

CPC COOPERATIVE PATENT CLASSIFICATION

G PHYSICS (NOTES omitted)

INSTRUMENTS

G01 MEASURING (counting [G06M](#)); TESTING (NOTES omitted)

G01T MEASUREMENT OF NUCLEAR OR X-RADIATION (radiation analysis of materials, mass spectrometry [G01N](#); counters per se [G06M](#), [H03K](#); electric discharge tubes for analysing radiation or particles [H01J 40/00](#), [H01J 47/00](#), [H01J 49/00](#))

NOTES

1. This subclass covers the measurement of X-radiation, gamma radiation, corpuscular radiation, cosmic radiation or neutron radiation.
2. Attention is drawn to the Notes following the title of class [G01](#).

1/00	Measuring X-radiation, gamma radiation, corpuscular radiation, or cosmic radiation (G01T 3/00 , G01T 5/00 take precedence)	1/161	. . Applications in the field of nuclear medicine, e.g. <u>in vivo</u> counting {apparatus for radiation diagnosis A61B 6/00 }
1/003	. {Scintillation (flow) cells}	1/1611	. . . {using both transmission and emission sources sequentially (SPECT imaging G01T 1/1642 ; PET imaging G01T 1/2985 ; detecting hidden objects, e.g. weapons, explosives G01V 5/0008 }
1/006	. {Total absorption calorimeters; Shower detectors}	1/1612 {with scintillation detectors (G01T 1/20 takes precedence)}
1/02	. Dosimeters (G01T 1/15 takes precedence, measuring exposure time to X-rays H05G 1/28)	1/1614 {with semiconductor detectors (G01T 1/24 takes precedence)}
1/023	. . {Scintillation dose-rate meters}	1/1615	. . . {using both transmission and emission sources simultaneously (SPECT imaging G01T 1/1642 ; PET imaging G01T 1/2985 ; detecting hidden objects, e.g. weapons, explosives G01V 5/0008 }
1/026	. . {Semiconductor dose-rate meters}	1/1617 {with scintillation detectors (G01T 1/20 takes precedence)}
1/04	. . Chemical dosimeters (G01T 1/06 , G01T 1/08 take precedence)	1/1618 {with semiconductor detectors (G01T 1/24 takes precedence)}
1/06	. . Glass dosimeters {using colour change; including plastic dosimeters}	1/163	. . . Whole body counters {(hand or feet contamination measurement G01T 1/167 ; lung, brain, thyroid, kidney or the like counting G01T 1/16 }
1/08	. . Photographic dosimeters (sensitive materials, processing thereof G03C ; {photometry G01J 1/52 })	1/1635 {involving relative movement between detector and subject; scanning beds (profile scanning G01T 1/166 ; positioning patients, tiltable tables for radiation diagnosis A61B 6/04 }
1/10	. . Luminescent dosimeters	1/164	. . . Scintigraphy (radioisotopes G21G 4/00 ; tracers G21H 5/00 ; {measurement of spatial distribution G01T 1/2914 ; apparatus for radiation diagnosis in different planes A61B 6/02 })
1/105	. . . Read-out devices (G01T 1/115 takes precedence)	1/1641 {Static instruments for imaging the distribution of radioactivity in one or two dimensions using one or several scintillating elements; Radio-isotope cameras}
1/11	. . . Thermo-luminescent dosimeters {(thermo-luminescent compositions C09K 11/00)}	1/1642 {using a scintillation crystal and position sensing photodetector arrays, e.g. ANGER cameras}
1/115 Read-out devices		
1/12	. . Calorimetric dosimeters		
1/14	. . Electrostatic dosimeters (construction of ionisation chambers H01J 47/02 {; electrometers G01R 5/28 })		
1/142	. . . Charging devices; Read-out devices		
1/15	. Instruments in which pulses generated by a radiation detector are integrated, e.g. by a diode pump circuit (pulse rate meters in general G01R 23/02)		
1/16	. Measuring radiation intensity (G01T 1/29 takes precedence {; self-powered detectors G01T 3/006 ; using an ionisation chamber filled with a liquid or solid, e.g. frozen liquid, dielectric G01T 3/008 })		
1/1603	. . {with a combination of at least two different types of detector (see provisionally also G01T 1/16)}		
1/1606	. . {with other specified detectors not provided for in the other sub-groups of G01T 1/16 (see provisionally also G01T 1/16)}		

