.P. Kaznacheev group. Their research was related to the theoretical and experimental investigations conducted in the 20's by a A.G. Gurvich. In the 20's, Gurvich experimentally discovered the super-weak radiation emitted by cells which has been called “mitogenic radiation.” Gurvich found that mitogenic radiation of one cellular culture was able to stimulate or suppress the vital activity of another cellular culture.<sup>84</sup> In the 60's, Kaznacheev's group conducted a series of experiments using the following protocols:

- An infected cellular culture was encapsulated in an airtight enclosure.
- Another cellular culture that was intact [not infected] was encapsulated in another sealed structure.
- The two enclosures were attached together so that optical contact alone [via a glass or quartz plate] could operate between the two enclosures.
- The airtight seals of both enclosures remained intact.
- The degradation of the infected cellular culture was observed.
- After a certain period of time, the analogous process was observed to manifest in the other enclosure. The cells in the intact enclosure became infected in spite of the sealing of both enclosures.

Many different cellular types were used in his experiments, including cells of the human organism. In 1973, this effected was announced as the discovery of “remote intercellular interactions in the system of two cultures” in the prestigious *Official Bulletin of the Soviet Ministry of the SSSR* in 1973.”<sup>85</sup>

V.P. Kaznacheev relied on an the Standard Model of electromagnetics to interpret the phenomenon observed during this series of experiments. But in other experiments conducted by several other equally proficient research groups, it was established that the main factor in Kaznacheev's “mitogenic radiation effect” [as well as the similar results obtained by Gurvich and Tszyan Kanchzhen] is that the intercellular interactions were the result of interaction between the torsion fields of the test cells. In particular, this conclusion was confirmed during experiments conducted by the L.N. Lupichev group in the late 80's.<sup>86</sup> In the Lupichev experiments, the distant influence of various chemical substances on the cells was investigated. It was established that it is possible to create conditions where the influence can be detected even if the chemical substance is shielded by metal screens. Thus, the main factor in the observed effect had a non-electromagnetic nature.

The second important confirmation of the torsion nature of detected interactions was the fact that screening by aluminum was efficient while other screening materials were not. It should be noted that torsion fields in some cases can be screened by aluminum. This fact was first discovered by N.A. Kozyrev<sup>87</sup> and later was repeatedly confirmed by other researchers. Kozyrev discovered that torsion waves can be reflected by using a mirror equipped with a finely polished aluminum coating. This effect was employed by Kozyrev and others to conduct their astronomical survey of the heavens. Aluminum mirrors were

used to reflect torsion waves via the mirrors of the telescope, working with undiminished reliability even if those mirrors were shielded by various types of metallic and non-metallic screens.<sup>88</sup>

Over the course of the past 30 years, various devices classified as torsion field generators have been patented in a number of countries. As rule, no theoretical interpretation of the work of the inventors has been filed with the patent application. Devices which employ a combination of topological effects and an intense electric field are described in a French patent.<sup>89</sup> The construction of the devices described in this patent document are similar to Yu.V. Tsyau Kanchzhen's generator. According to the patent, 2 pairs of electrodes having a voltage between 60-300 kV are connected to a 16-sided prism. On one part of its sides a series of cones are arrayed. The authors of the patent claim that this generator reduces gravitation, accelerates the speed of chemical reactions and demonstrates other important effects. Since the generation of static torsion fields results in transverse spin polarization of the physical vacuum, in a meta-stable state, the device is also reported to create a residual field effect which lasts up to four days after the generator has been turned off. An analogous principle is employed in one of Veinik's generators.<sup>90</sup> The Veinik device is reported to have demonstrated various physiological effects as well. The documented physiological effects persisted and could be measured for several days after the generator had been turned off and removed to another location. A number of generators using the combination of topological effects and electromagnetic fields have been developed by I.M. Shakhparonov and others.

The residual field effect demonstrated by these investigators is deemed to be the same as that discovered and documented in 1997 by V. Poponin during his work with the Russian Academy of Sciences. The results of that study are referred as the "Phantom DNA effect."<sup>91</sup> Poponin's group twice disassembled and re-assembled their experimental apparatus in order to eliminate any possibility that the residual non-local field effect detected in the light scattering chamber was the result of anything other than the introduction of human DNA to a pristine experimental environment.

