

# Effect of superconsciousness external energy on atomic, crystalline and powder characteristics of carbon allotrope powders

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Scientists are searching for eluding link between spirituality and science. Some believe fundamental essences of universe to be energy and information. As per current understanding, energy and matter always coexisted and is considered one and the same. Energy is considered as 'matter in perpetual motion' and matter as 'stationary energy'. Interconversion between matter and energy has been defined by Einstein's famous energy-mass equation ( $E=mc^2$ ) which has been proven by nuclear physicists using complex nuclear reactions involving high energy particles. However, many spiritual masters have claimed to realise this energy-matter interconversion using their spiritual powers/energy but scientifically unknown and unverified. It is the first time that the lead author (M. K. Trivedi) has been using his unique superconsciousness energy in the form of thought intervention and information signals to bring about dramatic and radical transformations in the physical and structural properties of organic and inorganic materials. The present paper is the first scientific report that deals with the effect of consciousness energy which M. K. Trivedi uniquely communicates through thought intervention by sending an information signal that transforms carbon allotropes. The changes the energy has caused at the atomic, molecular and crystalline levels in diamond, graphite and activated charcoal have been studied very systematically and are reported in this paper. It has been observed that the superconsciousness energy when transmitted to carbon allotropes has changed the lattice parameters of unit cells, crystallite sizes and densities. Computed weight and effective nuclear charge of the treated atoms exhibited significant variation. It is believed that the energy is acting on the nuclei causing their transmutation.

**Keywords:** Consciousness energy, Thought intervention, Diamond, Graphite, Activated charcoal, X-ray diffraction, Particle size, Atomic weight, Atomic charge, Crystallite size

## Science and creation

Science attempts to preserve its value free nature so as to retain validity and avoid interference with religious bodies and beliefs. If rituals and dogmas are removed from religion, the result is spirituality that is consistent with science and can be related to it. Margenau<sup>1</sup> had stated that the existence of such a relationship is evident from the philosophical preoccupations and writings of the most distinguished and creative physicists of the last five decades, such as Einstein, Bohr, Heisenberg, Schrödinger, Dirac, Wigner and many others. While answering the question as to what precisely constitutes a miracle, he had suggested that science, being not yet and

quite possibly will never be a complete system of explanation. For example, the existence of man as well as of the entire universe has long been regarded as miracle, incomprehensible without assuming the existence of a 'directed creative force' which is omnipotent and omniscient. During this century, the Big Bang Theory was formulated and confirmed. A very small but extremely massive sphere of matter, in many respects similar to a black hole, could apparently spring out of nothing without violating any known law of nature. Margenau<sup>1</sup> quoted Schleiermacher's words 'the existence of the laws of nature is the greatest of all miracles'.

## Matter, energy and information signals

There are several attempts to develop a model linking the macroscopic universe and the microscopic atomic and subatomic world. The electromagnetic spectrum of which the visible light forms a small portion arises from the cosmic radiation filtered by the atmosphere

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surrounding the planet. The observed properties of the matter as well as the electromagnetic radiation could only be explained by assuming a dual nature. That is, the object can be viewed as a particle, and words such as mass, speed and energy are used to describe it. On the other hand, the object can be viewed as a wave and described by words like wavelength and frequency. This dual nature of matter and radiation led to quantum indeterminacy. The apparent and necessary incompleteness in the description of a physical system has thus become one of the characteristics of the nature of quantum physics. Before quantum physics, it was thought that:

- (i) a state of a physical system can be uniquely determined by all the values of its measurable properties, and conversely
- (ii) the values of the measurable properties uniquely determines the state.

This made Albert Einstein sceptical of the quantum indeterminacy and in a 1926 letter to Max Born, Einstein<sup>2</sup> wrote: 'I, at any rate, am convinced that He [God] does not throw dice' which became the most famous philosophical statement.

The atoms and subatomic particles are in continuous movement. Einstein postulated that neither the time nor the weight or mass are constant. When moving at high speeds, all of these things get compressed; only the speed of light remains the same. That happens because, according to Einstein,<sup>3</sup> energy is equal to mass times the speed of light squared, or  $E=mc^2$ .

This had led to the concept of the atomic bomb where the mass of the tiny atom is converted to tremendous energy. The reverse, which is conversion of energy to mass, is yet to be observed.

