

Liquid Metal Fusion

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Liquid metal fusion is a proposal for using the principles that create high temperatures in sonoluminescence in an attempt to create the temperatures necessary for fusion. The materials used in sonoluminescence are water and air. Energy is transferred to an air bubble by applying sound waves to the water. The temperatures created are not high enough for fusion, but they are high enough that some people have envisioned stimulating a fusion reaction through some kind of similar means.

It seems probable that bubbles of gas that were at a higher temperature when they were initially compressed with sound waves would reach a higher temperature. It also seems probable that a denser and more rigid liquid would be more effective at compressing the gas bubbles.

It would be much more difficult to determine what was going on inside the gas bubbles with such a system, but it would still be relatively simple to determine whether or not fusion had occurred.

The cost of conducting the experiment would be very small compared to the amounts that have already been spent on other fusion experiments, and if the experiment were successful, building a commercial version should be relatively quick and cheap.

The drawing on the next page is a schematic representation of a proposed experiment. It would be desirable, but not absolutely necessary to add some instrumentation to detect the position of the bubbles. The solenoids could generate a weak audio pulse. The reflections from that pulse could be analyzed to give the position and size of the gas bubble. When the bubble had risen to the center of the liquid metal container, a stronger pulse designed to set off fusion could be generated.

