SECTION G — PHYSICS

G16 INFORMATION AND COMMUNICATION TECHNOLOGY [ICT] SPECIALLY ADAPTED FOR SPECIFIC APPLICATION FIELDS

Note(s) [2018.01]

1. This class does not cover:
   a. pattern recognition, which is covered by group G06F 18/00;
   b. digital computing or data processing systems or methods specially adapted for administrative, commercial, financial, managerial or supervisory purposes, which are covered by subclass G06Q;
   c. image data processing or generation, which is covered by subclass G06T.
2. In this class, the following terms or expressions are used with the meaning indicated:
   a. "ICT [information and communication technology]" also covers IT [information technology];
   b. “ICT specially adapted for” also covers the expression “digital computing or data processing systems or methods specially adapted for”, which is used in group G06F 17/00.

G16B BIOINFORMATICS, i.e. INFORMATION AND COMMUNICATION TECHNOLOGY [ICT] SPECIALLY ADAPTED FOR GENETIC OR PROTEIN-RELATED DATA PROCESSING IN COMPUTATIONAL MOLECULAR BIOLOGY [2019.01]

5/00 ICT specially adapted for modelling or simulations in systems biology, e.g. gene-regulatory networks, protein interaction networks or metabolic networks [2019.01]

5/10 • Boolean models **[2019.01]**
5/20 • Probabilistic models **[2019.01]**
5/30 • Dynamic-time models **[2019.01]**

10/00 ICT specially adapted for evolutionary bioinformatics, e.g. phylogenetic tree construction or analysis [2019.01]

15/00 ICT specially adapted for analysing two-dimensional or three-dimensional molecular structures, e.g. structural or functional relations or structure alignment [2019.01]

15/10 • Nucleic acid folding **[2019.01]**
15/20 • Protein or domain folding **[2019.01]**
15/30 • Drug targeting using structural data; Docking or binding prediction **[2019.01]**

20/00 ICT specially adapted for functional genomics or proteomics, e.g. genotype-phenotype associations [2019.01]

20/10 • Ploidy or copy number detection **[2019.01]**
20/20 • Allele or variant detection, e.g. single nucleotide polymorphism [SNP] detection **[2019.01]**
20/30 • Detection of binding sites or motifs **[2019.01]**
20/40 • Population genetics; Linkage disequilibrium **[2019.01]**
20/50 • Mutagenesis **[2019.01]**

25/00 ICT specially adapted for hybridisation; ICT specially adapted for gene or protein expression [2019.01]

25/10 • Gene or protein expression profiling; Expression-ratio estimation or normalisation **[2019.01]**
25/20 • Polymerase chain reaction [PCR]; Primer or probe design; Probe optimisation **[2019.01]**
25/30 • Microarray design **[2019.01]**

30/00 ICT specially adapted for sequence analysis involving nucleotides or amino acids [2019.01]

30/10 • Sequence alignment; Homology search **[2019.01]**
30/20 • Sequence assembly **[2019.01]**

35/00 ICT specially adapted for in silico combinatorial libraries of nucleic acids, proteins or peptides [2019.01]

35/10 • Design of libraries **[2019.01]**
35/20 • Screening of libraries **[2019.01]**

40/00 ICT specially adapted for biostatistics; ICT specially adapted for bioinformatics-related machine learning or data mining, e.g. knowledge discovery or pattern finding [2019.01]

40/10 • Signal processing, e.g. from mass spectrometry [MS] or from PCR **[2019.01]**
40/20 • Supervised data analysis **[2019.01]**
40/30 • Unsupervised data analysis **[2019.01]**

45/00 ICT specially adapted for bioinformatics-related data visualisation, e.g. displaying of maps or networks [2019.01]

50/00 ICT programming tools or database systems specially adapted for bioinformatics [2019.01]

50/10 • Ontologies; Annotations **[2019.01]**
50/20 • Heterogeneous data integration **[2019.01]**
50/30 • Data warehousing; Computing architectures **[2019.01]**
50/40 • Encryption of genetic data **[2019.01]**
50/50 • Compression of genetic data **[2019.01]**

99/00 Subject matter not provided for in other groups of this subclass [2019.01]

G16B

G16C COMPUTATIONAL CHEMISTRY; CHEMOINFORMATICS; COMPUTATIONAL MATERIALS SCIENCE [2019.01]

10/00 Computational theoretical chemistry, i.e. ICT specially adapted for theoretical aspects of quantum chemistry, molecular mechanics, molecular dynamics or the like [2019.01]

20/00 Chemoinformatics, i.e. ICT specially adapted for the handling of physicochemical or structural data of chemical particles, elements, compounds or mixtures [2019.01]

20/10 • Analysis or design of chemical reactions, syntheses or processes **[2019.01]**

20/20 • Identification of molecular entities, parts thereof or of chemical compositions **[2019.01]**

20/30 • Prediction of properties of chemical compounds, compositions or mixtures **[2019.01]**