Gravity is yet another energy that plays a dominant role at the macroscopic level (at the level of large masses such as human beings, planets, etc). Einstein attempted to generalise his theory of gravitation in order to find a single unifying force the special cases of which are gravitation and electromagnetism. Since then, the theoretical physicists are in search of an elusive unified field theory (single fundamental form of energy that encompasses all forms of forces) that may combine the four known fundamental forces, namely, strong nuclear interaction, electromagnetic interaction, weak nuclear interaction and gravitational interaction. However, all attempts to identify such super energy so far have failed.

Clarke and Kube-McDowell<sup>4</sup> wrote a prophetic novel 'The trigger' in 1999, where they considered the well known CERN model to be incomplete as it did not say anything about why the matter existed. Rather, the understanding is that energy can be energy, as well as matter. Forces are assumed to be transmitted by vector bosons, which are considered to be elementary particles, and the confusion is further compounded because particles are matter, and matter is energy.

These authors<sup>4</sup> hypothesised that information not only organises and differentiates energy but also regularises and stabilises matter. Information is considered to be a mind of creation and propagates through matter-energy mediating in their interactions. Matter is assumed to be a mere derivation, a subordinate phenomenon of the fundamental essences of energy and information. They proposed that information binds energy into form just as will binds volition into purpose.

As a consequence, the form can be altered by altering the information without changing the substance. Thus, the information is considered to be the Universe's will, imposing order on the Universe's substance, an order which has followed in the wake of the spontaneous and explosive transformation wrongly taken as the moment of creation. Energy is considered to be older than information, but formless and timeless without it, older than matter, but helpless and useless without it. In their new and provocative view,<sup>4</sup> the Big Bang is not the birth of the Universe, but the birth of its consciousness.

## Unknown energy causes transformation in living and non-living

Many spiritual masters have claimed to realise the energy-matter interconversion using their spiritual powers/energy but scientifically unknown and unverified. It is the first time that the lead author (M. K. Trivedi) has this unique ability that he can use his unique superconsciousness energy in the form of thought intervention and information signals to bring about dramatic and radical transformations in the physical and structural properties of organic and inorganic materials.

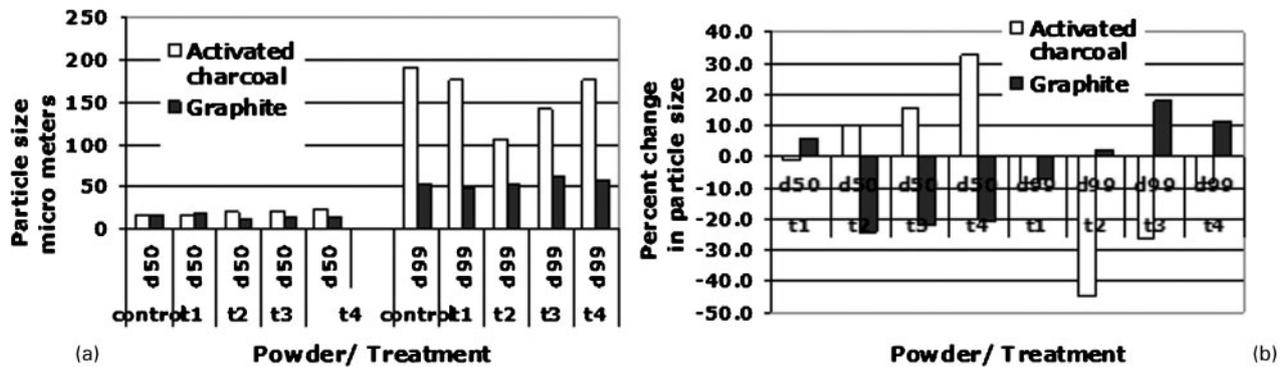
He defies the laws of human physiology and has been performing what a layman would call 'miracles'. He has, within last 12 years, cured by physical touch/thought intervention thousands of people in several countries all around the world suffering from physical, mental, spiritual and emotional disorders. For the first time, this superconsciousness energy has been used to conduct scientific experiments on inorganic and organic materials using standard scientific procedures. The results on special class of material, i.e. carbon allotropes (activated carbon, graphite and diamond), are reported hereunder in this paper.<sup>5-9</sup>

## Experimental

Activated carbon (Merck), graphite (Alpha Aesar) and natural diamond monocrystalline powders (Sigma Aldrich) are selected for the investigation. One portion of these is kept as a control/standard sample, while the other four portions are exposed to different quanta of M. K. Trivedi's superconsciousness energy on different occasions and are referred to as T1, T2, T3 and T4 (treated) samples. In order to eliminate the unforeseen errors, only normalised parameters are used for comparison. The superconsciousness energy was transmitted to this material through thought intervention.