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***Endnotes, Hyperlinks, Definitions and Suggested Readings***

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<sup>37</sup> Veinik validation of Kozyrev's test results see Veinik A.I., "Termodinamika Realnykh Protsesov" [Thermodynamics of Real Processes], Minsk, Nauka I Tekhnika (1991) page 576 (Russian)

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<sup>39</sup> Polyakov S.M., Polyakov O.S., "An Introduction to Experimental Gravitics." Moscow, Prometei (1988) page 136 (Russian)

<sup>40</sup> astronomical torsion detectors, see Kozyrev N.A. "On Some Properties of Time Discovered by Astronomical Observations," *Problemy Issledovaniya Vselenoi* (1980) #9, page 76. See also "Selected Works" (1991) Leningrad State University, page 448.

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<sup>45</sup> Bearden, T.E., *Mind Control and EM Wave Polarization Transductions*, *Explore! Magazine*, Volume 9, Number 2, 1999, at page 59-108.

<sup>46</sup> Cartan's torsion mechanics. See Cartan E. *Comptes Rendu*, Paris (1922), #174, page 539.

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<sup>49</sup> Trautman's torsion field models. See Trautman A., *Symposium of Mathematics* (1973) Vol. 2 #1, page 139. See also Kopszynski W. "A Non-singular Universe with torsion." *Physics Letters A* (1972), #39, page 219. See also (1973) #43 page 63.

<sup>50</sup> Hehl F.W. "Spin and torsion in general relativity. I: Foundations." *GRG* (1973) #4, page 333. See also Hehl F.W., Heyde P., Kerlick G.D., Nester J.M. "General Relativity with spin and torsion: Foundations and prospects." *Review of Modern Physics* (1976), #3, page 393. See also Hehl F.W. "On the kinematics of the torsion space-time." *Foundation of Physics* (1985) vol. 15 #4, page 451.

<sup>51</sup> Shipov's torsion theory. See Shipov G.I., "Theory of the Physical Vacuum." Moscow **NT-Centr** (1993) page 362 (Russian). See also Shipov G.I., "The theoretical evaluation of electro-torsion radiation." MITPF preprint #1, Moscow (1995)

<sup>52</sup> Experimental verification of spin-torsion constants. See <sup>52</sup> Kozyrev, N.A. "On the Possibility of Experimental Investigation of the Properties of Time." *Time in Science and Philosophy*, Prague (1971), pp. 111-132. See also "Causal or Asymmetrical Mechanics in Linear Approximation," Pulkovo, GAO AN SSSR (1958), page 90. See also "On Some Properties of Time Discovered by Astronomical Observations," *Problemy Issledovaniya Vselenoi* (1980) #9, page 76. See also "Selected Works" (1991) Leningrad State University, page 448. See also Veinik A.I., "Termodinamika Realnykh Protsesov" [Thermodynamics of Real Processes], Minsk, Nauka I Tekhnika (1991) page 576 (Russian). See also Veinik A.I., Komlik S.F. "Complex determination of chrono-physical properties of materials." Minsk, Nauka I Tekhnika (1992), page 96 (Russian).



