



Fusion energy: will experiments in ball lightning provide the key?

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In the vast and empty hangar where the first atomic bomb was assembled, a man-made lightning storm is now being unleashed. The voltages of these lightning bolts—20 million volts—are the highest discharge voltages ever produced by man.

Project Tesla, headed by Robert K. Golka and Dr. Robert W. Bass, is an attempt to artificially duplicate one of nature's rarest and most terrifying phenomena—ball lightning. The experiments are based upon the unpublished notes of Nikola Tesla, who, in 1899 at his Colorado Springs laboratory, used a secret *magnifying transmitter* to produce 1.5-in. lightning balls that floated for 30 sec.

The energy surplus

Many physicists, including the eminent Dr. James Tuck, founder of the U.S. fusion program, believe that the lightning ball holds the key to a fantastic,

cheap and endless energy source—fusion power, or the energy source used by the stars and sun. The fuel is deuterium, or heavy water, that can be inexpensively extracted from ocean water to provide mankind

Highest voltage continuously oscillating damped-wave lightning generator (ever produced by mankind) creates a current of 1100A at 12.5 MV! Subsequent improvements raised this to a peak current of 2200A at 20 MV. Further improvements could conceivably produce bolts that exceed natural lightning (100 MV)!



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ENCLOSURE

with millions of years of

Unfortunately, progress in fusion research, which has centered on magnetic confinement and laser implosions, has been frustratingly slow and full of unpleasant surprises; and scientists warn that success could be as far off as four decades! But if these promising experiments under way at Wendover, UT, are successful, new

unexpected confinement technique could unleash this energy source.

In search of nature's secrets...

Ball lightning, a glowing sphere of red, orange or yellow plasma, often materializes during lightning storms and floats about, often against a strong wind. The ball may bounce along the floor and, on occasion, the sphere will "slip" through glass without breaking it. (The author recently investigated one such case in a hospital, in which the lights were damaged.) At times it materializes inside or even outside aircraft in flight, seemingly impervious to deformation from the wind force.

Witnesses of ball lightning have included such notables as Niels Bohr and Victor Weisskopf, the Director of the MIT Physics Department. Another witness was Secretary of State Dean Acheson, who reported seeing it cross the breakfast table aboard the presidential plane.

The accidental formation of ball lightning has been observed about once per year for the past decade inside building 985 at Hill AF Missile Radiographic Facility, UT. The volleyball-size fireballs drop out of the space adjacent to the high voltage supply of the 25 Mev linear accelerator.

The ball of blue fire floats down to the floor, rolls around randomly and then rises again to the power-supply area where it dissipates without detectable damage. Despite troubleshooting, no explanation can be found for this occurrence.

On one occasion, lightning struck the building—a large concrete structure with a 60-ft. ceiling inside—and, simultaneously, an intense sphere of fire the size of a tennis ball formed above the conduit on the wall at

shoulder level. It moved along the wall for a distance of some 30 ft., floated out and around the neck and shoulders of a person standing near the wall, moved back to the wall and continued along for several feet until it intercepted a duplex outlet on the conduit. At this the ball exploded, causing electrical damage throughout.

A new state of matter?

No presently known laws of physics can account for the stability and bouncing of fireballs unless it includes surface tension. This hitherto unobserved state of matter is a new concept, since plasmas have never previously exhibited such strong surface tension. Also, presently known laws cannot account for the propulsion.

Project Tesla has developed a rigorous mathematical model of the lightning ball's absolute, asymptotic, fluid-dynamical stability. Initial computer studies indicated a density range of 10^{12} - 10^{14} cm⁻³, with a temperature of 10^5 - 10^6 °K—or seven times hotter than the sun! □