Average particle size and size distribution are determined by Sympatec HELOS-BF laser particle size analyser with a detection range of 0.1–875  $\mu\text{m}$ . From the particle size distribution,  $d_{50}$  (the average particle size) and  $d_{99}$  (maximum particle size below which 99% of particles are present) for the control (untreated or as received powders) are taken as standard and are compared with the results obtained on four separately treated powders.

Both the control and treated samples were analysed by X-ray diffraction using PW 1710 XRD system (Phillips, Eindhoven, The Netherlands). A copper anode with nickel filter is used. The wavelength of the radiation is 1.54056 Å.



1 a particle size and b percentage change in particle size: change in particle size in treated powders

## Results and discussion

### Particle size and size distribution

Particle sizes  $d_{50}$  and  $d_{99}$  can be seen in Table 1 for various powders. Per cent change in particle size of treated powders with respect to control powders is computed using the formula

$$d_{50} (\%) = \frac{d_{50t} - d_{50c}}{d_{50c}} \times 100\%$$

where  $d_{50}$  is the change in average particle size.

In a similar manner, the change in particle size  $d_{99}$  (%) is computed. These values can be seen in Tables 1 and 2 and are plotted in Fig. 1 (the diamond samples are too small and hence, particle size and surface area could not be measured).

The  $d_{50}$  in graphite showed a decrease up to 22.2%, while it increased up to 32.4% in activated charcoal. The reverse happened in the case of  $d_{99}$ . It decreased up to 44.6% in activated charcoal, while it increased up to 18.1% in graphite. Graphite flakes showed an increase in  $d_{99}$  possibly due to deformation parallel to  $c$  axis. The smaller particles as indicated by  $d_{50}$  would have fractured at the interparticle and agglomerate boundaries, thereby reducing the  $d_{50}$  size. These results suggest that the particles may have elongated, workhardened and eventually fractured to smaller particles, indicating that the external energy has acted at the polycrystalline

level causing deformation and fracture of particles as if the particles had undergone a high energy milling.

### X-ray diffraction

What must be happening to cause these significant changes in particle size? In order to find a probable cause, the powders are examined by X-ray diffraction. X-ray diffraction patterns of control samples of diamond showed sharp peaks at  $2\theta=43.93$ ,  $75.28$  and  $91.52^\circ$ . The corresponding peak positions in treated samples are at  $2\theta=43.89$ ,  $75.29$  and  $91.5^\circ$ . The first two are due to (111) and (220) planes, while the third peak can be due to rhombohedral diamond (1034). The intensities of the peaks have nearly remained same. As compared to JCPDS spectrum, both the control and treated samples showed additional weak pattern corresponding to rhombohedral form of carbon (JCPDS 79-1473).

Graphite X-ray diffraction patterns show peaks representing the hexagonal (002) basal plane at  $2\theta=26.54^\circ$  and (004) plane at  $54.66^\circ$  respectively. The peak at  $2\theta=89.47^\circ$  can be once again due to rhombohedral form of carbon.

Three broad peaks are observed in activated charcoal at  $2\theta$  of around  $26.5$ ,  $31.3$  and  $44.6^\circ$  in the order of decreasing intensity. The first peak can be due to graphitised fraction. Furthermore, the weaker broad peak at  $43^\circ$  indicates that the (100) and (101) peaks have

Table 1 Particle size  $d_{50}$  of control and treated powders

Treatment	Average particle size	Particle size, $\mu\text{m}$		Per cent change in particle size, %	
		Activated charcoal	Graphite	Activated charcoal	Graphite
Control	$d_{50}$	17.9	17.1		
T1	$d_{50}$	17.7	18.1	-1.1	5.8
T2	$d_{50}$	19.7	13	10.1	-24
T3	$d_{50}$	20.7	13.3	15.6	-22.2
T4	$d_{50}$	23.7	13.6	32.4	-20.5

Table 2 Particle size  $d_{99}$  of control and treated powders

Treatment	Average particle size	Particle size, $\mu\text{m}$		Per cent change in particle size, %	
		Activated charcoal	Graphite	Activated charcoal	Graphite
Control	$d_{99}$	192.6	52.5		
Treated T1	$d_{99}$	176.8	48.7	-8.2	-7.2
Treated T2	$d_{99}$	106.7	53.7	-44.6	2.3
Treated T3	$d_{99}$	142.3	62	-26.1	18.1
Treated T4	$d_{99}$	176.7	58.3	-8.3	11.0

merged to yield a single reflection, also demonstrating a relatively higher degree of randomness.

