

SCIENCE & THE SUPERNATURAL

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DO EINSTEIN'S LAWS PROVE GHOSTS EXIST?

Einstein proved that all the energy of the universe is constant and that it can neither be created nor destroyed. So what happens to that energy when we die? If it cannot be destroyed, it must then, according to Einstein, be transformed into another form of energy. What is that new energy? Could we call that new creation a ghost? When we are alive, we have electrical energy in our bodies. What happens to the electricity that was in our body, causing our heart to beat and making our breathing possible? There is no easy answer to that.

In fact, the answer is very simple, and not at all mysterious. After a person dies, the energy in his or her body goes where all organisms' energy goes after death: into the environment. When a human dies, the energy stored in his or her body is released in the form of heat, and transferred into the animals that eat us (i.e., wild animals if we are left unburied, or worms and bacteria if we are interred), and the plants that absorb us. If we are cremated, the energy in our bodies is released in the form of heat and light. That energy does not exist in the form of a glowing, ghostly ball of electromagnetic energy, but rather in the form of heat and chemical energy.

Many ghost hunters say they can detect the electric fields created by ghosts. And while it's true that the metabolic processes of humans and other organisms actually do generate very low-level electrical currents, these are no longer generated once the organism dies. Because the source of the energy stops, the electrical current stops — just as a light bulb turns off when you switch off the electricity running to it.

Most of the "energy" that any dead person leaves behind takes years to re-enter the environment in the form of food; the rest dissipates shortly after death, and is not in a form that can be detected years later with popular ghost-hunting devices like electromagnetic field (EMF) detectors. Ghost hunters who repeat the claim that Einstein's theories provide a sound basis for ghosts reveal less about ghosts than they do about their poor understanding of basic science. Ghosts may indeed exist, but neither Einstein nor his laws of physics suggests that ghosts are real.

TYPICAL GHOST

"If we want some sort of pattern that carries information about our living cells to persist, then we must specify precisely what medium carries that pattern and how it interacts with the matter particles out of which our bodies are made," Brian Cox, physicist and TV presenter.

He said on a recent edition of his podcast, "We must, in other words, invent an extension to the Standard Model of particle physics that has escaped detection at the Large Hadron Collider (LHC). That's almost inconceivable at the energy scales typical of the particle interactions in our bodies."

IS ANYBODY THERE?

Vic Tandy – an engineer at Coventry University in the UK – once described how he worked for a medical-equipment manufacturer whose laboratory included a room that was believed to be haunted. Sure enough, when Tandy was holed up in that room late one night, he felt uneasy and uncomfortable, and kept seeing and hearing odd things. As it turns out, there was a faulty extraction fan in the room that made the air vibrate at 19Hz. This sort of infrasound has been shown to produce a number of physiological effects, including breathlessness, shivering and feelings of fear. Scientists studying the effects of wind turbines and traffic noise near residences have found that low-frequency noise can cause disorientation, feelings of panic and other effects that could be associated with being "visited" by a ghost.

A popular device used for "contacting" the dead is the Ouija board, which features letters, numbers and usually the words "yes" and "no". Participants put their hands on a pointer that moves and spells out the answers to questions. It's easy to discredit this by repeating the séance when the participants are blindfolded, in which case the pointer often aims to where there are no letters or wanders off the board completely, demonstrating that spirits were not doing the driving. This shows that the participants were executing unconscious involuntary movements – a phenomenon called "ideomotor action" by physiologist William Carpenter in 1852. He wrote that "honest intelligent people can unconsciously engage in muscular activity that is consistent with their expectations" and believed this was the principle that explained the underlying mechanism of a variety of psychic phenomena such as Ouija boards, moving tables and the divining rod