Journal of Scientific Exploration, Vol. 16, No. 3, pp. 381–411, 2002 0892-3310/02

Certain Physical Manifestation and Effects of External Qi of Yan Xin Life Science Technology

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Abstract—This paper reviews a portion of the data generated via the external qi emitted by Dr. Yan Xin. Included here are (1) strong responses developed in LiF thermoluminescent dosimeters, (2) strong responses in aqueous solution structure as probed with laser Raman spectroscopy and (3) alterations in the half-life of ^{241}Am as probed with both γ-ray spectroscopy and a solid-state nuclear track detector. According to the different circumstances, external qi of Dr. Yan Xin can display different attributes such as being distance transcending, bidirectional, reversible or targeting. Although external qi of Yan Xin Life Science Technology has not been identified with any of

the four known and accepted fundamental physical forces, its influence on physical reality is robustly confirmed.

Keywords: Yan Xin Life Science Technology (YXLST) — external qi — thermoluminescence — Raman spectra of water — half-life of ^{241}Am

1. Introduction

Dr. Yan Xin is a chief physician recognized by the academic department of Ministry of Health of China. He is also hailed as a ''miracle doctor'' by the thousands who have benefited from his healing.[1–3] Starting in 1985, his numerous healing cases, often involving difficult-to-cure diseases have been reported in a number of books and newspaper reports.[1–3] As his reputation spread, more and more patients from all over the world sought his help. To satisfy the growing demands, Dr. Yan invented healing lectures for a large number of audiences. Since his first public healing lecture in early 1987, he has been invited by various government authorities and academic organizations to conduct hundreds of such lectures with large audiences.[1–3] A number of cases on the health benefits of attending his lectures have been reported.[1–3] These phenomena have been named Yan Xin Life Science Technology phenomena,[4] which have also been known as Yan Xin phenomena[2] or Yan Xin Qigong phenomena.[3]

Since these are physical effects achieved without physical contact between Dr. Yan and the affected, it could be argued that Dr. Yan's mind power causes such effects. Numerous cases of various physical changes caused by mind power have been reported.[5] However, how do we connect mind power with physical events? This is not an easy question and poses a major obstacle in our understanding and even acceptance of such occurrences. Since the effects of Yan Xin phenomena are analogous to that of ''bu qi'' or ''deploying qi'' described in ancient literature,[6] it has been suggested that ''external qi'' is emitted by Dr. Yan to achieve such effects. ''Qi'' is described as the cosmic creative energy or the primordial force in the universe and is mentioned frequently in classic Chinese literature.[6,7] Historically, various extraordinary effects were explained using the concept of qi,[6] The central question to modern science is ''Does qi physically exist?'' If indeed the existence of qi can be physically confirmed using modern instruments, this would indicate that Yan Xin Life Science Technology, the technology which Dr. Yan uses to achieve various extraordinary physical effects, should be recognized as a scientific discipline deserving rigorous research. All the usual scientific activities, such as measuring different aspects of qi, follow naturally.

Since the 1980s, a considerable number of scientists from leading universities and research institutes in China and the US, such as Tsinghua University, the Chinese Academy of Sciences, Harvard University, University of California (UC San Diego, UC Los Angeles) and Oklahoma University, have applied modern scientific methods and protocols to investigate various effects of external qi of Yan Xin Life Science Technology in physical sciences, life

sciences and industrial application, see, e.g.[8–14] Some research projects have been supported by the Chinese National Natural Science Foundation.[15,16] A body of substantial experimental results on Yan Xin Life Science Technology effects has accumulated. They provide convincing scientific corroboration that qi of Dr. Yan can be projected out of the body and affect physical substances and objects. These results have been reviewed by leading scientists in their respective fields to be credible and far reaching[17–19] and they have been reported at research conferences and published in scientific journals.[9–16,20–34]

The strong responses from physical detectors such as thermoluminescent dosimeters (TLD)[22] and liquid crystals[23] to the presence of external qi from Dr. Yan have been repeatedly measured. Although the responses from such detectors by no means capture the entire nature of external qi from Dr. Yan, they nevertheless firmly establish the physical nature of external qi from Dr. Yan. The seminal studies conducted by Dr. Yan and his collaborators in several critical areas of life science such as genetic engineering, cancer research, and anti-aging research have produced breakthroughs long sought by the research community.[9–14,20,21,26] These breakthroughs at the molecular and cellular levels correlate well with Yan Xin Life Science Technology healing cases of various diseases.[1–3] Important new facts in physical sciences have also been discovered which may provide new insights on the fundamental laws of physics.[27–31] On a more practical side, Yan Xin Life Science Technology has demonstrated the capability of changing reaction conditions of certain chemical reactions and thereby controlling these reactions.[32,33] The application of Yan Xin Life Science Technology in improving large-scale industrial productions of antibiotics has also been reported to be successful.[21]

In this paper we will review research results on the physical interaction of the external qi emitted from Dr. Yan with substances at various structural levels, from molecular to nuclear. Specifically, dramatic effects of Dr. Yan's external qi on TLD, the structure of liquid water and the half-life of radioactive americium 241 are detailed. In all these experiments, a "human-matter" system (i.e., Dr. Yan emits his external qi to non-living substances) was adopted. In these human-matter experiments, the selected experimental samples were very stable under normal conditions and could only be affected by Dr. Yan. Therefore he is the most important participant in the design and execution of these experiments. Because qi emission is governed by its own set of rules internally as well as by a number of factors externally, Dr. Yan has to be consulted in deciding whether the experiment can proceed and how and when the emission of external qi should start.

2. Dr. Yan's Qi Field Caused Strong Response in Thermoluminescent Dosimeters

Thermoluminescence measurement is a mature technology that is generally used in radiation protection for monitoring personal, environmental, and nuclear facility work place radiation dosage. It has also been widely applied to

different fields such as nuclear physics, radiation medicine, radiation therapy, archaeology, military and aviation. A pair of LiF (Mg, Ti) TLD, ^{7}LiF and ^{6}LiF, form a gamma-neutron detector for measuring a mixed field of gamma rays and neutrons.[34,35]

In 1987, Dr. Yan was invited by the Institute of High Energy Physics (IHEP) of the Chinese Academy of Sciences (CAS) to give a qi-emitting lecture. Such lectures generally deal with various aspects of Yan Xin Life Science Technology. On the one hand, while speaking, Dr. Yan enters into a qi-emitting state and emits his external qi to the audience to guide, stimulate and induce potential functions and energies within the human body, thereby causing positive changes such as healing. On the other hand, Dr. Yan talks about certain practice methods during his lectures, requiring the audience to cooperate in posture or consciousness at given times.

A LiF (Mg, Ti) TLD detector was brought by researchers from IHEP to the lecture hall to see whether the detector would respond to the purported qi field associated with such a three-hour qi-emitting lecture. After the three-hour lecture, the detector showed a significant ''dosage'' which was more than ten times the background.[22]

Further TLD observations were conducted in the next four qi-emitting lectures by Dr. Yan in 1987 in Beijing. Observation locations were set up and manned by non-qigong practitioners throughout the auditorium. All locations in the lecture hall registered dosages five to ten times the control (background) level.[22]

It appeared that the external qi emitted by Dr. Yan interacted with TLD detectors and generated responses similar to that induced by a mixed field of gamma rays and neutrons. This result indicates the physical and energetic nature of external qi emitted by Dr. Yan and provides a means with which to detect the presence of a high energy external qi field.

2.1 Detection System

2.1.1 Mechanism of luminescence. A LiF crystal can be doped with a suitable amount of impurities, such as magnesium (Mg) or titanium (Ti), to form localized charge centers. These charge centers are called electron traps if they are energetically closer to the conduction band and excitation states if they are energetically closer to the valance band. A LiF(Mg, Ti) crystal has a number of electron traps with varying depths. When X-ray, gamma ray, beta ray or other ionizing radiation irradiates a LiF(Mg, Ti) crystal, the particles or secondary particles interact with and ionize the lattice, thereby creating free electrons that are then trapped in electron traps of varying depths. When the crystal is heated, the trapped electrons obtain enough energy from the lattice to escape from the traps. The escaped electrons then recombine with the holes in the excitation center, thereby releasing extra energies in the form of photon quanta, and the amount of photons is proportional to the irradiation energy. This phenomenon is called thermoluminescence.