The intensity corresponding to diamond (111) peak has increased in treated powders by 28%, indicating an increased orientation of these planes (Table 3). The intensity due to (002) plane in graphite showed a slight increase on treatment, while it increased by 68.9% in activated charcoal indicating graphitisation.

**X-ray diffraction data analysis**

The data are obtained in the form of 2θ v. intensity chart as well as a detailed table containing 2θ (°), d value (Å), peak width 2θ (°), peak intensity counts, relative intensity (%), etc. The d values are compared with standard JCPDS database and the Miller indices h, k and l for various 2θ values were noted. The data are then analysed using PowderX software to obtain lattice parameters and unit cell volume.

Then, the crystallite size is calculated using the formula

$$\text{crystallite size} = k\lambda / b \cos \theta$$

where λ is the wavelength of X-radiation used (1.54056 × 10<sup>-8</sup> cm) and k is the equipment constant with a value 0.94. The obtained crystallite size will be in nanometre. Crystallite size in metals corresponds to subgrain size when the grain size is equivalent to single crystal size. It is also possible that some part of the peak width could be due to the instrument broadening (already corrected), while the other part could be due to the strain in the crystal lattice. After evaluating these mentioned basic parameters, the characteristics at atomic level are computed as the following.

**Per cent change in lattice parameter**

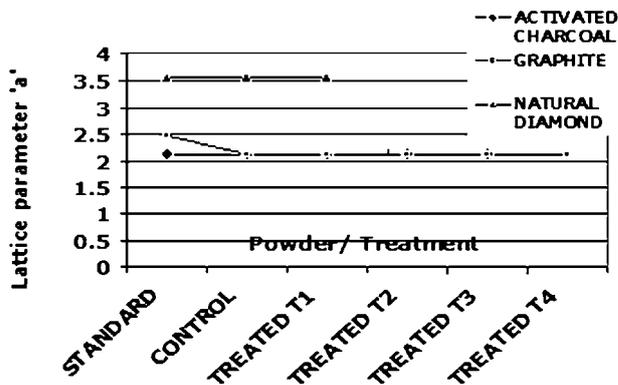
It is the ratio of difference in the values between control and treated samples to the value of control sample expressed as per cent. Typically, for the parameter a, this is equal to 100(Δa/a<sub>c</sub>), where Δa = (a<sub>t</sub> - a<sub>c</sub>)/a<sub>c</sub>. This is also known as strain, and when multiplied with the elastic modulus, gives the force applied on the atoms. When the force is compressive, the change is negative while a positive value indicates a stretching or tensile force.

**Per cent change in atomic weight**

The weight of atom is computed from the sum of all electrons, protons and neutrons

Weight of atom = number of protons × weight of proton + number of neutrons × weight of neutron + number of electrons × weight of electron

Since the number of atoms per unit cell of the crystal is known, the weight of the unit cell is computed. The latter divided by the volume of the unit cell gives the density. The weight of the atom when multiplied by the Avogadro's number (6.023 × 10<sup>23</sup>) gives the atomic



2 Lattice parameter a obtained from XRD spectra of standard, control and treated powders

weight M or the weight of a gram atom of the substance. The ratio difference in atomic weight between control and treated samples to the atomic weight of control sample is expressed as per cent change in atomic weight. Typically, this is same as 100(ΔM/M<sub>c</sub>), where ΔM = (M<sub>t</sub> - M<sub>c</sub>)/M<sub>c</sub>. This value also represents the per cent change in sum of protons and neutrons in the nucleus.

