CPC  COOPERATIVE PATENT CLASSIFICATION

G  PHYSICS
   (NOTES omitted)

INSTRUMENTS

G01  MEASURING; TESTING
   (NOTES omitted)

G01J  MEASUREMENT OF INTENSITY, VELOCITY, SPECTRAL CONTENT, POLARISATION, PHASE OR PULSE CHARACTERISTICS OF INFRA-RED, VISIBLE OR ULTRA-VIOLET LIGHT; COLORIMETRY; RADIATION PYROMETRY (light sources F21, H01J, H01K, H05B; investigating properties of materials by optical means G01N)

NOTES
1. This subclass covers the detection of the presence or absence of infra-red, visible, or ultra-violet light, not otherwise provided for.
2. Attention is drawn to the Notes following the title of class G01.

WARNING
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.

I/00 Photometry, e.g. photographic exposure meter (spectrophotometry G01J 3/00; specially adapted for radiation pyrometry G01J 5/00 ; exposure meters built in cameras G03B 17/06))
   1/02 . Details
   1/020 . . (Compact construction)
   1/0209 . . [Monolithic]
   1/0214 . . [Constructional arrangements for removing stray light]
   1/0219 . . [Electrical interface; User interface]
   1/0223 . . [Sample holders for photometry]
   1/0228 . . [Control of working procedures; Failure detection; Spectral bandwidth calculation]
   1/0233 . . [Handheld]
   1/0238 . . [making use of sensor-related data, e.g. for identification of sensor or optical parts]
   1/0242 . . [Control or determination of height or angle information of sensors or receivers; Goniophotometry]
   1/0247 . . [using a charging unit]
   1/0252 . . [Constructional arrangements for compensating for fluctuations caused by, e.g. temperature, or using cooling or temperature stabilization of parts of the device; Controlling the atmosphere inside a photometer; Purge systems, cleaning devices (protection against electromagnetic interferences G01J 2001/0276)]
   2001/0257 . . . [portable]
   2001/0261 . . . [Pocket size; Card size]
   1/0266 . . . [Field-of-view determination; Aiming or pointing of a photometer; Adjusting alignment; Encoding angular position; Size of the measurement area; Position tracking; Photodetection involving different fields of view for a single detector]
   1/0271 . . . [Housings; Attachments or accessories for photometers]
2001/0276 . . . [Protection]
2001/028 . . . . [against liquid]
2001/0285 . . . . [against laser damage]
1/029 . . . [Multi-channel photometry]
1/0295 . . . . [Constructional arrangements for removing other types of optical noise or for performing calibration]
1/04 . . . . Optical or mechanical part {supplementary adjustable parts}
1/0403 . . . . [Mechanical elements; Supports for optical elements; Scanning arrangements]
1/0407 . . . . [Optical elements not provided otherwise, e.g. manifolds, windows, holograms, gratings]
1/0411 . . . . . [using focussing or collimating elements, i.e. lenses or mirrors; Aberration correction]
1/0414 . . . . . [using plane or convex mirrors, parallel phase plates, or plane beam-splitters]
1/0418 . . . . . [using attenuators]
1/0422 . . . . . [using light concentrators, collectors or condensers]
1/0425 . . . . . [using optical fibers]
1/0429 . . . . . [using polarisation elements]
1/0433 . . . . . [using notch filters]
1/0437 . . . . . [using masks, aperture plates, spatial light modulators, spatial filters, e.g. reflective filters]
1/044 . . . . . [using shutters]
1/0444 . . . . . [using means for replacing an element by another, e.g. for replacing a filter or grating]
1/0448 . . . . . [Adjustable, e.g. focussing]
1/0451 . . . . . [using means for illuminating a slit efficiently, e.g. entrance slit of a photometer or entrance face of fiber]
using electric radiation detectors (G01J 1/20)

[using an optical amplifier of light or coatings to improve optical coupling]

[Slit arrangements]

[with a sighting port]

[using extension/expansion of solids or fluids, change of resonant frequency or extinction effect]

[Diffusers (cavities G01J 2001/0481)]

[Prisms, wedges]

