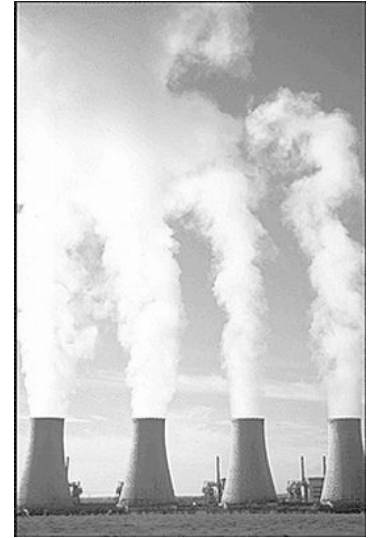


# Physics Department Seminar

Friday February 17<sup>th</sup>, 2006

11:00am in PhSc 105

## “Fast Neutron Reactors: The Ultimate Free Lunch?”



Dr. Michael McGie

Professor Emeritus

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### Abstract:

There are 440 nuclear reactors on Earth, and they produce 18% of the Earth's electrical energy. All but two of these reactors use slow neutrons, which cannot cause fission in U-238 or in most of the transuranic isotopes that accumulate in slow neutron reactors. Advocates of fast neutron reactors make three claims: (1) Fast neutron reactors can produce 100 times as much energy per kilogram of uranium. (2) Fast neutron reactors would produce only 1% as much nuclear waste and can even “burn” the accumulated waste of slow neutron reactors.

(3) Fast neutron reactors can be made almost completely safe from catastrophic accidents. If advocates of fast neutron reactors are correct we have a safe, environmentally benign, inexhaustible supply of energy. We will examine these claims.