

Institute of Noetic Sciences

The [Institute of Noetic Sciences \(IONS\)](#) is an American non-profit research institute co-founded in 1973 by astronaut [Edgar Mitchell](#), the sixth man to walk on the Moon. Following a mystical experience during the return journey to Earth, Mitchell conceived of a facility to investigate human potential and noetic experiences (noetic, from the Greek *noesis*, meaning direct knowing, intuition) using the tools and techniques of science. The mission of IONS today is to reveal the interconnected nature of reality through scientific exploration and personal discovery.

The institute is located outside Petaluma, California, on a 200-acre campus that includes a research laboratory and a retreat center called EarthRise. Research is conducted on a range of psychic abilities including [psychokinesis](#), [precognition](#), [proximal and distant healing](#), [mediumship](#), [capacities associated with meditative practice](#), and spontaneous remission. The EarthRise campus is a landscaped retreat dedicated to transformational workshops and other events. The IONS Discovery Lab collects data from workshop attendees to explore the relationship between transformational experiences and objective measures of psi.

Beginnings

The Institute of Noetic Sciences (IONS) had its genesis in the profound experience of Edgar Mitchell following his return home from the 1971 Apollo 14 moon landing, during which he felt an inseparable unity with the cosmos (in yogic lore this experience is called *samadhi*). That experience led Mitchell to a new worldview based on the unity of spirituality and science.

Up until the mid-1990s, IONS funded extramural research under the directorship of Brendan O'Regan. [Marilyn Schlitz](#) (now the chair of the doctoral program of transpersonal psychology at Sofia University and a IONS fellow) started the IONS intramural research lab, a dedicated space for in-house research. [Dean Radin](#) joined IONS as chief scientist in 2001. Other scientists currently carrying out research at IONS include Arnaud Delorme, Loren Carpenter, Helen Wahbeh and Garret Yount.

Marilyn Schlitz

Understanding Remote Influence

An evidential line of research involves probing the influence of distant mental intention on biological targets including people. By 1997 a large number of distant influence experiments had been conducted, of which a large proportion gave positive evidence.^[1] However, several experiments gave negative outcomes, discouraging strong conclusions. Some of these failed replications were produced by sceptical psychologists including [Richard Wiseman](#), based at the University of Hertfordshire, UK.

To determine whether experimenter attitude might be the cause of these outcome differences, a joint project was organized in which two studies of [the sense of being stared at](#) were conducted at Wiseman's laboratory. The only variable was the experimenter (psi-proponent Marilyn Schlitz in the first and Wiseman in the second); the equipment, procedures and participant pool (sixteen subjects for each study) were identical. Schlitz obtained significant effects of intention on electrodermal activity ($p = 0.04$); Wiseman obtained insignificant results.^[2]

The effects were replicated in a second collaboration held at Schlitz's laboratory at the Institute of Noetic Sciences, again employing the same procedures, equipment and participant pool. Schlitz found significant effects ($p = 0.05$) while Wiseman found null results.^[3]

In a third replication, either Wiseman or Schlitz welcomed the participants while the other acted as sender. This design aimed to distinguish between two potential kinds of experimenter effect, one caused by influence on the participants of the experimenter's attitude and behaviour, the other by a (hypothetical) innate psi ability on the part of the experimenter. No conclusion could be drawn from this experiment as every measure was insignificant. Overall, the trio of experiments provide some support to the experimenter psi hypothesis.^[4]

Loving Intention

Schlitz and colleagues investigated the healing effects of loving intention between couples. Thirty-six couples participated in 38 test sessions, one sending compassionate intention to the other (in 22 cases one of the pair was a cancer patient). Overall, there was a highly significant effect of intention on receivers' skin conductance ($p = 0.00009$). Further analyses showed stronger effects among couples trained to give and receive loving intention.^[5]

Dean Radin

Dean Radin is chief scientist at IONS and professor at the California Institute of Integral Studies. He joined IONS in 2001, following appointments at Bell Labs, Princeton University, Stanford Research Institute (SRI), and Edinburgh University.