2001/0481

[Preset integrating sphere or cavity]

2001/0485

[Cosinus correcting or purposely modifying the angular response of a light sensor]

1/0488

[with spectral filtering]

1/0492

[using at least two different filters]

2001/0496

[using fiber Bragg gratings]

1/06

Restricting the angle of incident light

2001/061

[Baffles]

2001/062

[by fibre-optic packed bundle]

2001/063

[with selectable field of view]

2001/065

(by changing elements)

2001/066

[with an aiming optical device]

2001/067

(for angle scan)

2001/068

(by diaphragm or the like)

1/08

Arrangements of light sources specially adapted for photometry [standard sources, also using luminescent or radioactive material]

2001/083

[Testing response of detector]

2001/086

[Calibrating drift correction]

1/10

by comparison with reference light or electric value (provisionally void)

1/12

using wholly visual means (G01J 1/20 takes precedence)

1/122

[Visual exposure meters for determining the exposure time in photographic recording or reproducing]

1/124

[based on the comparison of the intensity of measured light with a comparison source or comparison illuminated surface]

1/126

(for enlarging apparatus)

1/128

(for copy- or printing apparatus)

1/14

using comparison with a surface of graded brightness, (e.g. for view taking; for analytical applications G01N 21/293)]

1/16

using electric radiation detectors (G01J 1/20 takes precedence)

2001/1605

[Null method]

2001/161

[Ratio method, i.e. Im/Ir]

2001/1615

[Computing a difference/sum ratio, i.e. (Im - Ir) / (Im + Ir)]

2001/1621

[Comparing a duty ratio of pulses]

1/1626

[Arrangements with two photodetectors, the signals of which are compared]

2001/1631

[Bridge circuit]

2001/1636

[one detector directly monitoring the source, e.g. also impulse time controlling]

2001/1642

[and acting on the detecting circuit]

2001/1647

[one signal maintained constant]

2001/1652

[one detector being transparent before the other one]

2001/1657

[one signal being spectrally modified, e.g. for UV]

2001/1663

[two detectors of different sensitivity]

2001/1668

[the measuring signal itself varying in time, e.g. periodic, for example blood pulsation]

2001/1673

[using a reference sample]

2001/1678

[Comparing time separated signals, i.e. chopped]

2001/1684

(and selecting also a DC level from the signal)

2001/1689

[one separated signal being processed differently]

2001/1694

[with a signal from on/off switched light source]

1/18

using comparison with a reference electric value

2001/182

[with SH sample and hold circuits]

2001/184

[on a succession of signals]

2001/186

[Comparison or correction from an electric source within the processing circuit]

2001/188

(on pulse train)

1/20

intensity of the measured or reference value being varied to equalise their effects at the detectors, e.g. by varying incidence angle

1/22

using a variable element in the light-path, e.g. filter, polarising means (G01J 1/34 takes precedence)

2001/242

[Filter wheel, i.e. absorption filter series graduated]

2001/245

[with two or more separate attenuated steps]

2001/247

[of spectral wedge type]

1/26

adapted for automatic variation of the measured or reference value (regulation of light intensity G05D 25/00)

1/28

using variation of intensity or distance of source (G01J 1/34 takes precedence)

1/30

using electric radiation detectors

1/32

adapted for automatic variation of the measured or reference value (regulation of light intensity G05D 25/00)

1/34

using separate light paths used alternately or sequentially, e.g. flicker

1/36

using electric radiation detectors

2001/363

[Chopper stabilisation]

2001/366

[Balancing two paths]

1/38

using wholly visual means (G01J 1/10 takes precedence)

1/40

using limit or visibility or extinction effect

1/42

using electric radiation detectors (optical or mechanical part G01J 1/04; by comparison with a reference light or electric value G01J 1/10)

1/4204

[with determination of ambient light (solar light G01J 2001/4266)]

1/4209

[Photoelectric exposure meters for determining the exposure time in recording or reproducing]

1/4214

[specially adapted for view-taking apparatus]

1/4219

[specially adapted for enlargers]

1/4223

[specially adapted for copy- or printing apparatus]
Monochromators; Measuring colours