- <sup>53</sup> non-stationary rotation see Shipov G.I. "On using of vacuum torsion fields for movement of mechanical systems." Moscow (1991) **CISE VENT**, preprint #8, page 50
- <sup>54</sup> gyroscope experimental protocols. See Hayasaka H., Takeuchi S. "Anomalour Weight Reduction on a Gyroscope's Right Rotation Around the Vertical Axis of the Earth." *Physics Review Letters* (1989), #25, page 2701.
- <sup>55</sup> torsion field with classical spin. See Ternov I.M., Bordovitsyn V.A. "On modern interpretation of Ya. I. Frenkel's classical theory of spin." *Uspekhi Fizicheskikh Nauk* (1980) vol. 132, #2, page 345 (Russian)
- <sup>56</sup> **nutatation**: in astronomy, a small irregularity in the precession of the equinoxes. Precession is the slow, toplike wobbling of the spinning Earth, with a period of about 26,000 years. Nutation (Latin: *nutare*, "to nod") superimposes a small oscillation, with a period of 18.6 years and an amplitude of 9.2 seconds of arc, upon this great slow movement. The cause of nutation lies chiefly in the fact that the plane of the moon's orbit around the Earth is tilted about  $5^{\circ}$  from the plane of the Earth's orbit around the Sun. The Moon's orbital plane precesses around the Earth's in 18.6 years, and the effect of the Moon on the precession of the equinoxes varies with this same period. The British astronomer Sir. James Bradley announced his discovery of nutation in 1748 [[www.Britannica.com/seo/n/nutation/](http://www.Britannica.com/seo/n/nutation/)].
- <sup>57</sup> torsion field shielding. See Shipov G.I."Theory of the Physical Vacuum," Moscow (1993) NT-Centr, page 362. See also Akimov A.E., "Heuristic Discussion of Search For Long Range Interactions. The EGS-concepts." , " Journal of New Energy News, Winter 1997, Vol.2, No. 3-4, pages 59-80, including 177 studies, references and suggested readings; see also, M. Talbot, *The Holographic Universe*, HarperCollins, NY (1991). ISBN: 0-06-092258-3.
- <sup>58</sup> transverse wave polarization of the physical vacuum. See Akimov, *ibid*.
- <sup>59</sup> Bearden, T.E., *Mind Control and EM Wave Polarization Transductions*, *Explore! Magazine*, Volume 9, Number 2, 1999, at page 59-108.
- <sup>60</sup> like spins attract. See Shipov G.I."Theory of the Physical Vacuum," Moscow (1993) NT-Centr, page 362.
- <sup>61</sup> Krisch loc.cit., see footnotes #26, 27
- <sup>62</sup> torsion field detection. See Kozyrev, Veinik loc.cit.
- <sup>63</sup> Kirlian method for observing torsion fields. See Kirlian S.D., Kirlian V.H. "Fotografirovaniye I vizualnoye nabludeniye pri posredstve tokov vysokoi chastity." *Zhurnal anuchnoi I prikladnoi fotografii I kinematografii* (1961) vol. 6, #6 (Russian)
- <sup>64</sup> Brennan B. *Hands of Light: A Guide to Healing Through the Human Energy Field*, Bantam Doubleday Dell Pub (Nov 1993). ISBN: 0553345397.
- <sup>65</sup> verification of torsion field attributes. See Lavrentiev M.M., "On Registration of Reaction of Matter to the External Irreversible Process." *Koklady Akademii Nauk SSSR* (1991) vol. 317, #3 (Russian). See also Kozyrev *ibid*. See also Veinik *ibid*. See also Grebennikov *ibid*.
- <sup>66</sup> Veinik experimental verification of torsion fields in permanent ferromagnets [*ibid* 5]
- <sup>67</sup> detecting magnetization of water via torsion fields. See Veinik *ibid* ["Thermodynamics of Real Processes"]
- <sup>68</sup> theory of electro-torsion interactions. See Shipov G.I. *ibid* @footnote #50
- <sup>69</sup> Shipov's demonstration of complementary existence of torsion fields. See footnote #50
- <sup>70</sup> Nikola Tesla. See I. Hunt, W.W. Draper, *Lightning in His Hand: The Life Story of Nikola Tesla*. Sage Books, Denver (1964).
- <sup>71</sup> Veinik's torsion field generator design. See footnote #5
- <sup>72</sup> Perebeinos torsion field generator design. See Perebeinos K.N. " "An Estimate of the Possibility of Using Gravitational Waves for Communications Purposes", *Ochyot po NIR* Moscow (1966), page 17 (Russian)
- <sup>73</sup> Yurovitsky's angular spin momentum density devices . See Zaitsev V.I "Istoriya odnogo izobreteniya." *Ixobretatel I Ratsionalizator* (1982) #11 (Russian)
- <sup>74</sup> I.N. Frantsevich IPMS torsion field work. See Akimov A.E., Boichuk V.V., Tarasenko V. Ya. "Long-range Spinor Fields. Physical Models." Kiev (1989), Institut problem materialovedeniya, preprint #4 (Russian)
- <sup>75</sup> radiesthietic radiation. See Pagot J. "Radiesthesie et emission de forme." Paris (1978) page 277
- <sup>76</sup> cellular and hollow structure effects. See Grebennikov V.S. "On the physical-biological properties of bee's nests." *Sibirskii vestnik selskhozoozaystvennoi nauki* (1984) #3 (Russian)
- <sup>77</sup> Veinik investigations of geometric shapes in torsion field propagation [5]
- <sup>78</sup> Grebennikov loc.cit.

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<sup>79</sup> Grebennikov, loc.cit.