- 1/1644 {using an array of optically separate scintillation elements permitting direct location of scintillations ([G01T 1/1645 takes precedence](#))}
- 1/1645 {using electron optical imaging means, e.g. image intensifier tubes, coordinate photomultiplier tubes, image converter}
- 1/1647 {Processing of scintigraphic data ([not related to a particular imaging system G01T 1/2992](#))}
- 1/1648 {Ancillary equipment for scintillation cameras, e.g. reference markers, devices for removing motion artifacts, calibration devices ([adapted for flow studies G01T 1/1647](#))}
- 1/166 involving relative movement between detector and subject ([scanners in general without using scintigraphy G01T 1/2964](#))}
- 1/1663 {Processing methods of scan data, e.g. involving contrast enhancement, background reduction, smoothing, motion correction, dual radio-isotope scanning, computer processing ([for measuring spatial distribution of radiation G01T 1/2992](#); [general purpose image data processing G06T 1/00](#); [computerized tomography G06T 11/003](#)); Ancillary equipment ([colour printers G01T 1/1666](#))}
- 1/1666 {adapted for printing different symbols or colours according to the intensity or energy level of the detected radioactivity ([depth discrimination in colour G01T 1/2985](#))}
- 1/167 Measuring radioactive content of objects, e.g. contamination ([whole body counters G01T 1/163](#))
- 1/169 Exploration, location of contaminated surface areas ([prospecting by the use of nuclear radiation, e.g. of natural or induced radioactivity G01V 5/00](#)) ; [in situ](#) measurement, e.g. floor contamination monitor ([directional detectors G01T 1/2907](#))}
- 1/17 Circuit arrangements not adapted to a particular type of detector ([pulse-selection circuits H03K, G01R](#))}
- 1/171 {Compensation of dead-time counting losses ([see provisionally also G01T 1/17](#))}
- 1/172 with coincidence circuit arrangements ([G01T 1/178 takes precedence](#) ; combination of detectors, [see G01T 1/1603, G01T 1/30, G01T 1/361](#))}
- 1/175 Power supply circuits ([power supply circuits per se H02J](#); [converters H02M](#))
- 1/178 for measuring specific activity in the presence of other radioactive substances, e.g. natural, in the air or in liquids such as rain water
- 1/18 with counting-tube arrangements, e.g. with Geiger counters ([tubes H01J 47/08](#); [with alarm provision G01T 7/125](#))}
- 1/185 with ionisation chamber arrangements ([construction of ionisation chambers H01J 47/02](#); [gas analysis by ionisation G01N 27/66](#); [measuring pressure G01L 9/00](#); [leak detection G01M 3/00](#); [tele-measurements G08C](#))}
- 1/20 with scintillation detectors
- 1/2002 {Optical details, e.g. reflecting or diffusing layers}
- 1/2004 {Scintilloscopes ([fluoroscopes G21K 4/00](#); [radiation diagnosis A61B 6/00](#))}
- 1/2006 {using a combination of a scintillator and photodetector which measures the means radiation intensity}
- 1/2008 {using a combination of different types of scintillation detectors, e.g. phoswich}
- WARNING**
- Pending reclassification, for subject-matter regarding phoswich see also [G01T 1/20](#)
- 1/201 {using scintillating fibres}
- 1/2012 {using stimuable phosphors, e.g. stimuable phosphor sheets}
- 1/2014 {Reading out of stimuable sheets, e.g. latent image}
- 1/2016 {Erasing of stimuable sheets, e.g. with light, heat or the like}
- 1/2018 {Scintillation-photodiode combination}
- 1/202 the detector being a crystal
- 1/2023 {Selection of materials ([see provisionally also G01T 1/202](#))}
- 1/2026 {Well-type detectors ([see provisionally also G01T 1/202](#))}
- 1/203 the detector being made of plastics
- 1/2033 {Selection of materials ([see provisionally also G01T 1/203](#))}
- 1/2036 {Well-type detectors ([see provisionally also G01T 1/203](#))}
- 1/204 the detector being a liquid
- 1/2042 {Composition for liquid scintillation systems}
- 1/2045 {Liquid scintillation quench systems}
- 1/2047 {Sample preparation}
- 1/205 the detector being a gas
- 1/208 Circuits specially adapted for scintillation detectors, e.g. for the photo-multiplier section
- 1/22 with Cerenkov detectors
- 1/24 with semiconductor detectors ([semiconductor devices per se H01L 31/00](#))}
- 1/241 {Electrode arrangements, e.g. continuous or parallel strips or the like ([constructional or manufacturing details H01L 31/00](#))}
- 1/242 {Stacked detectors, e.g. for depth information ([constructional or manufacturing details H01L 25/00](#))}
- 1/243 {Modular detectors, e.g. arrays formed from self contained units ([constructional or manufacturing details H01L 25/00](#))}
- 1/244 {Auxiliary details, e.g. casings, cooling, damping or insulation against damage by, e.g. heat, pressure or the like}
- 1/245 {using memory cells}
- 1/246 {utilizing latent read-out, e.g. charge stored and read-out later}
- 1/247 {Detector read-out circuitry ([for processing gain or off-set correction H04N](#))}
- 1/248 {Silicon photomultipliers [SiPM], e.g. an avalanche photodiode [APD] array on a common Si substrate}
- 1/249 {specially adapted for use in SPECT or PET ([SPECT imaging G01T 1/1642](#); [PET imaging G01T 1/2985](#); [detecting hidden objects, e.g. weapons, explosives G01V 5/0008](#))}