**Per cent change in positive charge per unit volume**

The atomic radius is obtained by dividing the lattice parameter a with 2:

$$r = a/2$$

Then, the volume of the atom is obtained by assuming it to be spherical

$$V = 4\pi r^3/3$$

The positive charge per unit volume of the atom due to protons is computed by multiplying the number of protons p in the atom with elementary charge 1.6 × 10<sup>-19</sup> C and then by dividing with the volume of the atom

$$\text{Positive charge per unit volume of atom} = Z^+ = 1.6 \times 10^{-19} p / V \text{ (C cm}^{-3}\text{)}$$

The per cent change in positive charge per unit volume ΔZ between control and treated samples is then obtained as

$$\Delta Z (\%) = \frac{Z_t^+ - Z_c^+}{Z_c^+} \times 100\%$$

Figure 2 shows the comparison of lattice parameter a of various control and treated powders with the values obtained from standard JCPDS data. It can be noticed that the a values obtained for graphite and activated charcoal in the present experiments are somewhat lesser than the standard values. In most powders, the external energy used has changed the lattice parameter a in the

Table 3 Intensity of prominent X-ray diffraction peak in control and treated powders

Treatment/powder	Intensity, 100(I/ΣI)			Change in intensity, %		
	Activated charcoal (002)	Graphite (002)	Diamond (111)	Activated charcoal (002)	Graphite (002)	Diamond (111)
Control	31.48	90.43	55.49			
Treated T1	22.92	93.98	71.06	-27.21	3.93	28.06
Treated T2	40.91	93.41		29.95	3.29	
Treated T3	53.16	94.50		68.88	4.49	
Treated T4		93.10			2.94	

third decimal place and in some cases by second decimal place (Table 4).

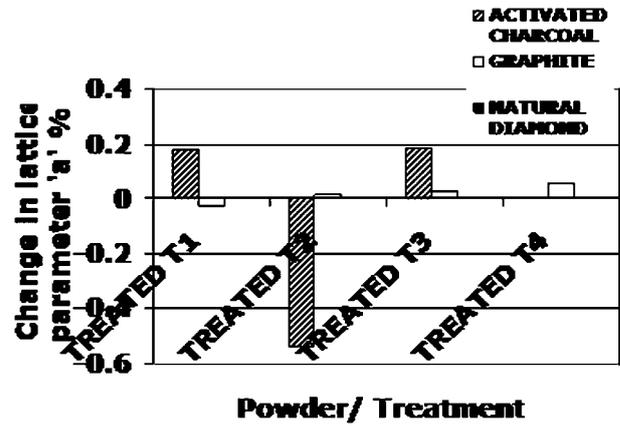
The per cent variations in lattice constant in various powders after treatment can be seen in Fig. 3. The volume of the atom calculated using this parameter *a* will therefore show similar variation.

### Deformation in carbon allotropes

Atoms of group IV elements in periodic table condense to form solids mainly due to two primary forces. When the condensing atoms possess *s* and *p* electrons together with vacant electron positions in their outer most shell, these form metallic bonds. The outer atomic shells overlap causing electrons to delocalise and hold the now remaining positive atomic/ionic cores in fixed arrangement. This would mean that the electrons continuously move as if they are a cloud or gas among positively charged atoms. Thus, the metallic bond is flexible and gives metals the characteristic malleability, ductility, thermal conductivity and electrical conductivity.

When the outer shells of the condensing atoms possess uncoupled (single electrons), these form covalent bonds by coupling with the electrons of opposite spin in the outer shells of the neighbouring atoms. Thus, the covalent bonds are strong giving rise to high strength, high hardness, brittleness, high melting/decomposition temperature, electrical insulation and low reactivity. Three forms of carbon are used in industry extensively. These, in the order of increasing crystallinity and particle size, are activated charcoal, graphite and diamond.

Often mechanical milling is used for synthesis of fine and nanosized powders in bulk quantities using simple equipment and at room temperature.<sup>10</sup> During this



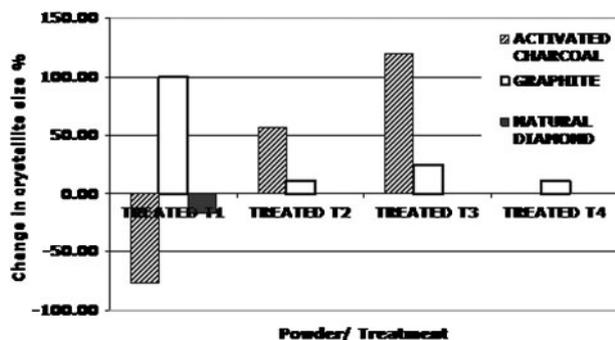
3 Per cent change in lattice parameter *a* in treated powders

