

**CPC****COOPERATIVE PATENT CLASSIFICATION****G21D**

**NUCLEAR POWER PLANT** ( electric or magnetic analogue computers, e.g. simulators, for nuclear physics [G06G 7/54](#) )

**G21D 1/00**

**Details of nuclear power plant** ( control [G21D 3/00](#) )

## G21D 1/003

- . { **Nuclear facilities decommissioning arrangements** ( decontamination arrangements, treating radioactively contaminated material [G21F 9/00](#) ) }

## G21D 1/006

- . { **primary side of steam generators** ( secondary side of steam generators [F22B 1/00](#), [F22B 35/00](#) or [F22B 37/00](#) ) }

## G21D 1/02

- . Arrangements of auxiliary equipment

## G21D 1/04

- . Pumping arrangements ( within the reactor pressure vessel [G21C 15/24](#); electrodynamic pumps [H02K 44/02](#) )

**G21D 3/00**

**Control of nuclear power plant** ( control of nuclear reaction in general [G21C 7/00](#) )

## G21D 3/001

- . { **Computer implemented control** }

## G21D 3/008

- . { **Man-machine interface, e.g. control room layout** }

## G21D 3/02

- . Manual control

## G21D 3/04

- . Safety arrangements ( **emergency protection of reactor** [G21C 9/00](#) )

## G21D 3/06

- .. responsive to faults within the plant ( **in the reactor** [G21C 9/00](#) )

## G21D 3/08

- . Regulation of any parameters in the plant

## G21D 3/10

- .. by a combination of a variable derived from neutron flux with other controlling variables, e.g. derived from temperature, cooling flow, pressure

## G21D 3/12

- .. by adjustment of the reactor in response only to changes in engine demand

## G21D 3/14

- ... Varying flow of coolant

## G21D 3/16

- ... Varying reactivity

## G21D 3/18

- .. by adjustment of plant external to the reactor only in response to change in reactivity

**G21D 5/00**

**Arrangements of reactor and engine in which reactor-produced heat is converted into mechanical energy**

## G21D 5/02

- . Reactor and engine structurally combined, e.g. portable

## G21D 5/04

- . Reactor and engine not structurally combined

## G21D 5/06

- .. with engine working medium circulating through reactor core

## G21D 5/08

- .. with engine working medium heated in a heat exchanger by the reactor coolant

- G21D 5/10 . . . Liquid working medium partially heated by reactor and vaporised by heat source external to the core, e.g. with oil heating
- G21D 5/12 . . . Liquid working medium vaporised by reactor coolant
- G21D 5/14 . . . . and also superheated by reactor coolant
- G21D 5/16 . . . . superheated by separate heat source
  
- G21D 7/00** **Arrangements for direct production of electric energy from fusion or fission reactions ( obtaining electric energy from radioactive sources [G21H 1/00](#) )**
  
- G21D 7/02 . using magneto-hydrodynamic generators { ( [MHD-generators with thermodynamic cycles \[F02C 7/00\]\(#\)](#); magneto-hydrodynamic generators [H02K 44/08](#) ) }
  
- G21D 7/04 . using thermoelectric elements { or [thermoionic converters](#) } ( structural combination of fuel element with thermoelectric element { or with [thermoionic converters](#) } [G21C 3/40](#) { , [G21H 1/10](#) } ; thermoelectric elements per se [H01L 35/00](#), [H01L 37/00](#) )
  
- G21D 9/00** **Arrangements to provide heat for purposes other than conversion into power, e.g. for heating buildings**
  
- G21D 2003/00** **Control of nuclear power plant ( control of nuclear reaction in general [G21C 7/00](#) )**
  
- G21D 2003/001 . { [Computer implemented control](#) }
- G21D 2003/002 . . Core design; Core simulations
- G21D 2003/004 . . Fuel shuffle simulations
- G21D 2003/005 . . Thermo-hydraulic simulations
  
- G21D 2003/007 . Expert systems
  
- G21D 2010/00** **Protection of plant or environment from mutual hazards : means for monitoring the effects of plant or environment upon each other**