

**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
  - . 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**
- 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
- 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