2.1.2 Main dosimetric characteristics of a LiF thermoluminescent detector. A portion of the radiation energy absorbed by a LiF phosphor transforms into the potential of electrons. While the electrons are bound in the metastable traps, this portion of the radiation energy is effectively stored in the phosphor until released upon heating. The more energy the phosphor absorbs, the more free electrons are generated, and more electrons are then trapped, leading to more stored irradiation energy. Within a certain range of dosage, the stored energy is proportional to the dosage. This linear dosage response enables a quantitative measurement of irradiation dosage using a phosphor.

A luminance curve describes luminescence intensity as a function of heating temperature. For electron traps with different depths in a phosphor, the deeper the trap the more strongly electrons are bound; therefore, they require more energy to escape from the trap. When a phosphor is heated, with rising temperatures, electrons in a shallow depth are released first. At a given temperature, the electron release rate reaches a maximum and a peak is formed in a luminance curve. When captured electrons in this type of trap are completely released, a valley is formed in the luminance curve. As temperature continues to rise, deeper traps start to release trapped electrons, and other luminance peaks are formed one by one. Since a LiF(Mg, Ti) crystal has electron traps of different depths, a multi-peak luminance curve appears.

2.1.3 Measurement method. In the qi-field experiments, a model FJ-369 TLD was used to measure an irradiation dosage. The detector consisted of ^{6}LiF and ^{7}LiF pairs, produced by Harsaw, a US company, as TLD-600 and TLD-700, which were square pieces, 3.2 mm × 3.2 mm × 0.9 mm in size. Each ^{6}LiF and ^{7}LiF pair had two TLD-600 pieces and two TLD-700 pieces. The pairs were put in a small polyethylene box and sealed with a black plastic bag. In two out of five experiments, the pairs thus prepared were further put at the center of a hollow polyethylene cylindrical moderator, Φ12.5 cm × 12.5 cm in size. The ^{6}LiF and ^{7}LiF pairs were annealed at 400°C for one hour before actual measurements. The heating procedure for dosage reading was pre-programmed: preheat at 120°C for 10 seconds and read at 295°C for 15 seconds.

A ^{7}LiF (Mg, Ti) crystal is a gamma ray detector and is not sensitive to thermal neutrons while a ^{6}LiF (Mg, Ti) crystal is sensitive to both gamma rays and thermal neutrons. So a ^{6}LiF/^{7}LiF pair forms a gamma-neutron detector to measure a mixed field of gamma rays and neutrons. If the reading from ^{6}LiF normalized by a ^{60}Co standard was denoted R_6, the reading from ^{7}LiF normalized by a ^{60}Co standard denoted R_7 as the apparent reading for gamma rays, then the difference, $R_6 - R_7$, was the apparent reading for neutrons.

The LiF(Mg, Ti) TLD was calibrated for its gamma ray response using a ^{60}Co gamma ray source, producing an excellent gamma ray dosage response of 3% measurement deviation for an irradiation dosage of one roentgen. The detector's neutron response was calibrated using a ^{252}Cf spontaneous-

fission neutron source. For measuring the neutron dosage at one meter from a ^{252}Cf neutron source, the detector yielded a reading with a relative deviation less than or equal to 2%. In the past, this kind of detector was used to measure the gamma ray-neutron mixed field of an accelerator as well as the dosage of cosmic rays. In this type of measurement, the calibration sources used had similar energy spectra to that of the fields to be measured. For measuring the neutron dosage in cosmic radiation, the detector gave an energy-spectrum–related error of less than 1%.

The previous calibration methods were also used in our experiments even though the energy and energy spectrum of the so-called "qi field" were still unknown. The combined experimental error in our thermoluminescence experiments was 30%, excluding the potential errors due to different energy response from the so-called "qi field."

2.2 Results and Discussion

The results are listed in Table 1[22] for the first thermoluminescence measurements during a qi-emitting lecture delivered by Dr. Yan at the auditorium of the College of Political Sciences, Beijing, China, October 8, 1987.

After the first experiment, in which strong positive responses were obtained, four more experiments were carried out in which the responses from lithium fluoride detectors distributed at different locations during a qi-emitting lecture were measured. Measurements were conducted during four qi-emitting lectures delivered by Dr. Yan in October 1987 and the results are listed in Tables 2–5.[22]

On October 21, 1987, Dr. Yan delivered an 11-hour qi-emitting lecture at Red Flag Avenue Auditorium, Beijing. During this lecture, eight sets of lithium fluoride detectors were provided at the following locations: to the left and right side of the podium, one measurement point was provided every eight rows for a total of eight measurement points. At each measurement point, a non-qigong practitioner carried a set of lithium fluoride TLD. Results are listed in Table 2. The dosage for Row 8 Seat 16 was measured six hours after the start of the lecture, while the rest of the data were measured three and one half hours after the start of the lecture.

Table 2[22] shows that TLD to the right side of the podium had a stronger response during Dr. Yan's lecture than those to the left side. The difference between the reading from a ^{6}LiF detector (R_6) and the reading from a ^{7}LiF detector (R_7) decreased with increasing distance to the podium. For the last row, R_7 was greater than R_6.

In the case of irradiation dosage measurement, a ^{7}LiF detector only responds to gamma rays while a ^{6}LiF detector responds to both gamma rays and neutrons; thus a $^{6}LiF/^{7}LiF$ pair form a gamma ray-neutron detector that can measure a mixed field of gamma rays and neutrons. Therefore $R_6 - R_7$ or N is the apparent reading for neutrons. When N is greater than zero, the ir-

TABLE 1
Thermoluminescence Measurements of Qi-Field During a Qi-Emitting Lecture by Dr. Yan at the College of Political Sciences Auditorium, Beijing, China, Oct. 8, 1987[22]

Lecture time: 10/08/1987, 9:00 a.m. to 12:00 noon, 3 hrs in total			
Thermoluminescent dosimeter	Background[a] (milliroentgen)	After 3-hour–long qi-emitting lecture (milliroentgen)	Control[b] (milliroentgen)
^{7}LiF(Mg, Ti)	3.9	51.0	9.5
^{6}LiF(Mg, Ti)	3.5	62.6	5.8

[a] The readings from the dosimeter before the qi-emitting lecture.
[b] The readings from the dosimeter after a 3-hour–long movie at the same place for a different audience.

radiation field is a mixed field of gamma rays and neutrons. Table 2 shows that for Row 8 Seat 16, $R_6 - R_7 = 24.5$ milliroentgen. Similar results were obtained for three subsequent invited qi-emitting lectures by Dr. Yan in Beijing.

The data demonstrate that Dr. Yan's qi-emitting lecture caused two different responses. These two responses were related to the intrinsic characteristics of lectures delivered by Dr. Yan since the participants responsible for the measurements in this experiment were non-qigong practitioners. Since a more definitive detector was not used in association with TLD detectors to measure the qi field, we can not make a statement that Dr. Yan's qi-field contains gamma rays and neutrons. Furthermore, based on the numerous reports of beneficial health effects from the audience of the qi-emitting lectures, it is highly unlikely that the qi field generated by Dr. Yan contains actual gamma

TABLE 2
Measurements During an 11-Hour Qi-Emitting Lecture by Dr. Yan on October 21, 1987, at Red Flag Avenue Auditorium, Beijing, China[22]

	Row	Seat	Distance from Podium (m)	^{7}LiF(R_7) (milliroentgen)	^{6}LiF(R_6) (milliroentgen)	$R_6 - R_7$ (milliroentgen)
Right side of auditorium						
	8	17	11.9	26.7	41.1	14.4
	16	17	17.9	24.7	42.5	17.8
	24	17	23.4	33.2	39.0	5.8
	32	17	28.8	68.5	50.5	−18.0
Left side of auditorium						
	8	16[a]	11.9	11.0	34.5	24.5
	16	16	17.9	7.2	13.1	5.9
	24	16	23.4	19.3	19.9	0.6
	32	16	28.8	26.8	23.2	−3.6

[a] The dosage for Row 8 Seat 16 was measured six hours after the start of the lecture while the rest of the data were measured 3.5 hours after the start of the lecture.