Spectrometry; Spectrophotometry;

Detailed "Fundamentals or review articles"

Comparing spectra of two light sources
by measuring the pupil of the eye
using luminescence generated by light
using chemical effects

Optical manifolds, diffusers, windows

Optical elements not provided otherwise, e.g.

subgroups of G01J 1/42

( using counting tubes G01T

applied to measurement of ultraviolet light
(using counting tubes G01T)

for measuring solar light

Pyrheliometer

Solar energy integrator over time

for sunlight scattered by atmosphere

Pyranometer, i.e. integrating over space

[Peak sensing]

[Compensating; Calibrating, e.g. dark current, temperature drift, noise reduction or baseline correction; Adjusting]

[Type of detector]

PMT

Photodiode

[ Avalanche]

[Phototransistor]

[Array [CCD]]

[Spectrometers, other than colorimeters, making use of an integrating sphere]

[Colorimeters making use of an integrating sphere]

[Control of working procedures of a spectrometer; Failure detection; Bandwidth calculation]

[Control of working procedures of a spectrometer; Failure detection; Bandwidth calculation]

[Handheld]

[Sample holders for colorimetry]

[Control of working procedures of a spectrometer; Failure detection; Bandwidth calculation]

[Control or determination of height or angle information for sensors or receivers]

[slitless]

[using a charging unit]

[Constructional arrangements for compensating for fluctuations caused by temperature, humidity or pressure, or using cooling or temperature stabilization of parts of the device; Controlling the atmosphere inside a spectrometer, e.g. vacuum]

[Field-of-view determination; Aiming or pointing of a spectrometer; Adjusting alignment; Encoding angular position; Size of measurement area; Position tracking]