- 1/26 . . with resistance detectors {[photoresistors H01L 31/00](#)}
- 1/28 . . with secondary-emission detectors ([secondary-electron-emitting electrodes in general H01J 1/32](#)) {; optionally combined with scintillation counters ([secondary emission tubes H01J 43/00](#))}
- 1/29 . Measurement performed on radiation beams, e.g. position or section of the beam; Measurement of spatial distribution of radiation ([scintigraphy G01T 1/164](#); [mass-spectrometers H01J 49/025](#))
- 1/2907 . . {[Angle determination](#); [Directional detectors](#); [Telescopes \(prospecting by the use of nuclear radiation, e.g. of natural or induced radioactivity G01V 5/00\)](#)}
- 1/2914 . . {[Measurement of spatial distribution of radiation](#)}
- 1/2921 . . . {[Static instruments for imaging the distribution of radioactivity in one or two dimensions](#); [Radio-isotope cameras \(using scintigraphy G01T 1/1641\)](#)}
- 1/2928 {[using solid state detectors](#)}
- 1/2935 {[using ionisation detectors](#)}
- 1/2942 {[using autoradiographic methods](#)}
- 1/295 {[using coded aperture devices, e.g. Fresnel zone plates \(handling of radiation of particles, e.g. using diaphragms, collimators, diffraction G21K 1/00\)](#)}
- 1/2957 {[using channel multiplier arrays \(channel multipliers H01J 43/18; G01T 1/1645 takes precedence\)](#)}
- 1/2964 . . . {[Scanners \(using scintigraphy G01T 1/166\)](#)}
- 1/2971 {[using solid state detectors](#)}
- 1/2978 . . . {[Hybrid imaging systems, e.g. using a position sensitive detector \(camera\) to determine the distribution in one direction and using mechanical movement of the detector or the subject in the other direction or using a camera to determine the distribution in two dimensions and using movement of the camera or the subject to increase the field of view \(G01T 1/2985 takes precedence\)](#)}
- 1/2985 . . . {[In depth localisation, e.g. using positron emitters](#); [Tomographic imaging \(longitudinal and transverse section imaging; apparatus for radiation diagnosis sequentially in different planes, stereoscopic radiation diagnosis\); \(using external radiation sources A61B 6/02\)](#)}
- 1/2992 . . . {[Radioisotope data or image processing not related to a particular imaging system](#); [Off-line processing of pictures, e.g. rescanners \(for measuring radiation intensity G01T 1/1663; digital computing or data processing equipment or methods specially adapted for nuclear physics or nuclear engineering G06F 15/00; general purpose image data processing G06T 1/00; computerized tomography G06T 11/003\)](#)}
- 1/30 . Measuring half-life of a radioactive substance {([period meters for nuclear fission reactors G21C 17/14](#))}
- 1/32 . Measuring polarisation of particles
- 1/34 . Measuring cross-section, e.g. absorption cross-section of particles
- 1/36 . Measuring spectral distribution of X-rays or of nuclear radiation {[spectrometry \(pulse selection circuits per se H03K; investigation of materials by radiation diffraction G01N 23/20; spectrometer tubes H01J 49/00\)](#)}
- 1/361 . . {[with a combination of detectors of different types, e.g. anti-Compton spectrometers \(intensity measurement with a combination of detectors G01T 1/1603; with coincidence circuit G01T 1/172; se provisionally also G01T 1/36\)](#)}
- NOTE**
[G01T 1/361](#) takes precedence over [G01T 1/362](#)
- 1/362 . . {[with scintillation detectors \(see provisionally also G01T 1/36, G01T 1/20\)](#)}
- 1/363 . . {[with Cerenkov detectors](#)}
- 1/365 . . {[with ionisation detectors, e.g. proportional counter \(see provisionally also G01T 1/36\)](#)}
- 1/366 . . {[with semi-conductor detectors \(see provisionally also G01T 1/36\)](#)}
- 1/367 . . {[with resistance detectors \(see provisionally also G01T 1/36\)](#)}
- 1/368 . . {[with secondary-emission detectors \(see provisionally G01T 1/36\)](#)}
- 1/38 . . Particle discrimination and measurement of relative mass, e.g. by measurement of loss of energy with distance (dE/dx) {([constructional details of semiconductor detectors therefor H01L 31/00](#))}
- 1/40 . . Stabilisation of spectrometers {([circuits specially adapted for scintillation detectors G01T 1/208](#))}
- 3/00 Measuring neutron radiation (G01T 5/00 takes precedence {; tubes therefor H01J 47/12; circuits with such tubes G01T 1/18; measuring short time intervals G04F 10/00; measuring pulse characteristics G01R 29/02; neutron choppers G21K 1/04; polarimeters G01T 1/32})**
- 3/001 . {[Spectrometry](#)}
- 3/003 . . {[Recoil spectrometers \(light-nuclei recoil ionisation tubes per se H01J 47/1277\)](#)}
- 3/005 . . {[Time-of-flight spectrometers \(see provisionally also G01T 3/00\)](#)}
- 3/006 . {[using self-powered detectors \(for neutrons as well as for Y- or X-rays\) , e.g. using Compton-effect \(Compton diodes\) or photo-emission or a \(n,B\) nuclear reaction \(photovoltaic semiconductors H01L 31/00; photo-tubes H01J 40/00; thermionic generators H01J 45/00; radioisotopic generators G21H 1/00, e.g. G21H 1/02, G21H 1/04\)](#)}
- 3/008 . {[using an ionisation chamber filled with a gas, liquid or solid, e.g. frozen liquid, dielectric \(G01T 3/006 takes precedence\)](#)}
- 3/02 . by shielding other radiation
- 3/04 . using calorimetric devices
- 3/06 . with scintillation detectors
- 3/065 . . {[Spectrometry](#)}
- 3/08 . with semiconductor detectors ([semiconductor detectors per se H01L 31/00](#))
- 3/085 . . {[Spectrometry](#)}
- 5/00 Recording of movements or tracks of particles (spark chambers H01J 47/00); Processing or analysis of such tracks**