process, the powder particles are subjected to severe mechanical deformation from collisions with the milling tools. Consequently, plastic deformation at high strain rates ( $10^3-10^4 \text{ s}^{-1}$ ) occurs within the particles and the average grain size can be reduced to a few nanometres after extended milling.<sup>11,12</sup> Plastic deformation generally occurs by slip and twinning at low and moderate strain rates, while at high strain rates, it occurs by the formation of shear bands, consisting of dense networks of dislocations. The plastic strain in the material increases due to increasing dislocation density in the early stages of ball milling. At a threshold dislocation density, even at moderately elevated temperatures, the material relaxes into subgrains separated by low angle boundaries, leading to a decrease in atomic level strain.

During subsequent milling, the process of high deformation/subgrain formation is repeated, resulting

Table 4 Analysis of X-ray diffraction results

Metal powder/characteristic		Activated charcoal	Graphite	Natural diamond
Crystal structure		Hexagonal	Hexagonal	Cubic
Lattice parameter <i>a</i> , $\times 10^{-8}$ cm	Standard	2.470	2.470	3.567
	Control	2.127	2.4559	3.565
	Treated T1	2.131	2.4552	3.565
	Treated T2	2.115	2.4562	
	Treated T3	2.131	2.4565	
	Treated T4		2.4574	
Change in <i>a</i> , %	Treated T1	0.181	-0.027	0.004
	Treated T2	-0.537	0.011	
	Treated T3	0.188	0.024	
	Treated T4		0.061	
Volume of unit cell, $\times 10^{-24}$ cm	Control	69.78	35.465	45.3
	Treated T1	70.03	35.446	45.3
	Treated T2	69.03	35.473	
	Treated T3	70.04	35.482	
	Treated T4		35.508	
Change in volume of unit cell, %	Treated T1	0.363	-0.054	0.01
	Treated T2	-1.072	0.023	
	Treated T3	0.377	0.048	
	Treated T4		0.121	
Crystallite size <i>G</i> , $\times 10^{-9}$ m	Control	38.65	42.50	89.2
	Treated T1	9.05	85.00	74.3
	Treated T2	60.71	47.22	
	Treated T3	85.01	53.12	
	Treated T4	39.05	47.22	
Change in <i>G</i> , %	Treated T1	-76.59	100.00	-16.7
	Treated T2	57.09	11.11	
	Treated T3	119.97	24.99	
	Treated T4	1.06	11.10	



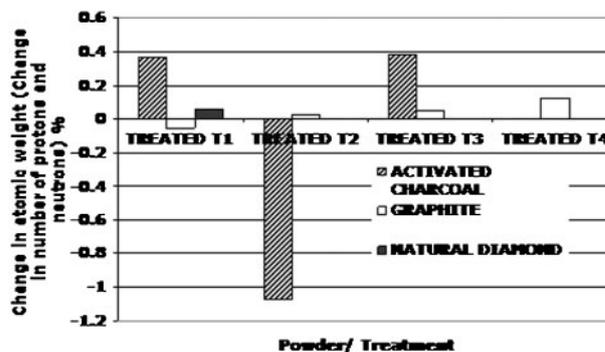
4 Percentage change in crystallite size in treated powders

in the subgrains becoming finer and finer, and the relative orientation of the subgrains with respect to each other ultimately becoming completely random. Once the subgrains reach a critical level of refinement, further refinement becomes virtually impossible since the stresses required for dislocation movement are enormously high due to the Hall-Petch strengthening. By employing high energy milling, in titanium powders of  $\sim 2 \mu\text{m}$ , particle size could be converted in an argon atmosphere to 35 nm.<sup>13</sup>

The pure covalent bonding in diamond caused less variation in lattice parameter. Carbon in the form of graphite showed increase or decrease in lattice parameter  $a$  probably due to weak bonding in the  $c$  direction. Because of the limitation of the software employed, either  $a$  or  $c$  can only be computed at a time, keeping the value of the other constant. In reality, both the parameters vary to some extent. Activated charcoal being a poor crystalline form of carbon showed significant changes. These could be associated with increased crystallisation to graphitic structures.