Johrei

Radin has tested practitioners of Johrei, a Japanese spiritual healing tradition for distant influence effects.^[6] At randomly determined intervals healing intention was directed to brain cells located in sealed flasks. A highly significant effect of intention on target cells was found but no effect on controls. Three random number generators located near the flasks deviated markedly from chance during the healing periods.

Imprinting Food

In a study reported in 2007, Radin and colleagues investigated if food could be 'imprinted' with positive energetic intention. Sixty participants filled in a daily questionnaire in which they rated their mood for seven consecutive days. For half

the days they consumed 'energy' infused chocolate under double-blinded conditions. The results showed that intentionally 'imprinted' chocolate significantly improved mood compared to control chocolate ($p = 0.001$).^[7]

Quantum Experiments

For over four decades the established way to test for psychokinetic ability was by using random number generators (RNGs). That changed in 2008 when Radin tested the idea that human consciousness plays a part in the behaviour of quantum systems, namely in the so-called 'collapse of the wavefunction'.

Radin reported experiments where participants directed their attention away from and towards a sealed double-slit optical system at a distance of three meters. They were given real-time audio feedback based on the amount of wave-like behaviour measured in the interference pattern. Subjects were asked to place their minds at the location of the detector and try to identify which path the photons had taken, in the process reducing the wavelike nature of the light and increasing the particle-like nature. A total of 137 participants were tested in six experiments for a total of 250 test sessions. A very small effect was found, around one part in a thousand, but this is statistically very significant ($p = 6 \times 10^{-6}$).^[8]

The most successful subjects were experienced meditators; non-meditators produced results close to chance. Psychological variables such as openness to experience, proneness to absorption and level of attention (as measured by EEG) appeared to correlate with the degree influence of the interference pattern.

To eliminate the possibility of local influences such as human temperature, Radin designed a follow-up experiment that was conducted online, comprising around 1500 people from 77 countries. The effect size was smaller than that found in the lab, but gave a hugely significant z-score of 5.72 ($p = 1.05 \times 10^{-8}$).^[9]

In the previous experiments, trillions of photons were measured every second. To test the influence of consciousness in a more detailed fashion, a double-slit system was developed with only one photon registering at any one moment. Two hypotheses were tested. In the 'consciousness causes collapse hypothesis' (CCH), attention directed at the system will cause the interference pattern to become less wave-like and more particle-like). In the 'consciousness influence hypothesis' (CIH) attention can either increase or decrease the wavelike nature based on goal-oriented factors such as feedback, subject motivations and experimental set-up. Across a total of six experiments, some were significantly positive and others significantly negative, resulting in an overall mean shift at chance level, but highly significant variance, with a z score of = 3.95, $p = 3.77 \times 10^{-5}$, supporting CIH rather than CCH.^[10]

At IONS, Radin is developing a next generation double-slit system capable of detecting which slit the light goes through, to see whether this knowledge affects the ability of subject's intentions to influence the photon's behaviour.^[11] Radin is seeking to make this research more accessible by creating a cheaper version that can be used by interested investigators.^[12]

Radin is adapting similar mainstream physics experiments to look for signatures of conscious influence. The main focus is on entanglement – the phenomenon of particles with a shared past communicating instantaneously over distance – looking to see if human intention can strengthen these correlations.^[13] This experiment is being replicated in France at the Institute Metapsychique by physicist Peter Bancel.^[14]

Arnaud Delorme

Arnaud Delorme is a principal investigator at the Centre national de la recherche scientifique (CNRS)'s Brain and Cognition Research Center (CerCo) laboratory in Toulouse, France, and a faculty member at the University of California, San Diego. For over a decade he has also been conducting research at IONS, in particular the brains of mediums during readings. He is a long term Zen meditator and has taught brain imaging in India.