<sup>80</sup> The Golden Mean is a ratio that is present in the growth patterns of many things--the spiral formed by a shell or the curve of a fern, for example. The Golden Mean or Golden Section was derived by the ancient Greeks. Like "pi", the number 1.618... is an irrational number. Both the ancient Greeks and the ancient Egyptians used the Golden Mean when designing their buildings and monuments. The builders of Paestum used the Golden Mean in their temples. Artists as diverse as Leonardo da Vinci and George Seurat used the ratio when constructing their paintings. These artists and architects discovered that by utilizing the ratio 1 : 1.618..., they could create a feeling of order in their works. Today, artists still use this proportion in their works, and scientists, like Roger Penrose, are discovering new things about the Golden Mean and its place in science, mathematics, and nature.

<sup>81</sup> archetypal shapes as passive torsion field generators. See Akimov A.E., Kurik M.V., Tarasenko V. Ya., "The Influence of Spinor (Torsion) Field on the Process of Crystallization of Micellar Structures." *Biotekhnologiya*, (1991) #3 (Russian)

<sup>82</sup> Laszlo E., *The Whispering Pond: A Personal Guide to the Emerging Vision of Science*, Element Books, Inc., 1996.

<sup>83</sup> Tszyan Kanchzhen Yu.V. Torsion Field Generator: An object [a hen] is placed into the receiver-enclosure. Another object [a duck] is placed in the transmitter enclosure. The transmitter enclosure consists of a three-dimensional shape defined by a pentagon. Cones are placed on the sides of these pentagons. The object is subjected to the influences of a generator of high frequency [-11 GHz] electromagnetic oscillations. The torsion component of these EM oscillations excites the torsion field of the object. This torsion field is also intensified by the topological [shape] effect. The excited torsion field is concentrated at the tops of the cones and then is directed to the receiver enclosure. As a rule, after being subjected to this for several days, the objects exhibited the following results: If a hen is placed in the receiver enclosure and a duck is placed in the transmitter, then a hen gradually begins to assume physical features associated with the physiognomy of a duck. For example, during prolonged exposure to these fields, a hen will begin to grow webbing between its claws.

<sup>84</sup> Gurvich and mitogenic radiation. See Gurvich @ footnote #4.

<sup>85</sup> remote cellular interactions. See Kaznacheev V.P. "Discovery #122. Remote Intercellular Interactions in the System of Two Cultures." *Ofitsialnyi bulletin po delam izobryutenii i otkrytii pri Sov. Min. SSSR* (1973) #19

<sup>86</sup> Lupichev's experiments. See Lupichev L.N., Lupichev N.L., Marchenko V.G. "Distant Interactions of Material Objects in Nature." *Issledovaniye dinamicheskikh svoistv raspredelyonnyhsred*, Moscow, **IFTP AN SSSR** (1989) page 3-12]

<sup>87</sup> Kozyrev – aluminum shielding of torsion fields. Loc.cit. "On the Possibility of Experimental Investigation of the Properties of Time."

<sup>88</sup> torsion field shielding in telescopes. Kozyrev loc.cit.. See also Lavrentiev loc.cit.

<sup>89</sup> French torsion field patent. See "Appareillage d'amplification on des emission des aux formes." Patent Republique Francaise #2,421,531 (30November1979)

<sup>90</sup> Veinik's torsion generator and residual field effects. See Veinik ibid

<sup>91</sup> V. Poponin, "Phantom DNA Effect," As this manuscript was being prepared, report of an extraordinary experimental procedure developed in Moscow by a group of Russian scientists was released via the world wide web and the Internet. Dr. Vladimir Poponin and a team of scientists and technicians sponsored by the Russian Academy of Sciences discovered an anomaly which cannot be accommodated by the Standard Model. Poponin's revolutionary discovery unequivocally demonstrates that nature at all scales is non-local in its characteristics and behaviors. Non-locality is not, as some have asserted, an artificial or rare phenomenon.

It is of more than passing interest that the results described in Dr. Poponin's study of a previously undiscovered attribute of human DNA were discovered while Russian scientists were examining the behavior of finely particulated sand. This new phenomenon, dubbed the *DNA Phantom Effect* by researchers, was first observed as an unexpected effect which occurred during a series of experiments designed to measure the EM and harmonic resonance attributes of DNA. A MALVERN laser photon correlation spectrometer was used to measure the light scattering effect produced by a carefully controlled cascade of free-falling, very finely particulated dust particles.