20/40 • Searching chemical structures or physicochemical data **[2019.01]**

20/50 • Molecular design, e.g. of drugs **[2019.01]**

20/60 • In silico combinatorial chemistry **[2019.01]**

20/62 • • Design of libraries **[2019.01]**

20/64 • • Screening of libraries **[2019.01]**

20/70 • Machine learning, data mining or chemometrics **[2019.01]**

20/80 • Data visualisation **[2019.01]**

20/90 • Programming languages; Computing architectures; Database systems; Data warehousing **[2019.01]**

60/00 Computational materials science, i.e. ICT specially adapted for investigating the physical or chemical properties of materials or phenomena associated with their design, synthesis, processing, characterisation or utilisation [2019.01]

99/00 Subject matter not provided for in other groups of this subclass [2019.01]

G16H HEALTHCARE INFORMATICS, i.e. INFORMATION AND COMMUNICATION TECHNOLOGY [ICT] SPECIALLY ADAPTED FOR THE HANDLING OR PROCESSING OF MEDICAL OR HEALTHCARE DATA [2018.01]

Note(s) [2018.01]

1. This subclass covers cross-sectional aspects of computer, information or communication science with medical or healthcare science, where the focus is clearly placed on digital computing or data processing systems or methods, which are specially adapted for medical or healthcare science.
2. This subclass does not cover:
   a. medical equipment, medical methods, methods of diagnosis, methods of treatment or therapy, clinical care or surgical procedures per se, which are covered by the relevant subclasses of class A61;
   b. signal processing or signal transmission associated to diagnostic measurements, e.g. signal waveform analysis, which are covered by group A61B 5/00.
3. In order to determine whether a technical subject relating to medical or healthcare science is classified in this subclass or in the relevant subclasses of A61, the following should be observed:
   a. to classify a technical subject in this subclass, it is required that the essential technical features of the subject focus onto digital computing or data processing systems or methods;
   b. if the technical subject focuses onto aspects of medical science, e.g. physiological signals or medical conditions, or if the subject involves a significant interaction with the patient, e.g. details of a diagnostic measurement, then classification shall be directed to the appropriate subclasses of class A61;
   c. the mere presence of “a computer” or “a flowchart” in relation to medical devices or procedures is not a key element for classifying in this subclass. In this case, classification shall rather be directed to the appropriate subclasses covering those medical devices or procedures.

10/00 ICT specially adapted for the handling or processing of patient-related medical or healthcare data (for medical reports G16H 15/00; for therapies or health-improving plans G16H 20/00; for the handling or processing of medical images G16H 30/00) **[2018.01]**

10/20 • for electronic clinical trials or questionnaires **[2018.01]**

10/40 • for data related to laboratory analysis, e.g. patient specimen analysis **[2018.01]**

10/60 • for patient-specific data, e.g. for electronic patient records **[2018.01]**

10/65 • • stored on portable record carriers, e.g. on smartcards, RFID tags or CD **[2018.01]**

15/00 ICT specially adapted for medical reports, e.g. generation or transmission thereof [2018.01]

20/00 ICT specially adapted for therapies or health-improving plans, e.g. for handling prescriptions, for steering therapy or for monitoring patient compliance [2018.01]

20/10 • relating to drugs or medications, e.g. for ensuring correct administration to patients **[2018.01]**

20/13 • • delivered from dispensers **[2018.01]**

20/17 • • delivered via infusion or injection **[2018.01]**

20/30 • relating to physical therapies or activities, e.g. physiotherapy, acupressure or exercising **[2018.01]**

20/40 • relating to mechanical, radiation or invasive therapies, e.g. surgery, laser therapy, dialysis or acupuncture **[2018.01]**

20/60 • relating to nutrition control, e.g. diets **[2018.01]**

20/70 • relating to mental therapies, e.g. psychological therapy or autogenous training **[2018.01]**

20/90 • relating to alternative medicines, e.g. homeopathy or oriental medicines **[2018.01]**

30/00 ICT specially adapted for the handling or processing of medical images (computed tomography A61B 6/03) **[2018.01]**

30/20 • for handling medical images, e.g. DICOM, HL7 or PACS **[2018.01]**

30/40 • for processing medical images, e.g. editing **[2018.01]**

40/00 ICT specially adapted for the management or administration of healthcare resources or facilities; ICT specially adapted for the management or operation of medical equipment or devices [2018.01]

40/20 • for the management or administration of healthcare resources or facilities, e.g. managing hospital staff or surgery rooms **[2018.01]**

40/40 • for the management of medical equipment or devices, e.g. scheduling maintenance or upgrades **[2018.01]**

40/60 • for the operation of medical equipment or devices **[2018.01]**

Note(s) [2018.01]

1. This group covers ICT specially adapted for the operation of medical equipment or devices, or of their interfaces, i.e. aspects of the operation where the focus is on the processing of medical or healthcare data which results in contextual, content-related or structural transformation of said data.
2. This group does not cover the operation of medical equipment or devices, or of their interfaces, without contextual, content-related or structural transformation of medical or healthcare data, which is covered by the relevant groups of class A61.