Brain Imaging of Mediums

Delorme and colleagues have used EEG to monitor the brain activity of mediums trained at the [Windbridge Institute](#).^[15] Each of six mediums engaged in four mental tasks: thinking about a living person known to them, fabricating a person and thinking about them, listening to information spoken by an experimenter, and mentally interacting with a deceased person they knew. Findings suggested that mental states associated with communication with the deceased were distinctly different from normal waking states.

Death Classification

In a study published in 2020, Delorme and co-workers asked participants to look at 180 facial photographs of deceased individuals and guess the cause of death from three possible options: heart attack; death by firearm; or car accident. Both electroencephalogram (EEG) and electrocardiogram (ECG) data were collected. Overall evidence indicated accurate guesses by participants ($p = 0.004$), but, unexpectedly, this was primarily driven by the performance of control subjects not claiming any mediumistic ability ($p = 0.005$). EEG and ECG differences were found between the mediums and controls with control participants having larger ERP (event related potential) amplitudes following image presentation than mediums. This indicated greater attention and less response inhibition by controls as compared to the mediums – possibly explaining the difference in death classification accuracy.

Loren Carpenter

Loren Carpenter revolutionized the film industry with his ground-breaking image-rendering algorithms that enable amazing visual effects. In 2014 he left Pixar Studios as senior research scientist and joined IONS, where he has been active in developing new detectors to register mind-matter interactions.

Burning Man

The IONS team has carried out research during the annual Burning Man event, an eight-day festival in the Nevada desert that attracts around 50,000 festival goers, futurists and tech gurus. The area is transformed into a dreamscape of surreal architecture, weird exhibits, and strange modes of transport, climaxing with the burning of a huge wooden man and temple. Researchers predicted that the huge focus of attention and release would make a suitable test for field-RNG effects. Over five years from 2012 they collected RNG data during the main events, using a variety of protocols and RNG types, and reported significant evidence of field like effects. They also found intriguing effects based on distance and time. Carpenter developed a quantum number generator (QNG) that samples raw quantum noise and these were used in 2015. They also demonstrated anomalous effects associated with focused intent.^[16]

Quantum Number Generators and Healing

Carpenter's quantum number generators were used in a study of healing intent in which they acted as proxy detectors of mental intention. In research published in 2020, part of a larger trial^[17] of healing carpal tunnel syndrome, QNGs were continuously operated during healing sessions. Using a 'spacetime' metric that captured both spatial and temporal variables, it was found that peak deviation occurred at 24 minutes into the half-hour ($p = 0.00003$). Control measurements eight hours after healing sessions gave chance deviations only. Focused healing intent appears to induce order (described as 'negentropy') in random physical systems.^[18]

Helene Wahbeh

Helene Wahbeh joined IONS in 2019 as director of research. She is also adjunct assistant professor in the department of neurology at Oregon Health & Science University. Wahbeh is a clinically trained naturopathic physician who has published articles on mind-body medicine and posttraumatic stress disorder. Her current research focus at IONS (as of November 2020) is channelling and developing a target system for [remote viewing](#) research.

Channeling Survey

In a report published in 2020, Wahbeh describes the results of an online survey of trance channelers – people who claim to be able to connect to the deceased when in an altered state. Mental health factors, personality characteristics and subjective experience data were collected from 83 participants. Results indicated a general spiritual rather than religious worldview; most started to develop channeling ability in middle-age. Against sceptical assertions, most did not demonstrate any psychotic or dissociative tendencies compared to the normal population: survey respondents reported similar scores on most personality factors, including psychological absorption and empathy to the general population. Channelers reported high levels of belief in life after death, non-local consciousness, and telepathy, and their experiences were interpreted in a positive light, impacting positively on general wellbeing.^[19]

Garret Yount

Garret Yount began formal research in consciousness in 1995, with a small IONS grant to do biofield research. His career at IONS since has followed a similar trajectory with a focus on bridging molecular neurobiology with frontier consciousness research. His latest research (as of November 2020) includes understanding the role of energy healing practices and genomic expression.

