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(54) **ANNULAR NUCLEAR FUEL PELLETS WITH DISCRETE BURNABLE ABSORBER PINS**

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(57) **ABSTRACT**

An annular nuclear fuel pellet in combination with an inserted discrete neutron absorber. The pellet/absorber may be compatible with existing or future nuclear fuel assembly designs. The concept involves the use of nuclear fuel (e.g., uranium dioxide or uranium silicide) formed into annular fuel pellets which can then have a discrete absorber material inserted into the center of the pin. Preferably, the discrete absorber is a non-parasitic absorber. The resulting pellet/absorber can then be stacked into a fuel rod which is arranged in a nuclear fuel assembly. Dimensioning of the annular pellet and absorber and selection of the absorber material and density can allow the concept to be tailored for various nuclear fuel applications.