[Housings; Spectrometer accessories; Spatial arrangement of elements, e.g. folded path arrangements]
3/0294 . . . [Multi-channel spectroscopy]
3/0297 . . . [Constructional arrangements for removing other types of optical noise or for performing calibration]
3/04 . . . [Slit arrangements {slit adjustment}]
2003/042 . . . [Slit wheel]
2003/045 . . . [Sequential slits; Multiple slits]
2003/047 . . . [Configuration of two or more entry or exit slits for predetermined delta-lambda] 3/06 . . . [Scanning arrangements {arrangements for order-selection}]
2003/061 . . . [Mechanisms, e.g. sine bar]
2003/062 . . . [Motor-driven]
2003/063 . . . [Step motor]
2003/064 . . . [Use of other elements for scan, e.g. mirror, fixed grating]
2003/065 . . . [Use of fibre scan for spectral scan]
2003/066 . . . [Microprocessor control of functions, e.g. slit, scan, bandwidth during scan]
2003/067 . . . [Use of plane parallel plate, e.g. small scan, wobble]
2003/068 . . . [Tuned to preselected wavelengths]
2003/069 . . . [Complex motion, e.g. rotation of grating and correcting translation]
3/08 . . . [Beam switching arrangements]
3/10 . . . [Arrangements of light sources specially adapted for spectrometry or colorimetry]
2003/102 . . . [Plural sources]
2003/104 . . . [Monochromatic plural sources]
2003/106 . . . [The two sources being alternating or selectable, e.g. in two ranges or line:continuum]
3/108 . . . [For measurement in the infra-red range]
3/12 . . . [Generating the spectrum; Monochromators]
2003/1204 . . . [Grating and filter]
2003/1208 . . . [Prism and grating]
2003/1213 . . . [Filters in general, e.g. dichroic, band]
2003/1217 . . . [Indexed discrete filters or choppers]
2003/1221 . . . [Mounting; Adjustment]
2003/1226 . . . [Interference filters]
2003/123 . . . [Indexed discrete filters]
2003/1234 . . . [Continuously variable IF {CVIF}; Wedge type]
2003/1239 . . . [And separate detectors]
2003/1243 . . . [Pivoting IF or other position variation]
2003/1247 . . . [Tuning]
2003/1252 . . . [Using "resonance cell", e.g. Na vapor]
3/1256 . . . [Using acousto-optic tunable filter; (acousto-optic elements or systems G02F 1/11, G02F 1/33)]
2003/126 . . . [Focal isolation type]
2003/1265 . . . [The wavelengths being separated in time, e.g. through optical fibre array]
2003/1269 . . . [Electrooptic filter]
2003/1273 . . . [Order selection]
2003/1278 . . . [Mask with spectral selection]
2003/1282 . . . [Spectrum tailoring]
2003/1286 . . . [Polychromator in general]
2003/1291 . . . [Polarised, birefringent]
2003/1295 . . . [Plural entry slits, e.g. for different incidences]
3/14 . . . [Using refracting elements, e.g. prisms (G01J 3/18, G01J 3/26 take precedence {prisms per se G02B 5/04})]
2003/145 . . . [Prism systems for straight view]
3/16 . . . [With autocollimation]
3/18 . . . [Using diffraction elements, e.g. grating (gratings per se G02B)]
3/1804 . . . [Plane gratings]
3/1809 . . . [Echelle gratings]
2003/1814 . . . [Double monochromator]
2003/1819 . . . [Double pass monochromator]
2003/1823 . . . [Subtractive]
2003/1828 . . . [With order sorter or prefilter]
3/1833 . . . [Grazing incidence]
3/1838 . . . [Holographic gratings]
2003/1842 . . . [Types of grating]
2003/1847 . . . [Variable spacing]
2003/1852 . . . [Cylindric surface]
2003/1857 . . . [Toroid surface]
2003/1861 . . . [Transmission gratings]
2003/1866 . . . [Monochromator for three or more wavelengths]
2003/1871 . . . [Duochromator]
2003/1876 . . . [Polychromator]
2003/188 . . . [Constant deviation]
2003/1885 . . . [Holder for interchangeable gratings, e.g. at different ranges of wavelengths]
3/189 . . . [Using at least one grating in an off-plane configuration]
3/1895 . . . [Using fiber Bragg gratings or gratings integrated in a waveguide]
3/20 . . . [Rowland circle spectrometers]
3/22 . . . [Littrow mirror spectrometers]
3/24 . . . [Using gratings profiled to favour a specific order]
3/26 . . . [Using multiple reflection, e.g. Fabry-Perot interferometer, variable interference filters]
2003/262 . . . [Double pass; Multiple pass]
2003/265 . . . [Read out, e.g. polychromator]
2003/267 . . . [Of the SISAM type]
3/28 . . . [Investigating the spectrum (using colour filters G01J 3/51)]
3/2803 . . . [Using photoelectric array detector]
2003/2806 . . . [Array and filter array]
2003/2809 . . . [Array and correcting filter]
2003/2813 . . . [2D-array]
2003/2816 . . . [Semiconductor laminate layer]
2003/282 . . . [Modified CCD or like]
3/2823 . . . [Image spectrometer]
2003/2826 . . . [Multispectral imaging, e.g. filter imaging]
2003/283 . . . [Computer-interfaced]
2003/2833 . . . [And memorised spectra collection]
2003/2836 . . . [Programming unit, i.e. source and date processing]
2003/284 . . . [Spectral construction]
2003/2843 . . . [Processing for eliminating interfering spectra]
3/2846 . . . [Using modulation grid; Grid spectrometers]
2003/285 . . . [Hadamard transformation]
2003/2853 . . . [Averaging successive scans or readings]
2003/2856 . . . [And calculation of standard deviation]
2003/2859 . . . [Peak detecting in spectrum]
2003/2863 . . . [And calculating peak area]
2003/2866 . . . [Markers; Calibrating of scan]
2003/2869 . . . [Background correcting]
2003/2873 . . . [Storing reference spectrum]
2003/2876 . . . [Correcting linearity of signal]
Interferometric spectrometry
Polarisation spectrometry
Emission spectrometry
Fluorescence spectrometry
Raman spectrometry; Scattering spectrometry
Absorption spectrometry; Double beam
Spectrography (G01J 3/42 taking precedence)

Investigating two or more bands of a spectrum by separate detectors

Measuring the intensity of spectral lines directly on the spectrum itself (G01J 3/42, G01J 3/44 taking precedence)