Carpal Tunnel Syndrome

A 2020 report by Yount and co-workers describes an exploration of healing intention on carpal tunnel syndrome. This multi-faceted study, which also included probing the ESP experiences and abilities of healers,^[20] involved 190 adults receiving treatment from 17 energy medicine practitioners at close range. Analysis of three weeks of data collection revealed a highly significant reduction in self-reported pain ($p = 5 \times 10^{-6}$) that was not influenced by expectancy effects. Furthermore, well-being, negative emotion and sleep quality all improved significantly on follow-up.^[21]

Spectroscopic Changes

Healers in the carpal tunnel study were used to test the effect of energy healing on spectroscopic changes in water. Indirect testing involved healers wearing a lanyard containing a pendant of water during their carpal tunnel treatments. Direct testing involved healing intention directed to sealed aliquots. Directly treated distilled water resulted in a change in the hydrogen bond wavenumber of 3200cm^{-1} ($p = 0.03$), but indirect healing resulted in more significant wavenumber changes ($p = 0.0004$).^[22]

Mobile Phone Apps

Mobile technology has brought new opportunities to expand psi testing among the general population. IONS has utilized this technology, launching several mobile applications, and others are in development.

Psi-3

Psi-3 is an app developed by Julia Mossbridge and other experts at the Innovation Lab at IONS, connecting the phone to a quantum-based random number generator to enable the user to test for psi ability.^[23]

- In a test for psychokinesis, the user taps the image of a robot to help him grow a heart.
- Conscious precognition is tested by guessing where the image of a hidden guru will appear in the future.
- The user tests for unconscious by clicking happy or sad faces to describe the mood of a photograph. This is followed by the random presentation of a happy or sad word, with a match constituting a hit.

Preliminary results from over 2,000 people reveal significant effects of age and gender across the three tests.^[24] More comprehensive analyses on over 10,000 participants revealed marginally significant below chance PK effects. ($p = 0.05$).^[25]

Testing Online

IONS has utilized mass online psi testing. The Gotpsi online suite of tests has been in operation since 2000. The brainchild of Dean Radin, it tests for psi performance in three major classes of experiments: forced-choice tests, spatial tests, and remote viewing. With over 250 million trials involving 350,000 people, this represents the largest body of psi data ever collected. Only recently have these data been analysed to look for subtle patterns suggestive of psi.^[26]

Location test. The user is asked to guess where on a a blank screen a dot will be placed. After the choice has been made, the webserver randomly picks a location and calculates a probability value for the subjects guess. In eighteen years there were nearly 600,000 sessions, totalling 48.5 million trials. Radin reports a very large positive influence of belief in psi on the outcomes to a hugely significant degree, with a z-score in excess of 5 ($p = 10 \times 10^{-7}$).^[27]

Remote Viewing. The user imagines what image will be presented later and completes a simple binary questionnaire for the presence or absence of features such as people, open spaces and water features. The image is presented and a probability value calculated for the trial. In eighteen years a total of 1.2 million trials were collected, and again, a hugely significant relationship with belief in psi was found ($p = 10 \times 10^{-7}$).^[28]

Forced-choice Tests. Two forced-choice tests were also conducted: a card test in which a target card was chosen from five possible options and a simple three-choice picture guessing task. Over 100 million trials from an estimated 200,000 individuals around the world were collected. The direct hit rate combined across both experiments came close to the expected 20% chance level, but a planned secondary analysis based on previous research resulted in an extremely significant deviation ($p = 10 \times 10^{-26}$.) In this analysis, a pattern in the hitting and missing that had been camouflaged by standard significance tests emerged strongly. Control tests found no evidence for optional stopping, response biases, target sequence dependencies, learning of subtle cues, or other potential artifacts.^[29]

IONS Discovery Lab

The IONS Discovery Lab (IDL) is a long-term research program aiming at better understanding the mechanisms and impact of noetic practices by studying large groups before and after participating in transformational workshops. This will lead to knowledge about what types of noetic interventions work and in what circumstances.

Three questions will be asked:

- What is the relationship between interconnectedness, extended human capacities, and transformation, innovation, and well-being?

