

# CPC COOPERATIVE PATENT CLASSIFICATION

## G PHYSICS (NOTES omitted)

### NUCLEONICS

## G21 NUCLEAR PHYSICS; NUCLEAR ENGINEERING

## G21D NUCLEAR POWER PLANT

### WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

- |             |                                                                                                                                                                 |             |                                                                                                                                                                                                                                                                                                                     |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1/00</b> | <b>Details of nuclear power plant</b> (control <a href="#">G21D 3/00</a> )                                                                                      | 5/08        | . . with engine working medium heated in a heat exchanger by the reactor coolant                                                                                                                                                                                                                                    |
| 1/003       | . {Nuclear facilities decommissioning arrangements (decontamination arrangements, treating radioactively contaminated material <a href="#">G21F 9/00</a> )}     | 5/10        | . . . Liquid working medium partially heated by reactor and vaporised by heat source external to the core, e.g. with oil heating                                                                                                                                                                                    |
| 1/006       | . {primary side of steam generators (secondary side of steam generators <a href="#">F22B 1/00</a> , <a href="#">F22B 35/00</a> or <a href="#">F22B 37/00</a> )} | 5/12        | . . . Liquid working medium vaporised by reactor coolant                                                                                                                                                                                                                                                            |
| 1/02        | . Arrangements of auxiliary equipment                                                                                                                           | 5/14        | . . . . and also superheated by reactor coolant                                                                                                                                                                                                                                                                     |
| 1/04        | . Pumping arrangements (within the reactor pressure vessel <a href="#">G21C 15/24</a> ; electrodynamic pumps <a href="#">H02K 44/02</a> )                       | 5/16        | . . . . superheated by separate heat source                                                                                                                                                                                                                                                                         |
| <b>3/00</b> | <b>Control of nuclear power plant</b> (control of nuclear reaction in general <a href="#">G21C 7/00</a> )                                                       | <b>7/00</b> | <b>Arrangements for direct production of electric energy from fusion or fission reactions</b> (obtaining electric energy from radioactive sources <a href="#">G21H 1/00</a> )                                                                                                                                       |
| 3/001       | . {Computer implemented control}                                                                                                                                | 7/02        | . using magneto-hydrodynamic generators {(MHD-generators with thermodynamic cycles <a href="#">F02C 7/00</a> ; magneto-hydrodynamic generators <a href="#">H02K 44/08</a> )}                                                                                                                                        |
| 3/002       | . . {Core design; core simulations; core optimisation}                                                                                                          | 7/04        | . using thermoelectric elements {or thermoionic converters} (structural combination of fuel element with thermoelectric element {or with thermoionic converters} <a href="#">G21C 3/40</a> {, <a href="#">G21H 1/10</a> }; thermoelectric elements per se <a href="#">H01L 35/00</a> , <a href="#">H01L 37/00</a> ) |
| 3/004       | . . {Fuel shuffle simulation; fuel shuffle optimisation}                                                                                                        |             |                                                                                                                                                                                                                                                                                                                     |
| 3/005       | . . {Thermo-hydraulic simulations}                                                                                                                              | <b>9/00</b> | <b>Arrangements to provide heat for purposes other than conversion into power, e.g. for heating buildings</b>                                                                                                                                                                                                       |
| 3/007       | . {Expert systems}                                                                                                                                              |             |                                                                                                                                                                                                                                                                                                                     |
| 3/008       | . {Man-machine interface, e.g. control room layout}                                                                                                             |             |                                                                                                                                                                                                                                                                                                                     |
| 3/02        | . Manual control                                                                                                                                                |             |                                                                                                                                                                                                                                                                                                                     |
| 3/04        | . Safety arrangements (emergency protection of reactor <a href="#">G21C 9/00</a> )                                                                              |             |                                                                                                                                                                                                                                                                                                                     |
| 3/06        | . . responsive to faults within the plant (in the reactor <a href="#">G21C 9/00</a> )                                                                           |             |                                                                                                                                                                                                                                                                                                                     |
| 3/08        | . Regulation of any parameters in the plant                                                                                                                     |             |                                                                                                                                                                                                                                                                                                                     |
| 3/10        | . . by a combination of a variable derived from neutron flux with other controlling variables, e.g. derived from temperature, cooling flow, pressure            |             |                                                                                                                                                                                                                                                                                                                     |
| 3/12        | . . by adjustment of the reactor in response only to changes in engine demand                                                                                   |             |                                                                                                                                                                                                                                                                                                                     |
| 3/14        | . . . Varying flow of coolant                                                                                                                                   |             |                                                                                                                                                                                                                                                                                                                     |
| 3/16        | . . . Varying reactivity                                                                                                                                        |             |                                                                                                                                                                                                                                                                                                                     |
| 3/18        | . . by adjustment of plant external to the reactor only in response to change in reactivity                                                                     |             |                                                                                                                                                                                                                                                                                                                     |
| <b>5/00</b> | <b>Arrangements of reactor and engine in which reactor-produced heat is converted into mechanical energy</b>                                                    |             |                                                                                                                                                                                                                                                                                                                     |
| 5/02        | . Reactor and engine structurally combined, e.g. portable                                                                                                       |             |                                                                                                                                                                                                                                                                                                                     |
| 5/04        | . Reactor and engine not structurally combined                                                                                                                  |             |                                                                                                                                                                                                                                                                                                                     |
| 5/06        | . . with engine working medium circulating through reactor core                                                                                                 |             |                                                                                                                                                                                                                                                                                                                     |