Absorption spectrometry; Double beam spectrometry; Flicker spectrometry; Reflection spectrometry (beam switching arrangements G01J 3/08)

[Single beam]

[Spectral arrangements using lasers, e.g. tunable]

[Reflectance]

Dual wavelengths spectrometry

[Polariised dual wavelength spectrometry]

Modulation spectrometry; Derivative spectrometry

[frequency-modulated]

[by modulation of source, e.g. current modulation]

[by magnetic modulation, e.g. Zeeman effect]

[Raman spectrometry; Scattering spectrometry (; Fluorescence spectrometry]

[Fluorescence spectrometry]

[Scattering spectrometry (particle sizing by light scattering G01N 15/0205; optical velocimetry of particles G01P 5/20, G01P 5/26)]

[Power spectrum]

[Fluorescence correction for Raman spectrometry]

[Emission spectrometry]

[Measuring ratio of two lines, e.g. internal standard]

[Polarisation spectrometry]

[Interferometric spectrometry]

[Dispersive interferometric spectrometry]

[with recording of image of spectral transformation, e.g. hologram]

[by correlation of the amplitudes]

[Devices without moving parts]

[Devices of compact or symmetric construction (G01J 3/4531 takes precedence)]

[Interferometer on illuminating side]

[Devices with moving mirror (G01J 3/4532 takes precedence)]

[Devices with refractive scan]

[Special processing]

[Correlation spectrometry, e.g. of the intensity (G01J 3/453 takes precedence)]

[Measurement of colour; Colour measuring devices, e.g. colorimeters (measuring colour temperature G01J 5/60)]

[with colour spinners]

[Computing in or between colour spaces; Colour management systems]

[Colour matching]

[taking into account the colour perception of the eye; using tristimulus detection]

[Coded colour; Recognition of predetermined colour; Determining proximity to predetermined colour]

[Colour computing]

[of objects containing fluorescent agent]

[using electric radiation detectors]

[Colorimeters using spectrally-selective light sources, e.g. LEDs]

[using a dispersive element, e.g. grating, prism]

[Densitometric colour measurements]

[Goniometric colour measurements, for example measurements of metallic or flake based paints]

[measuring the colour produced by lighting fixtures other than screens, monitors, displays or CRTs]

[measuring the colour produced by screens, monitors, displays or CRTs]

[the detectors being physically selective]

[measuring the colour of teeth]

[using colour filters]

[having fixed filter-detector pairs]

[with several stacked filters or stacked filter-detector pairs]

[using colour charts]

[circular colour charts]

[Calibration of colorimeters]

[for choosing a combination of different colours, e.g. to produce a pleasing effect for an observer]

[using colour harmony theory]

Measuring polarisation of light (investigating or analysing materials by measuring rotation of plane of polarised light G01N 21/21)

[Devices]

[Selecting polarisation direction]

[sequential, i.e. time-divided]

[simultaneous, i.e. space-divided]

[ Mechanical mounting]

[Polarisation rate]

[Polariometers of separated-field type; Polariometers of half-shadow type]

[Polariometers using electric detection means (G01J 4/02 takes precedence)]
Radiation pyrometry (photometry in general G01J 1/00; spectrometry in general G01J 3/00 [measuring temperature in general, i.e. with a contacting sensor G01K; calorimetry of radiation beams G01K 17/00; direction finders for radiant sources G01S; intrusion detection by radiation G08B)])

[for sensing the radiant heat transfer of samples, e.g. emittance meter]

[of wafers or semiconductor substrates, e.g. using Rapid Thermal Processing]

[Ear thermometers (G01J 5/021 and G01J 5/049 take precedence)]

[for sensing the radiation from gases, flames]

[Flames, plasma or welding]

[for sensing the radiation of moving bodies]

[Living bodies (ear thermometers G01J 5/0011; detecting, measuring or recording for diagnostic purposes A61B 5/00)]

Sheet)

[Wheel]

[for sensing the heat emitted by liquids]

[by molten metals]

[Furnaces, ovens, kilns (G01J 5/0007, G01J 5/004 take precedence)]