- Which experiences or practices maximize these factors or their relationships?
- Which personal characteristics lead a person to benefit from experiences and practices based on these factors?

To answer these questions, data from 5,000 workshop attendees at the IONS EarthRise campus will be collected to enable multidisciplinary research on both the effects of noetic practices and the mechanisms by which those effects take place.

IONSx

IONSx is a fresh venture aimed at demonstrating a reliable and robust psi effect, one that is ideally large enough to render statistical analyses superfluous.^[30] It follows a long line of research and development efforts designed to put psi to practical use.

IONS is creating powerful new protocols to identify conditions that facilitate large psi effects. Ultimately the goal^x is to create a consciousness-dependent switch that responds to mental intention. IONS has dubbed this a ‘moonshot’, bringing together expertise from neuroscience and molecular biology to physics and computer engineering.

The motivation for IONSx is based on key observations:

- Psychic experiences are cross-cultural, and have been reported throughout history and across educational levels.
- The accumulated scientific literature provides compelling evidence for psi.
- This evidence is mostly ignored or ridiculed by mainstream academia with less than 0.001% of academics actively involved in psi research
- Scepticism is fuelled by the widespread adoption of physicalism, a philosophical standpoint in which everything emerges from matter and energy and consciousness is regarded as a product of neurochemical activity. In this scenario psi phenomena are simply impossible because they transcend both space and time – a feat brains cannot achieve.

To help generate scientific recognition of psi phenomena, parapsychologists have proposed to develop

- easily repeatable experiments demonstrating psi under well-controlled conditions
- satisfying theories that are compatible with the existing scientific worldview
- practical applications of psi

Practical Applications of Psi

Practical applications are considered the most propitious towards addressing sceptical objections, although not sufficient to defeat them entirely. They fall within defined categories:

- communication and control: mentally influencing distant physical systems
- healing: the diagnosis and healing of physical and mental health problems

- forecasting: using psi to predict business, sporting and political outcomes
- intelligence: using psi in counter-terrorism, finding missing persons, crime prevention and facilitating scientific discovery
- archeology: using psi to locate archeological artifacts
- [dowsing](#)
- counselling

IONSx will focus on the first three applications.

Communication and Control

IONSx is working on developing a psi switch, an intention-sensitive communications system, based on a four-fold strategy called ATOM.

- A, analysis: establishing the most appropriate analyses
- T, target: identifying the best potential targets (electrical, biological or physical)
- O, operator: use of individuals with high level psi ability
- M, moderators: determining the psychological and physical variables associated with psi success?

Healing

IONS-X researchers are investigating healing. A recent energy medicine pilot study^[51] on carpal tunnel syndrome gave highly significant reductions in pain. Significant effects were also found on magnetic fields, noise from a ‘quantum number generator,’^[52] and conductivity and infrared spectra of water.^[53]

Forecasting and Intelligence

IONS-X is in the process of co-developing a smartphone app dubbed EveryWhen which will aggregate collective impressions about future events for practical purposes.

Spontaneous Remission

In 1993, the Institute published *Spontaneous Remission: An Annotated Bibliography* by Caryle Hirshberg and the then director of research Brendan O’Regan. The authors define spontaneous remission as ‘the disappearance, complete or incomplete, of a disease or cancer without medical treatment or treatment that is considered inadequate to produce the resulting disappearance of disease symptoms or tumor.’ The bibliography covers literature from around the world, assembling the largest database in existence with more than 3,500 references from more than 800 journals in twenty different languages.^[54]

Linda G. O’Bryant Noetic Sciences Research Prize

In late 2022, IONS announced the inauguration of the [Linda G. O’Bryant Noetic Sciences Research Prize](#), established to award USD0,000 annually to researchers or research teams ‘whose research helps extend the science of consciousness beyond

the confines of the materialistic paradigm'.^[35] The first prize, in 2023, was offered for an essay explaining how the non-materialistic model of consciousness (that consciousness is not purely a product of physical or chemical brain activity) could be tested experimentally.

Michael Duggan

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Endnotes

Footnotes

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