TABLE 3
Thermoluminescence Measurements During a 8.75-Hour Qi-Emitting Lecture by Dr. Yan from 7:00 p.m. on October 24, 1987, to 3:45 a.m. on October 25, 1987, at Tsinghua University Auditorium, Beijing, China[22]

Position	Row	Seat	$^7LiF(R_7)$ (milliroentgen)	$^6LiF(R_6)$ (milliroentgen)	$R_6 - R_7$ (milliroentgen)
Left side	6	2	37.4	48.8	11.4
Left side	6	4	36.2	28.6	
Right side	5	22[a]	39.3	42.9	3.6
Right side	4	11[a]	54.1	59.4	5.3
Control			6.6	8.0	1.4

[a] Each of the $^6LiF/^7LiF$ pair detectors was put at the center of a hollow polyethylene cylindrical moderator Φ 12.5 cm × 12.5 cm in size.

rays and neutrons. Rather, the TLD readings seem to be a phenomenological description of the interaction between a TLD detector and Dr. Yan's qi field. Since the mechanism of interaction is not known at this time, it is difficult to decipher the meaning when $R_6 - R_7 = -18$.

In Table 1, the "control" was a different audience and seems to have provided a different "background" reading which is a factor of two to three higher than the original background of the TLD detectors. It is possible that this was some "human audience" effect on LiF dosimeters. Another possible reason is the residue effect of Dr. Yan's qi field since the measurement was conducted a short time after the original qi-emitting lecture.

In Table 2, both the gamma-like and gamma plus neutron–like effects increase with distance from the podium, while in Table 5 the gamma-like and gamma plus neutron–like effects reach a maximum then decrease with increasing distance. This indicates a particular spatial distribution of qi-field de-

TABLE 4
Thermoluminescence Measurements During a 3.5-Hour Qi-Emitting Lecture by Dr. Yan from 7:00 p.m. to 10:30 p.m. October 28, 1987, at Beijing College of Traditional Chinese Medicine Auditorium, Beijing, China[22]

Position	Row/Seat	$^7LiF(R_7)$ (milliroentgen)	$^6LiF(R_6)$ (milliroentgen)	$R_6 - R_7$ (milliroentgen)
Left side	13/Middle[a]	30.8	34.5	3.7
Left side	23/Middle[a]	35.5	57.5	22.0
Left side	33/Middle[a]	11.5	24.0	12.5
Left side	43/Middle	8.0	17.0	9.0
Right side	13/Middle	66.5	47.0	
Right side	23/Middle	3.5	2.0	
Right side	33/Middle	17.0	8.0	
Right side	43/Middle			

[a] Each of the three $^6LiF/^7LiF$ pair detectors for the front three positions at left side was put at the center of a hollow polyethylene cylindrical moderator, Φ 12.5 cm × 12.5 cm in size.

TABLE 5
Thermoluminescence Measurements During a 7-Hour Qi-Emitting Lecture by Dr. Yan from 1:30 p.m. to 8:30 p.m. on October 29, 1987, at Zhong Guan Cun Auditorium, Beijing, China[22]

Position	Row	Seat	$^{7}LiF(R_7)$ (milliroentgen)	$^{6}LiF(R_6)$ (milliroentgen)	$R_6 - R_7$ (milliroentgen)
Left side	3	2[a]	40.0	42.6	2.5
Left side	13	2[a]	34.3	21.2	
Left side	23	2[a]	46.2	42.4	
Left side	33	2[a]	82.1	88.5	
Right side	3	20	32.0	40.6	8.6
Right side	13	20	41.0	60.6	19.6
Right side	23	20	64.5	55.8	
Right side	33	20	12.5	2.2	

[a] Each of the four $^{6}LiF/^{7}LiF$ pair detectors at the left side was put at the center of a hollow polyethylene cylindrical moderator, Φ 12.5 cm $\times$ 12.5 cm in size.

pending on a particular circumstance. Also in Table 2, both the gamma-like and gamma plus neutron–like effects appear to increase with longer duration of qi emission (6 hours vs. 3.5 hours). This fact seems to suggest the cumulative effects of qi-field of Dr. Yan.

3. Dr. Yan's External Qi Affected the Laser Raman Spectra of Liquid Water and Water Solutions

A Raman spectrum is a vibrational signature of a molecule or complex system. Raman scattering spectroscopy is now a standard spectroscopic tool for determining molecular structures of liquids and solids.[36] For liquids, when an incident monochromatic light beam of frequency ν_0 is scattered off a liquid, the beam now has components of shifted frequency $\nu_0 \quad \nu_i$. The frequency shifts, ν_i, are associated with the intrinsic motion of liquid molecules as determined by its molecular structure. Consequently, Raman spectroscopy is commonly used to probe molecular structural changes of liquids.

In 1986, external qi experiments on water and water solutions were conducted by Dr. Yan at the Chemical Analytical Laboratory of Tsinghua University in collaboration with Lu Zuyin, Li Shengping and their coworkers of Tsinghua University.[24,25] Highly difficult, ultra–long distance external qi experiments were conducted on solutions that are physiologically significant, such as water, 0.9% saline, 50% glucose solution, and 1.5 mg/ml medemycine solution.[24] The Raman spectral results from qi-treated water and water solutions indicated significant molecular structural changes in these liquids. There have been numerous individual case reports on the healing effects of Yan Xin Life Science Technology since the mid 1980s.[1–3,8] The results on liquid water provided the first direct evidence that Yan Xin Life Science Technology healing is physical and external qi from Dr. Yan may cause physical adjustments in the human body since water makes up about 65% of human body weight.

3.1 Experimental

3.1.1 Test samples. Tap water, 0.9% saline, 50% glucose solution and 1.5mg/ml medemycine solution were used as test samples. The total concentration of Ca^{2+}, Mg^{2+} and Na^{+} in tap water was 5.7 mg/l.

3.1.2 Instrument. The measurements were carried out using a laser Raman spectrometer to observe and ascertain whether external qi would affect the test samples.

The instrument used in this experiment was a SPEX 1403 laser Raman spectrometer. Its specifications are:

- Resolution: 0.15 cm^{-1} (Hg 579.1 nm),
- Raman shift range: 5–4,000 cm^{-1},
- Wave number accuracy: 1 cm^{-1} (<4,000 cm^{-1}), and
- Reproducibility: 0.2 cm^{-1}.

3.1.3 Detection conditions. Because the normal performance of analytical instruments can be affected in an *in situ* experiment participated in by Dr. Yan, the samples for the experiments were put in a designated laboratory separated from the analytical instrument to receive external qi. After the emission of external qi, the samples were taken to the laser Raman spectrometric laboratory for examination. To ensure that the instrument functioned properly, well-known standard control samples were frequently examined using the same instrument. The examination conditions were as follows: an argon laser scanner with a detection power of 400 to 500 mW, a wavelength of 5,145 Å, illumination angle at 90° and a scanning speed at 0.5 seconds.

3.1.4 Sample preparation. The samples were prepared before an experiment was started: The solution was pipetted out of a large container and sealed in a test tube. Each kind of solution was divided into two groups, each group containing two to three test tubes. One group was used as test samples to receive external qi; the other group was put aside as control samples.

3.1.5 Control experiment. In each experiment, test samples and control samples were taken from the same large container where the solution for the experiment was prepared to ensure a consistency between the test samples and the controls. The background of each sample was checked before each experiment. Results indicate that the backgrounds of samples taken from the same solution were the same in all measurements.

3.1.6 Procedure for the external qi experiments. Laser Raman spectra were taken from all sealed samples as background. The test samples were put in a designated laboratory. The door was locked so no one could enter into the room while external qi was being emitted. Dr. Yan then started to emit external qi from a long distance at a time agreed upon before the experiment. The distance was usually about seven kilometers, and the duration of the emission

of external qi was about ten minutes. After the emission, the test samples were sent to the laser Raman laboratory for examination. The controls were always kept in the same laser Raman laboratory.

A double blind method was adopted for the experiment. "Double blind" is usually defined as "of, relating to, or being an experimental procedure in which neither the subjects nor the experimenters know the makeup of the test and control groups during the actual course of the experiments."[37] The sealing and measurement of the samples were carried out exclusively by the operator in charge of the instrument in the laser Raman spectrometric laboratory; no one else participated. The operator was not told of the procedure for qi-treatment, was handed samples for measurement and did not know which samples had undergone the qi treatment. During the measurement, besides the operator, no one else was present in the laser Raman laboratory.

3.2 Experimental Results

3.2.1 External qi from Dr. Yan affected structures of all solutions tested. The laser Raman spectra of liquid water, glucose solution, saline, and medemycine solution were all affected by the external qi from Dr. Yan emitted at different distances. The results are summarized in Table 6.[24]

Since a laser Raman spectrum is indicative of the molecular structure of a test solution, a change in the Raman spectrum of the solution indicates a change in its molecular structure.[36] Thus the Raman spectral changes from all test samples show that the external qi from Dr. Yan did indeed affect the molecular structure of liquid water, glucose solution, saline, and medemycine solution.[8,24] In the following we will further discuss the most significant result—the change in laser Raman spectra of liquid water.