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In the experiments, finely particulated dust was allowed to fall freely in measured quantities from the top of a light scattering chamber, from which all other particulates had been removed. The interior of the chamber was shielded from all other electromagnetic field effects and irradiated with diffused, extremely low level laser light. The purpose of the MALVERN device was to trace the patterns created by the falling of each particle by three dimensionally mapping the cascading trails over a series of precisely similar trials. Once a baseline of randomness had been developed - that is, when it became clear that the same amount of particulate could be reliably predicted to behave in precisely the same random manner with each release in this carefully controlled environment - a new factor was added to the experiment.

At the base of the chamber, Dr. Poponin and his colleagues introduced a petrie dish. The dish had been sterilized prior to being introduced to the light scattering chamber. The introduction of the petrie dish exerted no measurable effect on the light scattering behavior of the free falling dust particles.

Next, the petrie dish was filled with distilled water. Again, as with the empty petrie dish, the distilled water was shown by repeated measurements to exert no effect.

In subsequent trials, ultra-pure granules of NaCl were added to the distilled water in concentrations which approximate the salinity of human blood. Again, the addition of the ionic salts to distilled water were demonstrated to exert no measurable effect.

Finally, Poponin introduced a petrie dish containing a controlled volume of live human DNA in the slightly saline solution. When the light scattering behavior of the free falling particulate was measured in the presence of living DNA and the same low level, highly diffused laser light as had been used on each prior trial, an extraordinary thing occurred. The light scattering pattern produced by the cascading cloud of dust particles suddenly became no longer random but demonstrated patterns which were "distinctly different from the one obtained before the DNA was placed in the chamber." In the words of Dr. Poponin,

*After duplicating this result many times and checking the equipment in every conceivable way, we were forced to accept the working hypothesis that some new field structure is being excited from the physical vacuum. We termed this the DNA phantom effect in order to emphasize that its origin is related to physical DNA.*

After the discovery of this effect, Dr. Poponin's group conducted a more rigorous and continuous study of the phenomenon. They discovered that, as long as the space in the scattering chamber was not disturbed, they were able to continue to measure the DNA Phantom Effect for a long period of time after the petrie dish containing the DNA sample had been removed.

*In several cases, we have observed it for up to a month. It is important to emphasize that two conditions are necessary in order to observe the DNA Phantom Effect. The first is the presence of the DNA molecule and the second is the exposure of the DNA to weak coherent laser radiation. This last condition has been shown to work with two different frequencies of laser radiation.*

Perhaps the most important finding of these experiments is that they provide an opportunity to study non-local field effects on strictly scientific and quantitative grounds. This is made possible because of the phantom field's intrinsic ability to couple with conventional electromagnetic fields. The value of the coupling constant between the DNA phantom field and the EM field propagated by the laser's radiation can be estimated from the intensity of the scattered light.<sup>91</sup> The importance of this discovery and the means by which it is being measured and evaluated simply cannot be overstated.

Dr. Poponin and his team have verified the existence at the DNA level of the mysterious field referred to by Dr. Candace Pert in her ground breaking work on neuropeptides. The non-local field effects described in Dr. Poponin's research files correspond precisely to the torsion field attributes identified above. Perhaps most importantly, Poponin's work provides an unexpected and therefore important independent verification that all living DNA produces a non-local torsion field effect as an attribute of its basic architecture. The DNA Phantom Field appears to operate non-locally and demonstrates a quantifiable and measurable residual field effect at distances of up to one meter, under experimentally verified conditions. The mathematical formulation which describes what the DNA Phantom Field is and how it may operate at this level is more fully described in the mathematical formulation known as the Fermi-Pasta-

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Ulam lattice (FPU), which describes a new class of localized solutions to anharmonic, nonlinear excitations (NLE).

In Dr. Poponin's words,

*It is fortunate that the experimental data provides us with qualitative and quantitative information about the nonlinear dynamical properties of the phantom DNA fields. Namely, these experimental data suggest that localized excitations of DNA phantom fields are long living and can exist in non-moving and slowly propagating states. This type of behavior is distinctly different from the behavior demonstrated by other well known nonlinear localized excitations such as solitons which are currently considered to be the best explanation of how vibrational energy propagates through the DNA.*