

# NEWS

## From GEORGIA TECH'S ENGINEERING EXPERIMENT STATION

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GERMAN 40's WAR TECHNOLOGY

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BASIS OF GEORGIA TECH ENERGY STUDY

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ATLANTA, GA....Technology used in the German V-1 flying bomb of World War II could possibly be used for more efficient industrial and commercial power generation, says a Georgia Tech aerospace engineer.

Dr. Ben Zinn of Tech's School of Aerospace Engineering says that a device similar to that used to propel the V-1 rocket, or Buzz Bomb, could be developed for power generation. The device, called a pulsating combustor, could replace combustors now used in power plants and industry, Zinn says.

A combustor is a metal chamber in which a liquid, gas or solid fuel is burned to produce energy for heating water. A typical example would be the boiler used by most industrial plants.

The V-1 combustor consisted of a steel tube attached to the rocket. Propulsion was the result of a "pulse-jet" whose thrust came from a series of small explosions that resulted from the periodic combustion of oxygen with a fine liquid fuel spray within the steel tube.

The uniqueness of the V-1 combustor, and pulsating combustors in general, is related to its mode of operation, Zinn says. It involves the periodic rise and drop of the combustor pressure above and below atmospheric conditions which, in turn, results in the natural movement of air needed for combustion through the system. This eliminates the need for the often expensive and

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energy-consuming auxiliary equipment presently necessary in combustors now used in utilities and industrial firms.

Zinn says pulsating combustors offer many other potential advantages over conventional steady state types. For example, according to available literature, pulsating combustors have a higher combustion intensity, improved heat transfer characteristics, do not require the pulverization of coal as do conventional combustors, have reduced emission levels and have reduced slag formation on the walls which means less shut down time for cleaning and repair.

Zinn, together with aerospace engineers B.R. Daniel and T.S. Sheshadri, intends to develop a pulsating combustor that will use coal as its primary fuel. He says that work has been done on using liquid and gaseous fuels for power generation with this type of combustor, but almost no work has been done on the use of coal.

The major objective of Zinn's DOE-funded project is to develop the pulsating combustor to a sophisticated enough stage to properly evaluate its potential as a major tool for power generation.

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