

# CPC COOPERATIVE PATENT CLASSIFICATION

## G PHYSICS (NOTES omitted)

### NUCLEONICS

## G21 NUCLEAR PHYSICS; NUCLEAR ENGINEERING

## G21K TECHNIQUES FOR HANDLING PARTICLES OR IONISING RADIATION NOT OTHERWISE PROVIDED FOR; IRRADIATION DEVICES; GAMMA RAY OR X-RAY MICROSCOPES

### NOTE

In this subclass, the following term is used with the meaning indicated:  
"particle" means a molecular, atomic or subatomic particle

### WARNINGS

- The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:  
[G21K 3/00](#) covered by [G21K 1/10](#)
- 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>Arrangements for handling particles or ionising radiation, e.g. focusing or moderating (production or acceleration of neutrons, electrically-charged particles, neutral molecular beams or neutral atomic beams <a href="#">H05H 3/00</a> - <a href="#">H05H 15/00</a>)</b> | <b>1/08</b>    | <b>. Deviation, concentration or focusing of the beam by electric or magnetic means (electron-optical arrangements in electric discharge tubes <a href="#">H01J 29/46</a>; {details, e.g. electric or magnetic deviating means for direct voltage accelerators or in accelerators using single pulses <a href="#">H05H 5/02</a>; arrangements for injecting particles into orbits <a href="#">H05H 7/08</a>; arrangements for ejecting particles from orbits <a href="#">H05H 7/10</a>})</b> |
| <b>1/003</b> | <b>. {Manipulation of charged particles by using radiation pressure, e.g. optical levitation (acceleration of charged particles <a href="#">H05H 5/00</a>, <a href="#">H05H 7/00</a>, <a href="#">H05H 9/00</a>, <a href="#">H05H 11/00</a>, <a href="#">H05H 13/00</a>)}</b>  | <b>1/087</b>   | <b>. . by electrical means</b>   |
| <b>1/006</b> | <b>. {Manipulation of neutral particles by using radiation pressure, e.g. optical levitation (production or acceleration of neutral particles <a href="#">H05H 3/00</a>)}</b>  | <b>1/093</b>   | <b>. . by magnetic means</b>   |
| <b>1/02</b>  | <b>. using diaphragms, collimators</b>   | <b>1/10</b>    | <b>. Scattering devices; Absorbing devices; Ionising radiation filters</b>   |
| <b>1/025</b> | <b>. . {using multiple collimators, e.g. Bucky screens; other devices for eliminating undesired or dispersed radiation}</b>  | <b>1/12</b>    | <b>. . Resonant absorbers or driving arrangements therefor, e.g. for Moessbauer-effect devices {(motors with reciprocating, oscillating or vibrating magnet, armature or coil system in general <a href="#">H02K 33/00</a>)}</b>   |
| <b>1/04</b>  | <b>. . using variable diaphragms, shutters, choppers</b>   | <b>1/14</b>    | <b>. using charge exchange devices, e.g. for neutralising or changing the sign of the electrical charges of beams (producing or accelerating neutral particle beams <a href="#">H05H 3/00</a>)</b>   |
| <b>1/043</b> | <b>. . . {changing time structure of beams by mechanical means, e.g. choppers, spinning filter wheels}</b>   | <b>1/16</b>    | <b>. using polarising devices, e.g. for obtaining a polarised beam {(ion sources, ion guns <a href="#">H01J 27/02</a>; polarised targets for producing nuclear reactions <a href="#">H05H 6/005</a>)}</b>  |
| <b>1/046</b> | <b>. . . {varying the contour of the field, e.g. multileaf collimators}</b>  | <b>4/00</b>    | <b>Conversion screens for the conversion of the spatial distribution of X-rays or particle radiation into visible images, e.g. fluoroscopic screens (photographic processes using X-ray intensifiers <a href="#">G03C 5/17</a>; discharge tubes comprising luminescent screens <a href="#">H01J 1/62</a>; cathode ray tubes for X-ray conversion with optical output <a href="#">H01J 31/50</a>)</b>   |
| <b>1/06</b>  | <b>. using diffraction, refraction or reflection, e.g. monochromators (<a href="#">G21K 1/10</a>, <a href="#">G21K 7/00</a> take precedence)</b>   | <b>2004/02</b> | <b>. {characterised by the external panel structure}</b>   |
| <b>1/062</b> | <b>. . {Devices having a multilayer structure}</b>   | <b>2004/04</b> | <b>. {with an intermediate layer}</b>  |
| <b>1/065</b> | <b>. . {using refraction, e.g. Tomie lenses}</b>   | <b>2004/06</b> | <b>. {with a phosphor layer}</b>   |
| <b>1/067</b> | <b>. . {using surface reflection, e.g. grazing incidence mirrors, gratings (multilayer mirrors <a href="#">G21K 1/062</a>; crystal optics <a href="#">G21K 1/06</a>)}</b>  |                |  |

- 2004/08 . {with a binder in the phosphor layer}
- 2004/10 . {with a protective film}
- 2004/12 . {with a support}

**5/00**      **Irradiation devices** (discharge tubes for irradiating [H01J 37/00](#))

- 5/02 . having no beam-forming means
- 5/04 . with beam-forming means
- 5/08 . Holders for targets or for other objects to be irradiated
- 5/10 . with provision for relative movement of beam source and object to be irradiated

**7/00**      **Gamma- or X-ray microscopes**

**2201/00**      **Arrangements for handling radiation or particles**

- 2201/06 . using diffractive, refractive or reflecting elements
- 2201/061 . . characterised by a multilayer structure
- 2201/062 . . the element being a crystal
- 2201/064 . . having a curved surface
- 2201/065 . . provided with cooling means
- 2201/067 . . Construction details
- 2201/068 . . specially adapted for particle beams

**2207/00**      **Particular details of imaging devices or methods using ionizing electromagnetic radiation such as X-rays or gamma rays**

- 2207/005 . Methods and devices obtaining contrast from non-absorbing interaction of the radiation with matter, e.g. phase contrast