

69TH ESSAY: EXPLANATION OF LOW ENERGY NUCLEAR REACTIONS

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Low energy nuclear reactions (LENR) provide a new source of power for humankind but their explanation has remained elusive for a quarter century, there being many theories of how this limitless source of energy originates. Following upon a conference in Zurich last autumn I was asked to provide an explanation in terms of ECE theory, so I developed it in UFT226 to UFT231 with co authors Horst Eckardt and Douglas Lindstrom. The results were read immediately around the world as the notes for each paper appeared, firstly on my blog, now read in one hundred and fifty countries, and then in the completed UFT papers on www.aias.us. My co authors did valuable work in these papers, in providing data, and in graphical analysis. Dr Horst Eckardt attended the conference in Zurich. Subsequently about fifteen full scale industrial plants based on LENR have been ordered, and the web is saturated with new LENR discoveries and inventions being made almost every day.

For a long time I did not apply theory to cold fusion, another name for LENR, because the subject was so controversial and the data were being challenged continuously. However, the Zurich conference marked a turning point in the attitude of most scientists towards cold fusion, now known as LENR, so that it has become widely accepted. Obviously, commercial plants and other devices based on LENR are being sold, so it is difficult to claim that they do not exist. When the horseless carriage arrived it is little known that the horse was hidden in the boot, and the luddites kept on smashing the spinning jennies. Similarly, the Alex Hill devices are a great commercial success in Mexico, and are being used every day by leading Mexican corporations with plans for export. Obviously they exist, and the world is not flat. Britain has been left far behind in the development of these devices despite the fact that Pons and Fleischman were British scientists, the same old story. As a U. S. dual citizen I can see the weaknesses clearly. At least the theory of LENR was developed in Wales, with international help of the highest calibre.

The explanation that gradually developed in UFT226 to UFT231 is based on the Schroedinger limit of ECE theory using calculations of the transmission coefficient of quantum tunnelling. It was shown in several ways that LENR is feasible. Initially I consulted Atkins, "Molecular Dynamics" to refresh my memory about quantum tunnelling, but Horst Eckardt and myself found using computer algebra that Atkins' elementary algebra is incorrect. So I consulted Merzbacher, a U. S. Citizen who wrote a well known textbook "Quantum Mechanics". We tested the theory of this book by computer algebra and it is correct. Computer algebra should always be used to check hand calculations. The fact that Oxford University Press publishes mistakes is just that - a fact. At least these mistakes should be admitted and fixed as errata, and not covered up with arrogance and false and

ignorant accusations.

This explanation of LENR is intended only to be qualitative, but it does show that the LENR process is entirely possible. In these papers a mechanism was developed to explain the fact that energy is available in spacetime and can be transferred to a device for commercial and domestic use. This theory in UFT226 to UFT231 was an immediate success worldwide as we can see from feedback to www.aias.us and its blog. The economic implications of LENR are so important that all effort should be put in to the development of LENR devices - otherwise the younger generations are going to face a grim future. Those who describe LENR and the Alex Hill devices as perpetual motion should be condemned as murderers of posterity. They wallow in ignorance at best, falsify and deceive at worse. The basis of general relativity is that the invariant of the infinitesimal line element is the rest energy. Obviously, this is energy, and it is a product of spacetime represented by the geometry of the infinitesimal line element expressible as the metric. Any good undergraduate knows this, and those who would describe general relativity as perpetual motion would be laughed out of a freshman class. So a combination of a standard Schroedinger calculation and entirely standard energy from the metric was used to explain LENR straightforwardly, and immediately generated intense international interest.

It is stressed that this calculation is intended to explain qualitatively the principles of LENR, a more detailed and quantitative calculation would need the use of computational quantum chemistry combined with the theory of energy from the metric. For details please consult UFT226 to UFT231 on www.aias.us and all their background notes. All of this material is being studied intensely around the world. That is a fact based as usual on detailed monitoring of feedback to the www.aias.us site and its blog. So any kind of anthropomorphic guesswork about impact is a thing of the past. As usual for ECE theory, the impact is immediate and astounding. Only a few lurking luddites stalk the spinning jennies. Only a fool would describe reality as perpetual motion.