3.2.2 The case of liquid water. In their normal form, water molecules maintain a simple configuration: an oxygen atom is in the center and two hydrogen atoms are on the two sides symmetrically. Under ambient conditions, water molecules within liquid water give rise to a strong Raman shift peak at 3,430 cm^{-1} and a weaker peak at 1,635 cm^{-1}, respectively.[38]

The background of tap water was measured about twenty times. The background laser Raman spectra showed that there is a stretching vibrational peak for OH at 3,410 cm^{-1}, and a deformed and weak vibrational peak for HOH at 1,635 cm^{-1} at about 12°C in Figure 1.[24] They compare well with the results from literature on liquid water under similar conditions.[38]

A dramatic change in the Raman spectrum of liquid water was observed for qi-treated water samples. While the characteristic peaks of water molecules still maintained their spectral position and strength, a much stronger broad peak appeared between 1,000 and 3,000 cm^{-1} after qi treatment. A typical spectrum is shown in Figure 2.[24] The center of the new peak is at about

TABLE 6
Summary of YXLST External Qi Experiments on Water and Water Solutions[24]

Date of experiment	Sample(s) involved	Room temp. (°C)	Method of communication	Distance qi emitted from	Result: Spectral changes?
12/22/86	tap water	13		3 m	yes
12/27/86	tap water	12	telephone	7 km	yes
12/31/86	tap water, glucose solution, saline	12		20 m	yes
01/05/87	glucose solution, saline	13	telephone	7 km	yes
01/08/87	tap water, glucose solution, saline	11	telephone	7 km	yes
01/09/87	tap water, medemycine solution	11	telephone	7 km	yes
01/12/87	glucose solution, saline, medemycine solution	10	telephone	1,900 km	yes
01/17/87	glucose solution, saline, medemycine solution	11	telephone	1,900 km	yes
01/20/87	glucose solution, saline, medemycine solution	11	telephone	1,900 km	yes
01/23/87	glucose solution	11	telephone	1,900 km	yes

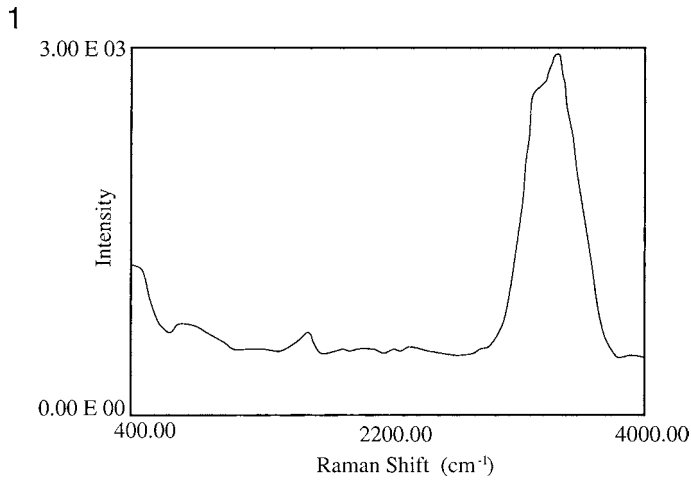
Note: YXLST = Yan Xin Life Science Technology.

2,100 cm^{-1} and the spectral intensity of the peak is about 15 times higher than the strong hydrogen stretching peak at 3,430 cm^{-1}.[9,20] This experiment was repeated several times, and similar results were obtained.[8,24]

After the emission of external qi was completed, the Raman spectra of samples were traced while the analytical conditions were kept the same. Results showed that the unknown peak disappeared within two hours, see Figure 3.[24]

Since both the test samples and controls were tap water from the same container, and the background spectra of the controls were normal, the test samples should have no contamination-induced florescence. Furthermore, the same unknown peak repeatedly appeared in the laser Raman spectra of the test samples after the emission of external qi from Dr. Yan, while it never appeared in the spectra of controls. Thus the appearance of the unknown peak was caused by external qi from Dr. Yan.

These results, for the first time, indicate that the structure of liquid water at the molecular level, most likely the inter-molecule structure, experienced a dramatic change—perhaps some kind of ordering or coherency among individual water molecules. They provided the first direct experimental evidence of the interaction of external qi of Dr. Yan with matter at the molecular level. This discovery was quickly reported in the news media.[39] The qi-effects on the structure and properties of liquid water were also observed using a different technique later in 1991. Changes were repeatedly observed in the ultraviolet (UV) absorption of de-ionized water treated by external qi emitted by Dr. Yan from the US to Beijing, China.[8]



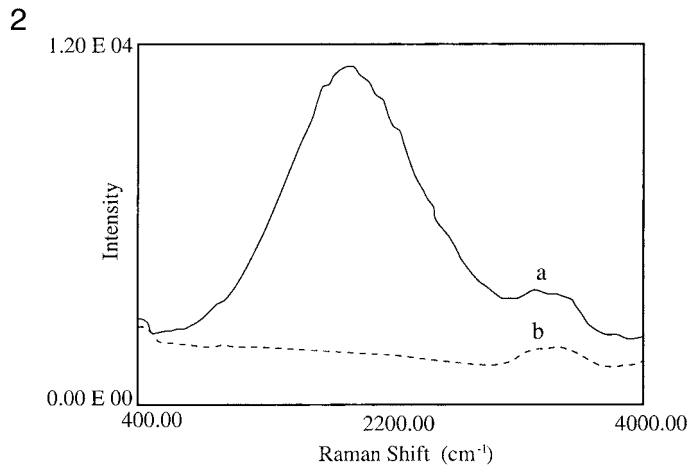


Fig. 1. Raman spectrum of tap water.[24]
Fig. 2. Raman spectra of tap water. a) After the emission of external qi from Dr. Yan Xin; and b) before the emission of external qi from Dr. Yan Xin.[9,24]

There have been numerous individual case reports on the healing effects of Yan Xin Life Science Technology since the mid-1980s.[1–3,8] The results from qi-treated water indicated that Yan Xin Life Science Technology healing may have a physical basis and that external qi from Dr. Yan may cause physical adjustments in the human body since water makes up about 65% of human body weight.

4. External Qi from Dr. Yan Altered the Half-Life of ^{241}Am

The half-life of a radioactive nucleus is determined by its intrinsic properties and is not affected by any ordinary physical conditions or chemical environments such as high temperature, high pressure, strong electromagnetic fields, strong acids, or strong bases. To study whether the external qi can affect the half-life of a radioactive isotope, two independent methods, namely the gamma-ray spectrometry and the solid-state nuclear track detector, were used to measure the gamma-rays and alpha particles, respectively, emitted during the decay of radioactive isotope ^{241}Am. During the course of study, experiments were performed at the IHEP-CAS, with a total of 50 qi-emissions by Dr. Yan.[15,16,28–31] The emissions of external qi by Dr. Yan were performed at short, long and ultra-long distances (2,000–10,000 km) away from the ^{241}Am radioactive source. This project was funded by the Chinese National Natural Science Foundation in its later stage.[15,16]

The decay counting rate of the gamma-rays was affected by up to 10%. The two possible causes are an altered half-life and the nuclear polarization of ^{241}Am due to the external qi. Both would be incredible results, although it was not possible to pinpoint the exact cause based on gamma-ray data. The subsequent solid-state nuclear track detector measurements of alpha particles from ^{241}Am decay yielded changes up to 12% as a result of external qi emissions. These changes, which are not affected by any possible nuclear polarization, confirmed that the external qi from Dr. Yan significantly affected the half-life of ^{241}Am.

4a. γ-Ray Spectrometer Experiments

4a.1 Experimental. Three factors need to be assured to ascertain that a change in the decay counting rate is caused by the external qi. The three factors are the stability of the intensity of the radioactive source, the stability and the precision of the measurement system, and the positional reproducibility of the radioactive source during an experiment.

4a.1.1 ^{241}Am Radioactive source.—^{241}Am was used as the radioactive source in the experiments. Figure 4 illustrates the decay scheme of ^{241}Am. ^{241}Am emits an α-particle with a half-life of 458 years and becomes ^{237}Np in its excited state. The daughter nucleus ^{237}Np then immediately de-excites to its ground state by emitting primarily a 59.6 KeV γ-ray. ^{237}Np has a half-life of 2.2×10^6 years in its ground state emitting an α-particle. Therefore, the contribution of radiation due to this further decay can be safely ignored.

