

**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](#)

**Guidance heading:****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

- [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 . . 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 H02K 33/00](#) ) }
- G21K 1/14 . using charge exchange devices, e.g. for neutralising or changing the sign of the electrical charges of beams ( [producing or accelerating neutral particle beams H05H 3/00](#) )
- G21K 1/16 . using polarising devices, e.g. for obtaining a polarised beam { ( [ion sources, ion guns H01J 27/02](#) ; [polarised targets for producing nuclear reactions H05H 6/005](#) ) }
- G21K 4/00** **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 G03C 5/17](#) ; [discharge tubes comprising luminescent screens H01J 1/62](#) ; [cathode ray tubes for X-ray conversion with optical output H01J 31/50](#) )
- G21K 2004/02 . characterised by the external panel structure
- G21K 2004/04 . with an intermediate layer
- G21K 2004/06 . with a phosphor layer
- G21K 2004/08 . with a binder in the phosphor layer
- G21K 2004/10 . with a protective film
- G21K 2004/12 . with a support
- G21K 5/00** **Irradiation devices** ( [discharge tubes for irradiating H01J 37/00](#) )
- G21K 5/02 . having no beam-forming means
- G21K 5/04 . with beam-forming means
- G21K 5/08 . Holder for targets or for other objects to be irradiated
- G21K 5/10 . with provision for relative movement of beam source and object to be irradiated
- G21K 7/00** **Gamma- or X-ray microscopes**
- Guidance heading:**
- G21K 2201/00** **Arrangements for handling radiation or particles**

- G21K 2201/06 . using diffractive, refractive or reflecting elements
- G21K 2201/061 . . characterised by a multilayer structure
- G21K 2201/062 . . the element being a crystal
- G21K 2201/064 . . having a curved surface
- G21K 2201/065 . . provided with cooling means
- G21K 2201/067 . . Construction details
- G21K 2201/068 . . specially adapted for particle beams

**Guidance heading:**

**G21K 2207/00 Particular details of imaging devices or methods using ionizing electromagnetic radiation such as X-rays or gamma rays**

- G21K 2207/005 . Methods and devices obtaining contrast from non-absorbing interaction of the radiation with matter, e.g. phase contrast