

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

**WARNING**

The following IPC group is not used in the CPC scheme. Subject matter covered this group is classified in the following CPC group:

- [G21K 3/00](#) covered by [G21K 1/10](#)

**G21K 1/00**

**Arrangements for handling particles or ionizing radiation, e.g. focusing or moderating** (production or acceleration of neutrons, electrically-charged particles, neutral molecular beams or neutral atomic beams [H05H 3/00](#) - [H05H 15/00](#))

**G21K 1/003**

- . {Manipulation of charged particles by using radiation pressure, e.g. optical levitation (acceleration of charged particles [H05H 5/00](#) , [H05H 7/00](#) , [H05H 9/00](#) , [H05H 11/00](#) , [H05H 13/00](#))}

**G21K 1/006**

- . {Manipulation of neutral particles by using radiation pressure, e.g. optical levitation (production or acceleration of neutral particles [H05H 3/00](#))}

**G21K 1/02**

- . using diaphragms, collimators

**G21K 1/025**

- .. {using multiple collimators, e.g. Bucky screens; other devices for eliminating undesired or dispersed radiation}

**G21K 1/04**

- .. using variable diaphragms, shutters, choppers

**G21K 1/043**

- ... {changing time structure of beams by mechanical means, e.g. choppers, spinning filter wheels}

**G21K 1/046**

- ... {varying the contour of the field, e.g. multileaf collimators}

**G21K 1/06**

- . using diffraction, refraction or reflection, e.g. monochromators ([G21K 1/10](#) , [G21K 7/00](#) take precedence)

**G21K 1/062**

- .. {Devices having a multilayer structure}

**G21K 1/065**

- .. {using refraction, e.g. Tomie lenses}

**G21K 1/067**

- .. {using surface reflection, e.g. grazing incidence mirrors, gratings (multilayer mirrors [G21K 1/062](#) ; crystal optics [G21K 1/06](#))}

**G21K 1/08**

- . Deviation, concentration or focusing of the beam by electric or magnetic means (electron-optical arrangements in electric discharge tubes [H01J 29/46](#) ; { details, e.g. electric or magnetic deviating means for direct voltage accelerators or in accelerators using single pulses [H05H 5/02](#) ; arrangements for injecting particles into orbits [H05H 7/08](#) ; arrangements for ejecting particles from orbits [H05H 7/10](#)})

**G21K 1/087**

- .. by electrical means

**G21K 1/093**

- .. by magnetic means

**G21K 1/10**

- . Scattering devices; Absorbing devices; Ionising radiation filters

|                     |  |
|---------------------|--|
| G21K 1/12           | <ul style="list-style-type: none"> <li>.. Resonant absorbers or driving arrangements therefor, e.g. for Moessbauer-effect devices <a href="#">{(motors with reciprocating, oscillating or vibrating magnet, armature or coil system in general H02K 33/00)}</a></li> </ul>   |
| G21K 1/14           | <ul style="list-style-type: none"> <li>. using charge exchange devices, e.g. for neutralising or changing the sign of the electrical charges of beams <a href="#">(producing or accelerating neutral particle beams H05H 3/00)</a></li> </ul>  |
| G21K 1/16           | <ul style="list-style-type: none"> <li>. using polarising devices, e.g. for obtaining a polarised beam <a href="#">{(ion sources, ion guns H01J 27/02 ; polarised targets for producing nuclear reactions H05H 6/005)}</a></li> </ul>  |
| <b>G21K 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</b> <a href="#">(photographic processes using X-ray intensifiers G03C 5/17 ; discharge tubes comprising luminescent screens H01J 1/62 ; cathode ray tubes for X-ray conversion with optical output H01J 31/50)</a> |
| G21K 2004/02        | <ul style="list-style-type: none"> <li>. <a href="#">{characterised by the external panel structure}</a></li> </ul>  |
| G21K 2004/04        | <ul style="list-style-type: none"> <li>. <a href="#">{with an intermediate layer}</a></li> </ul>   |
| G21K 2004/06        | <ul style="list-style-type: none"> <li>. <a href="#">{with a phosphor layer}</a></li> </ul>  |
| G21K 2004/08        | <ul style="list-style-type: none"> <li>. <a href="#">{with a binder in the phosphor layer}</a></li> </ul>  |
| G21K 2004/10        | <ul style="list-style-type: none"> <li>. <a href="#">{with a protective film}</a></li> </ul>   |
| G21K 2004/12        | <ul style="list-style-type: none"> <li>. <a href="#">{with a support}</a></li> </ul>   |
| <b>G21K 5/00</b>    | <b>Irradiation devices</b> <a href="#">(discharge tubes for irradiating H01J 37/00)</a>  |
| G21K 5/02           | <ul style="list-style-type: none"> <li>. having no beam-forming means</li> </ul>   |
| G21K 5/04           | <ul style="list-style-type: none"> <li>. with beam-forming means</li> </ul>  |
| G21K 5/08           | <ul style="list-style-type: none"> <li>. Holder for targets or for other objects to be irradiated</li> </ul>   |
| G21K 5/10           | <ul style="list-style-type: none"> <li>. with provision for relative movement of beam source and object to be irradiated</li> </ul>  |
| <b>G21K 7/00</b>    | <b>Gamma- or X-ray microscopes</b>   |
| <b>G21K 2201/00</b> | <b>Arrangements for handling radiation or particles</b>  |
| G21K 2201/06        | <ul style="list-style-type: none"> <li>. using diffractive, refractive or reflecting elements</li> </ul>   |
| G21K 2201/061       | <ul style="list-style-type: none"> <li>.. characterised by a multilayer structure</li> </ul>   |
| G21K 2201/062       | <ul style="list-style-type: none"> <li>.. the element being a crystal</li> </ul>   |
| G21K 2201/064       | <ul style="list-style-type: none"> <li>.. having a curved surface</li> </ul>   |
| G21K 2201/065       | <ul style="list-style-type: none"> <li>.. provided with cooling means</li> </ul>   |
| G21K 2201/067       | <ul style="list-style-type: none"> <li>.. Construction details</li> </ul>  |
| G21K 2201/068       | <ul style="list-style-type: none"> <li>.. specially adapted for particle beams</li> </ul>  |
| <b>G21K 2207/00</b> | <b>Particular details of imaging devices or methods using ionizing electromagnetic radiation such as X-rays or gamma rays</b>  |
| G21K 2207/005       | <ul style="list-style-type: none"> <li>. Methods and devices obtaining contrast from non-absorbing interaction of the radiation with matter, e.g. phase contrast</li> </ul>  |