- 5/002 . {using a combination of several movement of track recording devices (detectors associated with recording chambers and only serving to trigger these chambers, [see](#) the appropriate groups of the chamber, e.g. [G01T 5/04](#) - [G01T 5/08](#); [see](#) provisionally also [G01T 5/00](#) and other sub-groups)}
- 5/004 . {Non-electrical readout of multi-wire or parallel-plate chambers (non-electrical readout in such chambers [per se](#) [H01J 47/22](#))}
- 5/006 . . {by optical methods}
- 5/008 . . {by acoustical methods}
- 5/02 . Processing of tracks; Analysis of tracks
- 5/04 . Cloud chambers, e.g. Wilson chamber
- 5/06 . Bubble chambers
- 5/08 . Scintillation chambers ([discharge tubes](#) [H01J 40/00](#), [H01J 47/00](#); [semiconductor devices](#) [H01L](#))
- 5/10 . Plates or blocks in which tracks of nuclear particles are made visible by after-treatment, e.g. using photographic emulsion, using mica
- 5/12 . Circuit arrangements with multi-wire or parallel-plate chambers, e.g. spark chambers ([tubes](#) [per se](#) [H01J 47/00](#))
- 5/122 . . {for readout of each individual wires; (readout in such chambers [per se](#) [H01J 47/16](#)); for processing the output signals}
- 5/125 . . . {by using delay lines}
- 5/127 {by using magnetostrictive delay lines}
- 7/00 Details of radiation-measuring instruments**
- 7/005 . {calibration techniques (stabilization of spectrometer [G01T 1/40](#))}
- 7/02 . Collecting means for receiving or storing samples to be investigated {and possibly directly transporting the samples to the measuring arrangement; particularly for investigating radioactive fluids (sampling, preparing specimens for investigation in general [G01N 1/00](#), [G01N 1/02](#); shielded cells or rooms structurally combined with manipulating devices [G21F](#); measuring of chromatographically separated samples [G01N 30/00](#) - [G01N 30/96](#))}
- 7/04 . . by filtration
- 7/06 . . by electrostatic precipitation ([G01T 7/04](#) takes precedence)
- 7/08 . Means for conveying samples received {(, i.e. [sample changers](#) [G01N 35/00](#))}
- 7/10 . . using turntables
- 7/12 . Provision for actuation of an alarm
- 7/125 . . {Alarm- or controlling circuits using ionisation chambers, proportional counters or Geiger-Mueller tubes, also functioning as UV detectors (measuring radiation intensity with counting tubes [G01T 1/18](#); measuring radiation intensity with ionisation chambers [G01T 1/185](#); fire alarms actuated by presence of radiation of particles, e.g. of infra-red radiation, of ions [G08B 17/11](#); flame monitoring in combustion devices [F23Q 7/00](#), [F23N](#); [discharge tubes](#) [per se](#) [H01J 47/00](#))}