Diamond forms covalent linkages with uncoupled electrons of neighbouring atoms. Thus, the external force is likely to aid these bonds, making them stronger decreasing lattice constant. Graphite forms apart from covalent linkages in the  $a$  direction, metallic/van der Waals bonds in the  $c$  direction. Any compression on the  $a$  axis can result in expansion in the  $c$  direction and *vice versa*. The treated powders thus showed an increase indicating expansion in the  $a$  direction. This effect is more predominant in activated charcoal. The increasing metallic/van der Waals nature makes the bonds weaker and hence, the applied force stretches the electron cloud increasing the lattice constant. These changes are significant as  $100(\Delta a/a_0)$  represents per cent linear strain and any value above 0.2% strain is considered to be above elastic limit. Further, the elastic strain is expected to be released once the applied force is removed, which did not happen in the present experiments. Rather, the strain is permanent indicating the materials to be miraculously plastic as the lattice parameter is permanently altered even though the crystal structure remained same. This is not possible as per the existing knowledge on deformation behaviour.

The per cent variation in crystallite size can be seen in Fig. 4. The crystallite size in diamond had decreased by 16.7%, while a maximum increase up to 100 and 120% is noticed in graphite and activated charcoal respectively. One of the treated activated charcoal powders showed a decrease of 76.6%. The decrease in crystallite size in



5 Percentage change in atomic weight (change in number of protons and neutrons)

ceramics usually indicates fracture along the cleavage planes. The existence of severe lattice strain is indicated by the change in lattice parameters. It is possible that these internal strains nucleated cracks, causing the crystal to fracture along the cleavage planes. This is perhaps the explanation for decrease in crystallite size.

The increase in crystallite size is attributed to plastic deformation. The latter is not possible as ceramics are known to be elastic solids. It is possible that the weaker bonds in the  $c$  direction make the dislocations move unhindered in a direction parallel to the  $a$  axis, causing deformation resulting in an increased crystallite size. This is a remarkable result as several attempts are being made to study the plastic deformation in ionic ceramics without much success (as always, fracture at internal defects precedes deformation).

The atomic size in a bound state is not constant and varies depending on the environment of nearest neighbours. Thus, the lattice parameters are decided by the equilibrium inter atomic distance where the attractive forces due to nuclear charges are balanced by the repulsive forces due to the orbiting electrons. Increase in distance from the nucleus decreases the effect of nuclear charge. On the other hand, when bound atoms are subjected to an external compressive force, the rather flexible electron cloud is likely to be pushed closer to the central nucleus there by decreasing the volume of the atom and increasing the effective nuclear charge. The reverse may happen when the external force is tensile. The atoms are likely to be pulled apart there by increasing the volume and decreasing the effective nuclear charge. Thus, the density should increase during compression and decrease during tension. The reverse happens in the case of unit cell volume.

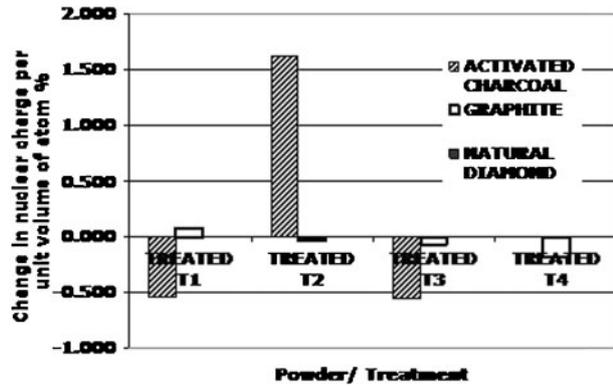
The computed values of the atomic parameters together with their per cent variation between control and treated samples can be seen in Table 5. The per cent variation in these parameters in various treated powders can be seen in Figs. 5–7.

The variation in parameters as a function of treatment seemed irregular. However, the per cent variation in parameter when plotted as function of per cent variation in lattice parameter  $a$  showed a linear relationship for all the atomic parameters

$$Y = BX$$

where  $X$  is the per cent change in lattice parameter  $a$  and the values of  $B$  are as follows (Table 6).