[Calibrating; Correcting]

[Methods for correcting for emissivity]

[Atmospheric correction]

[Correcting for reflection of the emitter radiation]

[Linearising circuits]

[for hot spots detection]

[for earth observation]

[having separate detection of emissivity]

[Imaging]

[Thermography]

[Temperature profile]

[in turbines]

[Temperature by averaging, e.g. by scan (scan intended for space-resolved determination G01J 2005/0081)]

[for measuring wires, electrical contacts or electronic systems]

[Details]

[Mechanical elements; Supports for optical elements]

[Probe covers for thermometers, e.g. tympanic thermometers; Containers for probe covers; Disposable probes]

[Compact construction]

[Monolithic]

[Shape of the cavity itself or of elements contained in or suspended over the cavity]

[Particular leg structure or construction or shape; Nanotubes]

[Spacers, e.g. for avoidance of stiction]

[Special manufacturing steps or sacrificial layers or layer structures]

[for performing thermal shunt]

[Interfacing a pyrometer to an external device or network; User interface]

[Sample holders for pyrometry; Cleaning of sample (using a gas purge G01J 5/029)]

[Control of working procedures of a pyrometer, other than calibration (calibration G01J 2005/0048 and G01J 5/522); Detecting failures in the functioning of a pyrometer; Bandwidth calculation; Gain control; Security control]

[Handheld, portable (ear thermometers G01J 5/049)]

[making use of sensor-related data, e.g. for identification of sensor parts or optical elements]

[Control or determination of height or distance or angle information for sensors or receivers]

[using a charging unit or battery]

[Constructional arrangements for compensating for fluctuations caused by humidity, pressure or electromagnetic waves; Controlling the atmosphere inside a pyrometer (G01J 5/029 takes precedence)]

[using a gas purge]

[Nulling devices or absolute detection]

[Casings [Mountings]]

[Mountings in enclosures or in a particular environment]

[High-temperature environment (G01J 5/0007, G01J 5/0044, G01J 5/0088 and G01J 5/004 take precedence)]

[Prevention or determination of dust, smog or clogging (G01J 5/029 takes precedence)]

[Environment with strong vibrations or shocks]

[Sealings; Vacuum enclosures; Encapsulated packages; Wafer bonding structures; Getter arrangements (getter arrangements per se H01L 23/26 and H01L 21/3221)]

[Materials; Selection of thermal materials]

[Mobile mounting; Scanning arrangements]

[Protective parts]

[Casings for tympanic thermometers]

[Arrangements for eliminating effects of disturbing radiation]

[using cooling or thermostating of parts of the apparatus (cooling techniques in general F17C, F15D)]

[Peltier]

[Heating; Thermostating]

[by shielding]

[Differential arrangement, i.e. sensitive/not sensitive]

[Compensating for environment parameters]

[Ambient temperature sensor; Housing temperature sensor]

[Optical features (optical-mechanical scanning H04N 5/33, G02B 26/10)]

[Optical elements not provided otherwise, e.g. optical manifolds, gratings, holograms, cubic beamsplitters, prisms, particular coatings]

[using focussing or collimating elements, e.g. lenses or mirrors]

[using plane or convex mirrors, parallel phase plates or particular reflectors]

[using attenuators]

[using light concentrators, collectors or condensers]

[using waveguides, rods or tubes]
using electric radiation detectors

5/10 . . . [Absorbing heated plate or film and temperature detector]
using determination of colour temperature
{Pyrometry using two wavelengths filtering; using selective, monochromatic or bandpass filtering; using spectral scanning}

{using spectral scanning}

{bandpass filtered}

{using visual determination}

{on two separate detectors}

{Colour temperature of lamps, sources or the like}

{using means for chopping the light}
{Compensation for background radiation of chopper element}

{Compensating radiation of chopper}

{Electrooptic chopper}

Measuring velocity of light

Measuring optical phase difference (devices or arrangements for controlling the phase of light beams)

Measuring optical wavelength (spectrometry)

Measuring the characteristics of individual optical pulses or of optical pulse trains

Streak cameras