The half-life of ^{241}Am is much longer than the duration of an experiment. The change of its nuclear decay rate is about -0.0006% per day, which is much smaller than the experimental error. Thus the decay rate can be treated as a constant in the experiments. The effect of a given factor, such as external

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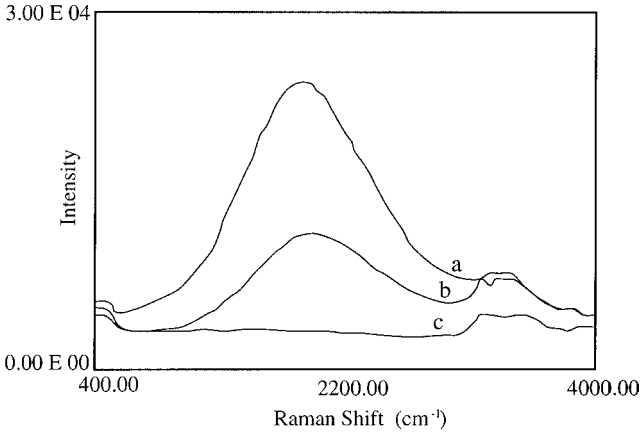

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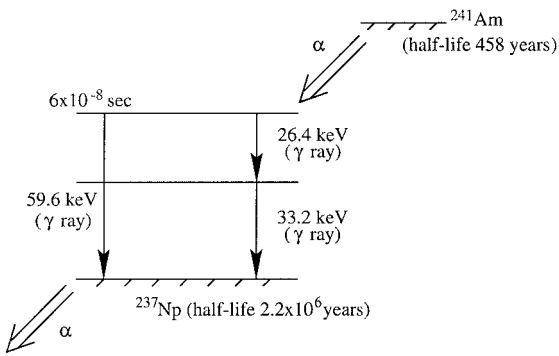

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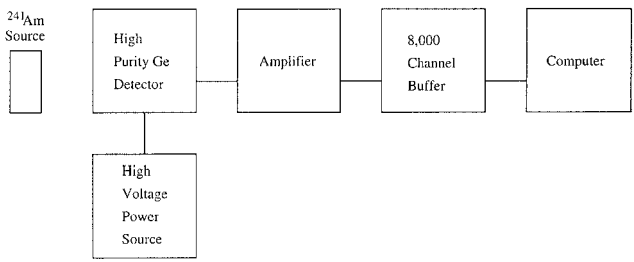

Fig. 3. Raman spectra of tap water after the emission of external qi from Dr. Yan Xin. a) After 0.5 hour; b) after 1.5 hours; and c) after 2 hours.[9,24]
Fig. 4. Decay scheme of ^{241}Am.[30]
Fig. 5. Block diagram of the experimental setup for γ-ray spectroscopy measurement.[30]

qi, on the decay rate of ^{241}Am can be examined by monitoring the decay rate. If the external qi of Dr. Yan can affect the half-life of a radioactive source, a change in its decay rate should then be detected.

The ^{241}Am source was an electroplated standard source produced by the Institute of Atomic Energy, China, in 1981, with a radioactive intensity of 2.16°C and an effective diameter of about 2 mm. The source was sealed in a source box (20 mm × 5 mm) made of Plexiglas.

4a.1.2 γ-ray spectrometer.—A planar high purity germanium (Ge) 8,000-channel γ-ray spectrometer supplied by ORTEC, on-line computer controlled, was used in the experiments. A diagram of the experimental setup is shown in Figure 5. The entire system worked stably. The drift of the amplification in a 24-hour period was less than 0.06%. The system's energy resolution to 59.6 KeV γ-ray was 0.566 KeV. As to the long-term measurement, the drift of the peak position was less than 0.07%. The error of the area under the peak possibly caused by the drift was corrected during data processing. The measuring time of each run was longer than 1,000 seconds. This was to ensure the total counts of the area under the peak to be more than 9.2×10^5, and the statistical precision to be around 0.1%.

4a.1.3 Positional reproducibility of the radioactive source.—The ^{241}Am source was placed at the central axis of the Ge detector, 45 mm away from its surface. The holder of the radioactive source was made of Plexiglas and machined to slide fit to the source box. It was checked that if the radioactive source moved 1 mm forward or backward along the central axis, the induced change of the counting rate was 3.1%. In the first round of experiments, the positional uncertainty was 0.05 mm, inducing an error of 0.16% in the counting rate. This was the major error, which, in combination with the statistical error of the counting rate, produced a total error of the experiment of 0.19%. After the second round of experiments, the radioactive source holder was improved and the positional uncertainty was reduced to 0.07%. The total error became 0.12%.

While the change in the radioactivity of ^{241}Am was being tracked with time after the qi treatment, the source remained on the holder throughout the whole process, and there was no error of reposition. Thus at this stage the total experimental error was only 0.1%.

4a.1.4 The method of qi treatment.—The qi receiving room and the radioactivity measurement laboratory were 10 meters apart. Dr. Yan emitted and directed external qi onto the radioactive source remotely. The ^{241}Am source was placed on a table in the qi receiving room. Dr. Yan emitted external qi to the ^{241}Am source from a wide range of distances (3 m to 2,200 km). After a qi treatment for approximately 20 minutes, a person who was not a qigong practitioner transported the radioactive source to the measurement laboratory and placed it on the source holder.

Six rounds of experiment including a total of 40 sessions of qi treatment were carried out between September 1987 and March 1988. The first two rounds of qi-treatment, four sessions each, were short distance experiments (about 3 meters). The exceptions were the following three sessions: the third one in the first round, and the third and the fourth ones in the second round, were qi-treated by Dr. Yan at about 100 to 200 meters away from the laboratory. The second session in the first round and the third one in the second round were qi-treated while the source was on the holder under measurement. The rest of the four rounds of experiments were at long distances. The qi emissions by Dr. Yan were carried out from the cities of Shenzhen (1,900 km), Guangzhou (1,500 km), Chengdu (1,500 km), and Kunming (2,200 km), each about 1,500 to 2,200 kilometers away from Beijing, where the measurement laboratory was located. The qi emissions were scheduled through telephone in advance.

In January 1989, another round of ultra–long distance experiment was carried out as a reproducibility experiment. Dr. Yan directed the external qi onto the radioactive source six times from Hong Kong (about 2,000 km).

4a.2 Experimental results and discussion. Statistically significant changes were observed in the decay counting rate of ^{241}Am treated by the external qi from Dr. Yan. The experimental conditions and results are listed in Table 7.

The main results are discussed in detail below.

4a.2.1 Decrease in 59.6 KeV γ-ray counting rate.—Figure 6[30] illustrates the results of the first round of experiments, the effects of qi treatments by Dr. Yan about 3 meters away from the radioactive source, which was performed at 9:30 a.m. Beijing time on September 16, 1987. The counting rate of 59.6 KeV γ-rays noticeably decreased. The maximum decrease was 1.35%, seven times the experimental error of 0.19%, representing a statistical significance level of $\alpha \ll 10^{-10}$. It means that the possibility of a statistical decrease in γ-ray counting rate was extremely low and, therefore, the results strongly indicate that the decrease in counting rate was due to the qi treatment.

4a.2.2 Increase in 59.6 KeV γ-ray counting rate.—After the first round of experiments, Dr. Yan attempted to cause increased counting rates instead of decreased counting rates. The results of the second round of experiments, conducted on October 6, 1987, showed that counting rates increased after the qi treatments. The maximum increase was 0.86%, 4.5 times the experimental error as shown in Figure 7,[30] resulting in a statistical significance level of $\alpha < 7 \times 10^{-6}$. The experimental results were also highly reliable, and the increase in the counting rate was very likely due to the qi effect as well.

