

TOCOMAK talk presented by Dr Ian Farley 21st September 2021

Dr Farley, a consultant on radioactivity and their biological effects gave an informative talk on the long, and so far failed, search for viable nuclear fusion power.

The nuclear power we have used for the past 60 years is based on fission using uranium. Fusion tries to use hydrogen at very high temperatures in a doughnut like structure, Tokamak, to make helium and release energy. The history of attempts to do so, despite billions of dollars spent over many decades, has yet to achieve a sustained power producing system.

The main issues are controlling and sustaining a fusion reaction because we have yet to find materials which can withstand the radiation bombardment by very high energy neutrons which are produced by fusion. The transfer of the energy produced requires molten Lithium to heat water to drive steam turbines, a highly explosive system should there be any structural failures separating the two.

The claim that there is no radiation risks from fusion is simply not true. Radioactive steam is produced when the system works for the few seconds so far attained and the body of the reactor becomes, like fission (uranium) reactors highly radioactive. We still have no systems to deal with this.

Despite the billions spent over the five decades, no excess power has ever been produced to balance the energy needed to initiate a fusion reaction. The promise has always been the engineering solutions will come tomorrow, and tomorrow and...

The irony is that THE fusion reactor, conveniently sited in the sky, the sun, produces, free of charge, many thousands of times the energy we need. The money thrown at fusion should be invested in cheap, clean renewables which are available now, with no radioactive risk, and many times the employment potential of Tokamak.

When asked what nuclear power is, Albert Einstein replied 'a hell of a way to boil water'.

Please see Dr Farley's slide presentation for further information and links as well as <https://cnduk.org/resources/nuclear-fusion-not-the-answer-to-our-energy-needs/>

Stuart Galey