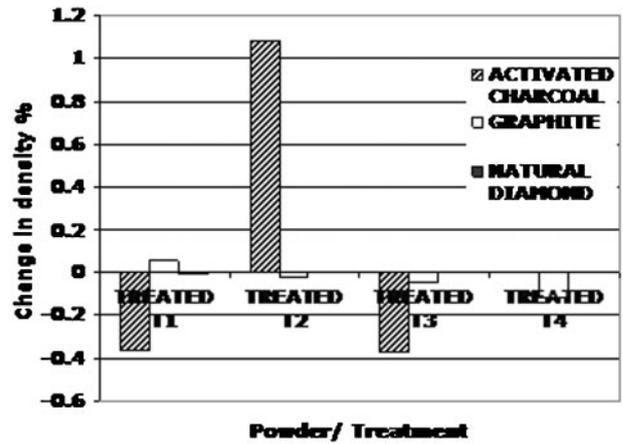
A decrease in lattice parameter  $a$  and unit cell volume should increase the density. This in turn should decrease the size of the atom. The effective nuclear charge on the



6 Percentage change in nuclear charge per unit volume of atom

surface of the atom, therefore, increases as has been observed in the present experiments. The observed decrease in atomic weight and hence, the sum of protons and neutrons in the nucleus with increasing density or decreasing lattice parameter, is unusual.

The results are peculiar. As density represents weight per unit volume and as the number of atoms per unit cell are fixed by the crystal structure, a decrease in density corresponds to reduced number of protons and neutrons in the nucleus and hence, to a reduced weight of the atom. But the decrease in density in the present experiments had resulted in a decreased charge per unit volume indicating a decrease in number of protons. The opposing dependence of the atomic weight and atomic charge on the lattice parameter is possible only if it is assumed that nuclear reactions involving protons, neutrons with neutrinos resulting in electrons and positrons take place.<sup>14</sup> Since both the nuclear charge and the weight of the atom are changing, the reaction cannot be of the type of  $\beta$ -decay. Rather, the reaction is likely to be more fundamental involving creation of neutrons and protons from the electrons, neutrinos and hypothetical quarks and gluons and *vice versa*. In other words, M. K. Trivedi's superconsciousness energy could



7 Percentage change in density

be in the form of neutrinos changing mass into energy and *vice versa*.

### Conclusions

M. K. Trivedi's energy has significantly altered the characteristics of diamond, graphite and activated charcoal powders as follows:

1. The particles of treated activated charcoal and graphite showed significant changes that indicated elongation, workhardening and fracture to smaller particles, indicating that the external energy has acted at the polycrystalline level causing deformation and fracture of particles as if the particles have undergone a high energy milling.
2. The treated powders exhibited increase as well decrease in volume of unit cell, effective nuclear charge per unit volume of the atom and the atomic weight. The per cent change in these parameters is linearly dependent on the per cent change in lattice parameter *a*.
3. The changes in atomic parameters are significant enough to increase and decrease the crystallite as well as particle sizes through deformation and fracture respectively.

Table 5 Analysis of X-ray diffraction results: atomic parameters

Metal powder/characteristic		Activated charcoal	Graphite	Natural diamond
Change in nuclear charge per unit volume of atom, %	Control			
	Treated T1	-0.541	0.080	-0.01
	Treated T2	1.630	-0.034	-0.072
	Treated T3	-0.563	-0.182	0.06
	Treated T4	-0.379	0.121	-0.023
Change in atomic weight (per cent change in number of neutrons and protons), %	Treated T1	0.365	-0.054	0.06
	Treated T2	-1.070	0.023	-0.048
	Treated T3	0.379	0.048	0.121
	Treated T4		0.121	
			0.054	-0.01
Change in density, %	Treated T1	-0.361	0.054	-0.01
	Treated T2	1.084	-0.023	-0.048
	Treated T3	-0.375	-0.048	0.121
	Treated T4		-0.121	
			0.054	-0.01

Table 6 Values of B with varying Y

Y=per cent change in atomic characteristic	B	Regression coefficient
Per cent change in atomic charge per unit volume	-2.99	-0.999
Per cent change in atomic weight	2.042	0.987
Per cent change in density	-2.039	-0.99

The authors hypothesise that the changes caused by M. K. Trivedi's energy could be due to change in total number of protons and neutrons in the nucleus caused by weak interactions.

## Acknowledgements

The authors thank Dr S. Patil, Mr H. Shettigar, Mrs S. L. M. Tallapragada and Miss A. Bulbule, members of the Divine Life Foundation for their active help, and the staff of various laboratories for conducting the various characterisation experiments. The authors also thank Dr D. Cheng of NLSC, Institute of Physics, Chinese Academy of Sciences, for permitting the authors to use PowderX software for analysing X-ray diffraction results.

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