4a.2.3 Control experiment.—Another ^{241}Am radioactive source with comparable intensity to the test source with qi treatment was introduced as a control. The control source was placed in the measurement holder and its intensity was being monitored while the test source was treated by external qi

TABLE 7
Summary of the Effects of External Qi emitted by Dr. Yan Xin on γ-Ray Decay Counting Rate of Radioactive $^{241}Am^{30}$

Experiment title	# of Qi sessions	Location and distance	Counting rate maxi. change	Error range, σ	Significance S	Significance level, α
Round 1	4 (~20 min. each)	Nearby & 100–200 m	−1.35%	0.19%	7	$\ll 10^{-10}$
Round 2	4 (~20 min. each)	Nearby & 100–200 m	+0.86%	0.19%	4.5	$< 7 \times 10^{-6}$
Comparison	5 (~20 min. each)	Kunming 2,200 km	Control <0.12%	0.12%	<1	>0.32
			Test −1.05%		8.8	$\ll 10^{-10}$
[a]2 Detectors Round 1	8 (~20 min. each)	Shenzhen 1,900 km	Synchronized increase, +10%	0.12%	83	$\ll 10^{-10}$
[a]2 Detectors Round 2	8 (~20 min. each)	Guangzhou 1,900 km	Opposite changes	0.12%	N/A	N/A
[a]2 Detectors Round 3	11 (~20 min. each)	Chengdu 1,500 km	Opposite changes	0.12%	N/A	N/A
Repeat experiments	6 (~20 min. each)	Hong Kong 2,000 km	−1.31%	0.19%	6.9	$\ll 10^{-10}$

[a] The two detectors were placed in the front and back of the radioactive source ^{241}Am at equal distance.

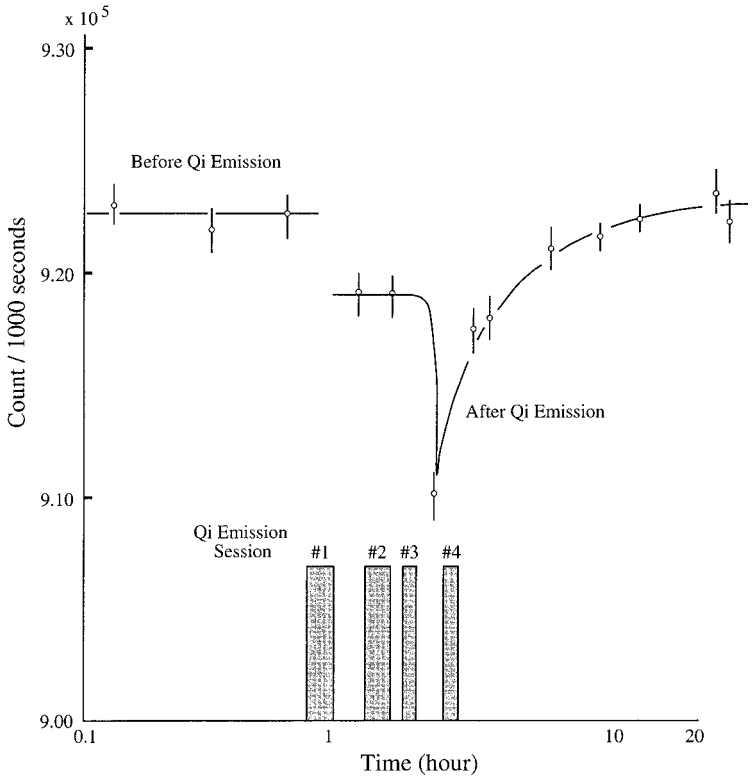

Fig. 6. Results of the first round of external qi experiments by Dr. Yan Xin on ^{241}Am measured by a γ-ray spectrometer.[30]

in the qi receiving room. During the qi treatment to the test source, the counting rate of the control was within the statistical error of 0.12%, indicating that the γ-ray spectrometer system was stable. On the other hand, the γ-ray counting rate of the test source was noticeably changed after the qi treatment, with a maximum decrease of 1.05%. Tracking measurements were done for the experiment source. The results showed that 12 days after the qi treatment, the counting rate of the test source had recovered to and stayed at the level obtained before the experiments, see Figure 8.[30]

4a.2.4 Reliability of the results.—Two factors that might affect the reliability of the results were studied as follows:

a) The stability of the γ-ray spectrometer

Is it possible that external qi interfered with the electronic system of the γ-ray spectrometer, thereby resulting in changes in counting rate? An increased blocking in the electronic system may cause an increased dead time resulting in a counting rate decrease. Similarly, if blocking is reduced, the counting

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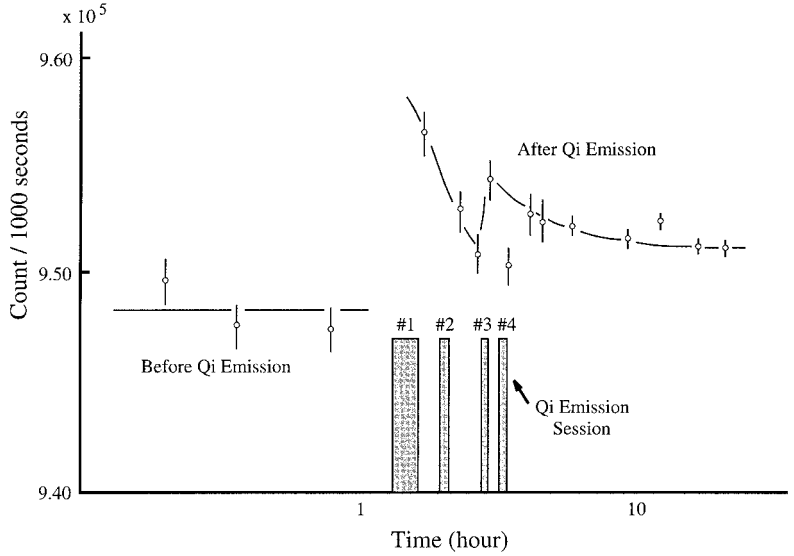

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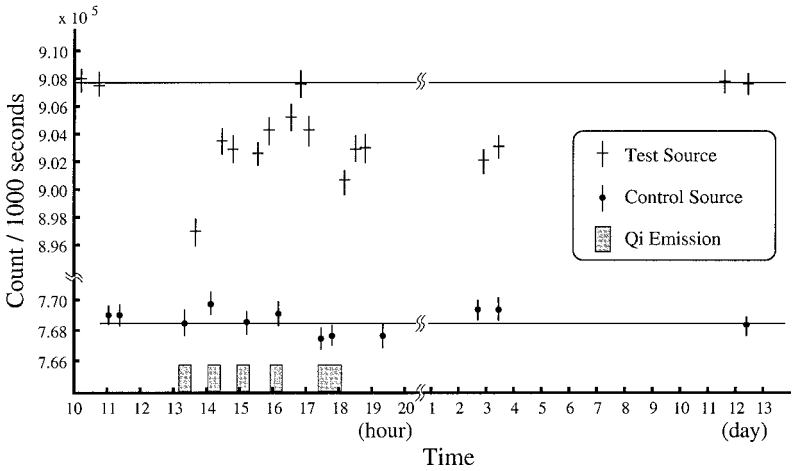

Fig. 7. Results of the second round of external qi experiments by Dr. Yan Xin on ^{241}Am measured by a γ-ray spectrometer.[30]

Fig. 8. Results from the external qi and control experiments by Dr. Yan Xin on the decay counting rate of ^{241}Am.[30]

rate will increase. In each experiment, the monitoring measurement of the dead time began before the qi emission, and ended at 20 hours after the qi-emission. It showed that the working condition of the spectrometer was not

affected by the external qi. On the other hand, a 1.35% decrease of the counting rate would need more than 10 seconds of increase of dead time. It is very obvious that this possibility did not exist.

b) The precision of geometrical position

The radioactive source was removed from the holder for each qi treatment and then put back for the counting rate measurement. Therefore one factor we needed to consider was whether the deviation of the counting rate after the qi treatments were due to the imprecision of this repositioning. In addition, one may think it is also possible that the external qi may simply displace the sample position in the holder, thus causing the changes in counting rate.

To clarify such an uncertainty the so-called double detector experiments were conducted in which a BaF_2 scintillation counter was placed on the back of the radioactive source. If the source were displaced forward, the count of the original detector would increase due to a shortened distance, while the count of the second detector would decrease due to a lengthened distance. The ratio of the increment to the decrement would be a constant, equal to the negative reciprocal of the ratio of the changes in the two distances.

Of the eight sessions of qi emission by Dr. Yan from Shenzhen (about 1,900 km from Beijing) the counting rates from both detectors were synchronously increased. The maximum increase was as large as 10%.