40/63 • • for local operation **[2018.01]**

40/67 • • for remote operation **[2018.01]**

50/00 ICT specially adapted for medical diagnosis, medical simulation or medical data mining; ICT specially adapted for detecting, monitoring or modelling epidemics or pandemics [2018.01]

50/20 • for computer-aided diagnosis, e.g. based on medical expert systems **[2018.01]**

50/30 • for calculating health indices; for individual health risk assessment **[2018.01]**

50/50 • for simulation or modelling of medical disorders **[2018.01]**

50/70 • for mining of medical data, e.g. analysing previous cases of other patients **[2018.01]**

50/80 • for detecting, monitoring or modelling epidemics or pandemics, e.g. flu **[2018.01]**

70/00 ICT specially adapted for the handling or processing of medical references [2018.01]

70/20 • relating to practices or guidelines **[2018.01]**

70/40 • relating to drugs, e.g. their side effects or intended usage **[2018.01]**

70/60 • relating to pathologies **[2018.01]**

80/00 ICT specially adapted for facilitating communication between medical practitioners or patients, e.g. for collaborative diagnosis, therapy or health monitoring [2018.01]

G16Y INFORMATION AND COMMUNICATION TECHNOLOGY SPECIALLY ADAPTED FOR THE INTERNET OF THINGS [IoT] [2020.01]

Note(s) [2020.01]

1. This subclass covers inter-networking of physical objects (“things”) that embed technology enabling the things to sense and collect information from their internal state or their external environment, wherein the information is processed by the things or by other devices, e.g. servers, to be output to the things, to other things or to other devices, and enabling these things to be connected to the Internet either directly or indirectly.
   - “Directly connected to Internet” means that a thing possesses a network address of the Internet address space, which is used to communicate over the Internet.
   - “Indirectly connected to Internet” means that a thing is connected to a proxy device, which possesses a network address of the Internet address space and which communicates over the Internet on behalf of the thing.
   - A network address of the Internet address space is an address uniquely identifying a device in the Internet.
2. This subclass does not cover:
   - Mere monitoring, e.g. security cameras, or mere controlling, e.g. remote control arrangements.
   - Generic computing and communicating devices, e.g. computers or telephones
3. This subclass is intended to enable a complementary search of subject matter related to IoT by combination of classification symbols of this subclass with classification symbols from other subclasses. Therefore this subclass covers aspects of IoT (e.g. detection or navigation) that might also be entirely or partially covered elsewhere in the IPC.
4. This subclass is for obligatory supplementary classification of subject matter already classified as such in other classification places, when the subject matter contains an aspect of IoT.
5. The classification symbols of this subclass are not listed first when assigned to patent documents.
6. No systematic reclassification was done when this subclass was introduced. When searching using the symbols of this subclass it should be noted that many documents published before 2020 are not classified in subclass G16Y.

10/00 Economic sectors [2020.01]

10/05 • Agriculture **[2020.01]**

10/10 • Forestry **[2020.01]**

10/15 • Fishing **[2020.01]**

10/20 • Mining **[2020.01]**

10/25 • Manufacturing **[2020.01]**

10/30 • Construction **[2020.01]**

10/35 • Utilities, e.g. electricity, gas or water **[2020.01]**

10/40 • Transportation **[2020.01]**

10/45 • Commerce **[2020.01]**

10/50 • Finance; Insurance **[2020.01]**

10/55 • Education **[2020.01]**

10/60 • Healthcare; Welfare **[2020.01]**

10/65 • Entertainment or amusement; Sports **[2020.01]**

10/70 • Broadcasting **[2020.01]**

10/75 • Information technology; Communication **[2020.01]**

10/80 • Homes; Buildings **[2020.01]**

10/90 • Chemistry **[2020.01]**

20/00 Information sensed or collected by the things [2020.01]

20/10 • relating to the environment, e.g. temperature; relating to location **[2020.01]**
20/20 • relating to the thing itself **[2020.01]**
20/30 • relating to resources, e.g. consumed power **[2020.01]**
20/40 • relating to personal data, e.g. biometric data, records or preferences **[2020.01]**

30/00 IoT infrastructure [2020.01]
30/10 • Security thereof **[2020.01]**

40/00 IoT characterised by the purpose of the information processing [2020.01]
40/10 • Detection; Monitoring **[2020.01]**
40/20 • Analytics; Diagnosis **[2020.01]**
40/30 • Control **[2020.01]**
40/35 • • Management of things, i.e. controlling in accordance with a policy or in order to achieve specified objectives **[2020.01]**
40/40 • Maintenance of things **[2020.01]**
40/50 • Safety; Security of things, users, data or systems **[2020.01]**
40/60 • Positioning; Navigation **[2020.01]**

G16Z INFORMATION AND COMMUNICATION TECHNOLOGY [ICT] SPECIALLY ADAPTED FOR SPECIFIC APPLICATION FIELDS, NOT OTHERWISE PROVIDED FOR [2019.01]

99/00 Subject matter not provided for in other main groups of this subclass [2019.01]