Another two rounds of double detector experiments, with a total of 19 sessions of qi emission, were conducted using another high purity Ge detector instead of the BaF_2 scintillation counter. A new phenomenon was found in these two rounds of experiments. Except for two sessions of qi emission which caused the counting rates to decrease synchronously from the two detectors, nine sessions of qi emission caused the counting rates to change in opposite directions. However, the changes did not follow the changes that would occur if the sample position were changed. The counting rates of the two detectors changed independently of each other, and there was no simple correlation found.

This phenomenon indicated that other possible explanations have to be considered to explain the decay rate change. For example, one possible explanation was that the source was polarized, thus causing an angular distribution in γ-ray emission. However, the polarization of a nucleus usually is only possible under a very low temperature (<0.001 K) with a strong magnetic field ($>3 \times 10^5$ Gauss). Nevertheless, further research was needed to explain the change in the decay counting rate.

4b. Solid-State Nuclear Track Detector Experiments

These experiments were designed to avoid the effects of any possible nuclear polarization that may cause an angular redistribution of γ-rays, thereby changing the counting rate within a given solid angle, although the total

counting rate will not change. Instead of measuring γ-ray photons, α-particles produced from the decay of ^{241}Am source were directly measured with a solid-state nuclear track detector (SSNTD). The emission of α-particles is isotropic, and no angular distribution will be induced by nuclear polarization even if there is any. Therefore, whether the half-life of ^{241}Am is changed can be determined by measuring the intensity of α-particle emission at any solid angle.

4b.1 Experimental.

4b.1.1 Measurement method.—CR-39 plastic was used as SSNTD in the experiments to record the intensity of the α-particles emitted from the ^{241}Am source. When α-particles enter into the SSNTD, they cause radiation damage on an atomic scale along their tracks. After an appropriate chemical etching process, these damaged regions form holes, which could be enlarged under controlled conditions to a scale of tens of microns, and can be observed under an optical microscope. The α-particle counts can be determined by counting the damage holes. The detection efficiency of the CR-39 plastic is 100% for the α-particles from ^{241}Am source.

The changes of the decay counting rate in the previous external qi experiments were usually only 1% to 2%. In order to get a convincing result, the total experimental error should ideally be less than 0.5%. Thus, a great effort and a careful design were taken in reducing experimental errors through all steps in the experiment.

4b.1.2 The detector.—A $1.5 \times 1.5 \times 1.5$ cm^3 cube consisting of 10 thin plates of CR-39 plastic cut from the same piece of material was divided into two semi-cubes, and the ^{241}Am source was placed between the two semi-cubes as shown in Figure 9. Two sets of the semi-cubes were used in each experiment for recording the α-particle intensity before and after a qi emission, respectively. In order to avoid measuring the tracks of α-particles with large incident angles, only the tracks of the top plate and bottom plate were measured, each plate providing about 50,000 tracks. To eliminate the interference from the background tracks of the environmental radioactivity accumulated during the storage of CR-39 plates, the CR-39 plates used were pre-etched. Thus the background tracks were enlarged to a size easily distinguishable from the α-particle tracks by the image analyzer.

In addition, two precautionary measures were taken to resolve any two overlapping tracks. One was to reduce overlapping probability by controlling etching time such that the dimensions of the α-particle tracks were moderate, just large enough to be recognized by the image analyzer. The other was to program the image analyzer so that two tracks of an overlapping area less than 50% of a single track could be distinguished and counted separately. Furthermore, only the relative track count change between before and after a qi treatment matters in this experiment. Since the overlapping probabilities be-

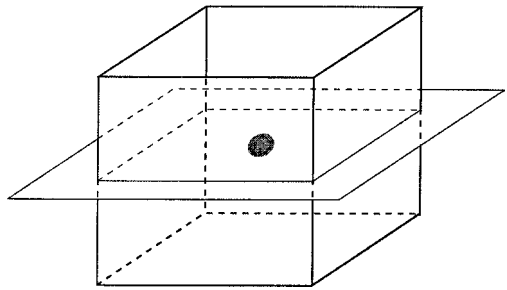

Fig. 9. Two semi-cubes, each containing five CR-39 plates.[31] The black dot in the middle is the ^{241}Am source.

fore and after a qi treatment were the same due to the random emission of α-particles, a small number of tracks overlapping would not affect the results obtained under the same criteria.

4b.1.3 The radioactive source.—The ^{241}Am source was sealed between two polyester films with a thickness of 10 μm. The diameter of the active area was 2 mm. On the hard paper wide frame supporting the polyester films, there was a groove for positioning the two CR-39 semi-cubic boxes on the frame.

The intensity of the ^{241}Am source was only 0.01°C. Such a weak source was specially made at the Institute of Atomic Energy, China, so that the irradiating period could be as long as 1.4×10^3 seconds to reduce any operation timing errors.

After penetrating the covering polyester film, the energy of 5.5 MeV α-particles from the ^{241}Am source was reduced approximately to 4.8 MeV. It was necessary to irradiate in vacuum so that the α-particles could reach every one of the 10 CR-39 plates that makes up the box. The precision of the irradiation time in the vacuum could be controlled within 0.1 second, but the time spent on putting in and taking out the source, and in building up vacuum and exposing to air, could be as long as 7 or 8 seconds. Since the irradiation operation of the experimental and control source were the same, only the difference in operation time between the two sessions of irradiation needed to be considered. The actual time difference was less than 2 seconds, or 0.14% of the total irradiation time.

4b.1.4 α-Particle counting.—Two criteria were used to distinguish the α-particle tracks from the background tracks by a Leitz computerized multifunctional image analyzer. One was the gray scale. In the image analyzer, the gray scale was divided into 100 grades, where the gray scale of the α-particle tracks was No. 44 2 grade, and that of the background tracks was No. 20 5 grade. The other one was area size. The diameter of the α-particle tracks was about 16 μm with less than 10% fluctuation, while the diameter of the back-

ground tracks was about 80 μm. Therefore the area of background tracks was more than 10 times bigger than the area of α-particle tracks.

The structural defects and the scratches on the CR-39 plates formed during its processing appeared as strips. They were rejected by the detecting program. The missing count of the α-particle tracks that fell in the deep damage traces was less than 100 in each plate of the CR-39 detector.

The α-particle tracks crossing the edge of the field of view of the image analyzer were not counted. This rule was applied both before and after a qi emission since only the relative change of the count of the α-particle tracks was important but not its absolute change. The application of the same criteria of rejection to these kinds of random events should not change the measurement results.

The image analyzer automatically analyzed the fields of view one by one for each plate of the detector. Thousands of fields on each CR-39 plate were viewed. A calibration of zero point was performed after each scan line to reduce the error of mechanical displacement. Thus the accumulated error of the displacement was 0.22%. As long as the number of scan fields of view was the same for each measurement, the size of the observed area should be the same.

4b.1.5 Qi emissions.—The first two rounds of experiments had two sessions of qi emission in each round. During the first qi emission, Dr. Yan held the paper box that contained the source for 20 minutes at midnight on November 21, 1989, while the second emission was at 3:00 p.m. the next day. Dr. Yan remotely treated the same source in a laboratory at the IHEP for 20 minutes over a 10-km distance. At 5:00 p.m. the source was then transferred into the CR-39 box, and the irradiation lasted for 1,380 seconds in a vacuum container before the etching process. The control source was put in another CR-39 box for irradiation. The etching conditions for both control and test detectors were the same.

For the next two rounds conducted from December 1990 to June 1991, Dr. Yan emitted qi from the US to a ^{241}Am radioactive source placed in the Positron Physics Laboratory at the IHEP in Beijing. Dr. Yan had informed Prof. Lu Zuyin, one of the participants, in Beijing by telephone one or two days before the qi emission to schedule the exact qi emission time.

4b.2 Results and statistical analyses. A total of four rounds of experiments were conducted. The results are summarized in Table 8. Three rounds yielded statistically significant changes in the count of α-particle tracks with a maximum change of 12%. These results unequivocally indicate that external qi from Dr. Yan affected the half-life of radioactive ^{241}Am.

For rounds 1 and 2, the absolute experimental error was 0.36% and the relative error of the ratio between the α-particle counts of the control and the qi treatment case was 0.55% in total. The change of α-particle counts was +9.5% and −11.3%, or 17.3 and 20.5 times of the total experimental error

TABLE 8
Results of Four Rounds of YXLST External Qi Treatment of Radioactive ^{241}Am Measured With SSNTD Method[31]

Experiment title	# of Qi sessions	Location and distance	Change in α track numbers	Error range, σ	Significance S	Significance level, α
Round 1	2 (~20 min. each)	Nearby & 10 km	+9.5%	0.55%	17.3	$\ll 10^{-10}$
Round 2	2 (~20 min. each)	Nearby & 10 m	−11.3%	0.55%	20.5	$\ll 10^{-10}$
US to Beijing Round 1	1 (~3 hours)	US >10,000 km	+1.9%	1%	1.9	0.08
US to Beijing Round 2	2 (~3 hours each)	US >10,000 km	(1st) +6.8%	0.85%	8	$\ll 10^{-10}$
			(2nd) −12%	0.85%	14	$\ll 10^{-10}$

Note: YXLST = Yan Xin Life Science Technology; SSNTD = solid-state nuclear track detector.

TABLE 9
SSNTD Results of Rounds 1 and 2 YXLST External Qi Experiments on ^{241}Am[31]

α-Particle tracks	First round	Second round
I Control detector		
Upper plate	58,170	61,270
Lower plate	55,673	60,884
Total	113,843	122,154
II Qi treatment detector		
Upper plate	63,190	54,632
Lower plate	61,481	53,780
Total	124,671	108,412
(II − I)/I	+9.5%	−11.3%

Note: SSNTD = solid-state nuclear track detector; YXLST = Yan Xin Life Science Technology.

0.55%, respectively, resulting in a significance level, $\alpha \ll 10^{-10}$, see Table 9.[31] Therefore the experimental results were highly reliable, indicating that the half-life of radioactive isotope ^{241}Am was altered by the external qi emitted by Dr. Yan.

For round 3, the absolute experimental error was 0.7% and the total experimental error was 1.0% for the ratio of (II − I)/I, where I and II denote the number of α-particle tracks in the measured fields of the detectors before and after qi-emission, respectively. However, the ratio (II − I)/I was only +1.85%, corresponding to a significance level $\alpha < 0.064$, see Table 10.[16] Therefore, it was uncertain that this change was caused by external qi.

For round 4, the absolute experimental error was 0.6% and the experimental error for the ratio of counting change was 0.85%. The change ratio before and after the first and second session of qi emission was +6.7% and −12.0%, or 8 and 14 times the 0.85% error, respectively, see Table 11.[16] The significance level was $\alpha \ll 10^{-10}$ for both sessions of the experiment. Therefore, the results were highly reliable. This experiment showed that external qi emitted by Dr. Yan from the US to Beijing at the ultra-long distances had significant effects on the half-life of the ^{241}Am source, with changes of up to 12%.

5. Discussion

The results of scientific Yan Xin Life Science Technology experiments reviewed in this paper are extensive and unequivocal. They clearly illustrate that external qi from Dr. Yan can be observed and measured by precision instruments. These results also confirm the fact that without physically touching a number of substances, Dr. Yan is capable of affecting their structure and properties. The results also reveal that qi, emitted by Dr. Yan to achieve certain effects, can be influenced, disturbed, or controlled by the thoughts of a

TABLE 10
SSNTD Results of Round 3 (US to Beijing) YXLST External Qi Experiments on ^{241}Am[31]

	Number of α-particle tracks (896 fields)	
	Plate #1	Plate #2
Before qi emission (I)	24,101	24,151
After qi emission (II)	24,559	24,588
Change ratio (II − I)/I	+1.9%	+1.8%
Average change ratio	+1.85%	

Note: SSNTD = Solid-state nuclear track detector; YXLST = Yan Xin Life Science Technology.

qi-emitter or people nearby. At the same time, according to different purposes of the experiments, qi can also display different attributes, such as being bi-directional, distance-transcending, self-controllable, reversible and targeting.

For example, the reversibility of qi is demonstrated by the reversion of altered laser Raman spectra of liquid water and the altered decay rate of ^{241}Am after the end of qi-emission. Specifically, the effects can be reverted according to the qi-emitter's wish. However, subsequent experiments also found that the spectral changes induced by qi can be permanent.

The bi-directional effects of qi of Dr. Yan were found in a number of studies. For example, the UV absorption spectrum peak of DNA at 256 nm can be increased (hyperchromic effect) as well as decreased (hypochromic effect).[21] Another example can be found in Dr. Yan's external qi experiment in synthesis gas reaction, where the forward chemical reaction as well as the reverse reaction can be induced at room temperature without any catalyst.[32] Similarly, in the external qi experiment on ^{241}Am reviewed here, the half-life of the radioactive isotope can be increased, 9.5% or −11.3% (Table 9) and 6.7% or −12.0% (Table 11), again showing the bi-directional effect of external qi from Dr. Yan.

As evidenced by the experiments reviewed here, external qi emitted by Dr. Yan was found to interact and influence inanimate matter samples directly at molecular and nuclear levels. These findings, together with the cellular level studies,[10–14] corroborate with the healing effects of Yan Xin Life Science Technology. Still, these preliminary understandings of qi are based on current scientific studies on this subject. However, the current scientific studies on qi are still very limited in scope—many areas have not been studied. And the areas studied have merely focused on ordinary measurable phenomena. In fact, there are possibly many more deeper and even more perplexing phenomena yet to be investigated. Thus the current scientific research on qi is still at the stage of discovery and data collection. Although a number of postulations on the possible mechanisms through which external qi achieves its effects have been proposed,[8] most of them are of natural philosophical genre and have no predictive power. So far we have not yet reached the stage of understanding the mechanisms of the qi effects.

TABLE 11
SSNTD Results of Round 4 (US to Beijing) YXLST External Qi Experiments on $^{241}Am^{31}$

	Number of α-Particle Tracks (1,883 Field)			Change ratio
I Before qi emission	Plate #1 first half 35,482	Plate #2 first half 36,851	Average 36,166.5	(II − I)/I +6.7%
II After first qi emission	Plate #1 second half 38,157	Plate #2 second half 39,049	Average 38,603.0	(III − II)/II −12.0%
III After second qi emission	Plate #3 first half 33,980	Plate #3 second half 33,925	Average 33,952.5	

Note: SSNTD = solid-state nuclear track detector; YXLST = Yan Xin Life Science Technology.

On the other hand, modern scientific methods have limitations to properly monitor and measure external qi of Yan Xin Life Science Technology. The already performed experiments cannot monitor or measure many of the intermediate processes. Presently we can only partially explain some aspects of qi through experimental results. For instance, there is still a lack of scientific means to investigate and determine how external qi from Dr. Yan changes the molecular structures of substances and to determine the intermediate processes for the changes in the decay rate of a radioactive nucleus. Currently, the essential qualities of Yan Xin Life Science Technology and its external qi are still difficult to study in a detailed, qualitative, and quantitative manner. Nevertheless, Yan Xin Life Science Technology has already emerged as an important scientific discipline deserving more substantive exploration.

6. Concluding Remarks

Focusing on Yan Xin Life Science Technology research results in the areas of physical science and technology, we have come to the following conclusions: The external qi emitted by Dr. Xin Yan has been detected by physical detectors and its physical existence has been confirmed. External qi emitted by Dr. Yan has been found to interact with and affect matter at different levels from molecular to nuclear levels. Specifically, the external qi from Dr. Yan significantly affected the molecular structure of liquid water and other water solution as well as the half-life of radioactive isotope ^{241}Am.

Acknowledgements

The work on the measurement of qi field of Yan Xin Life Science Technology was conducted by Dr. Yan of Chongqing Institute of Traditional Chinese Medicine (CITCM), Yaolan Wang and Prof. Zuyin Lu of the Institute of High Energy Physics, the Chinese Academy of Sciences (IHEP-CAS). The work on the effects of external qi of Yan Xin Life Science Technology on water and water solutions was conducted by Dr. Yan of CITCM, Shengping Li, Jianyuan

Yu, Baige Li of Tsinghua University, and Prof. Zuyin Lu of IHEP-CAS. The work on the effects of external qi of Yan Xin Life Science Technology on the half-life of radioactive isotope ^{241}Am was conducted by Dr. Yan Xin of CITCM, Prof. Zuyin Lu, Prof. Runsheng Zhu, Prof. Tianbao Zhang, Haidong Wang and Prof. Guoxiao Ren of IHEP-CAS, and Prof. Kuanghu Hu of the Institute of Biophysics, the Chinese Academy of Sciences. Research works on external qi of Yan Xin Life Science Technology conducted in North America, including the University of California at the San Diego and Los Angeles campuses, Harvard University and Oklahoma University, have been ongoing since the early 1990s and will be reviewed in the future.

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