

ANNEX 1: ERC PEER REVIEW EVALUATION PANELS (ERC PANELS)

For the planning and operation of the evaluation of ERC grant proposals by panels, the following panel structure applies. There are 25 ERC panels to cover all fields of science, engineering and scholarship assigned to three research domains: Social Sciences and Humanities (6 Panels, SH1–SH6), Physical Sciences and Engineering (10 Panels, PE1–PE10), Life Sciences (9 Panels, LS1–LS9).

The panel names are accompanied by a list of panel descriptors (i.e. ERC keywords) indicating the fields of research covered by the respective ERC panels.

The panel descriptors must always be read in the overall context of the panel's titles and sub-titles.

Social Sciences and Humanities

SH1	Individuals, institutions and markets: economics, finance and management
SH1_1	Macroeconomics, business cycles
SH1_2	Development, economic growth
SH1_3	Microeconomics, institutional economics
SH1_4	Econometrics, statistical methods
SH1_5	Financial markets, asset prices, international finance
SH1_6	Banking, corporate finance, accounting
SH1_7	Competitiveness, innovation, research and development
SH1_8	Consumer choice, behavioural economics, marketing
SH1_9	Organization studies, strategy
SH1_10	Human resource management, labour economics
SH1_11	Public economics, political economics, public administration
SH1_12	Income distribution, poverty
SH1_13	International trade, economic geography
SH1_14	Quantitative and institutional economic history
SH2	Institutions, values, beliefs and behaviour: sociology, social anthropology, political science, law, communication, social studies of science and technology
SH2_1	Social structure, inequalities, social mobility, interethnic relations
SH2_2	Ageing, work, social policies, welfare
SH2_3	Kinship, cultural dimensions of classification and cognition, identity, gender
SH2_4	Myth, ritual, symbolic representations, religious studies
SH2_5	Democratization, social movements
SH2_6	Violence, conflict and conflict resolution
SH2_7	Political systems and institutions, governance
SH2_8	Legal theory, legal systems, constitutions, comparative law
SH2_9	Global and transnational governance, international studies, human rights
SH2_10	Communication networks, media, information society
SH2_11	Social studies of science and technology, science, technology and innovation policies
SH3	Environment, space and population: environmental studies, demography, social geography, urban and regional studies
SH3_1	Environment, resources and sustainability

SH3_2	Environmental change and society
SH3_3	Environmental regulations and climate negotiations
SH3_4	Social and industrial ecology
SH3_5	Population dynamics, health and society
SH3_6	Families and households
SH3_7	Globalization, domestic and international migration
SH3_8	Mobility, tourism, transportation and logistics
SH3_9	Spatial development, land use, regional planning
SH3_10	Urbanization, cities and rural areas
SH3_11	Infrastructure, human and political geography, settlements
SH3_12	Geo-information and spatial data analysis
SH4 The Human Mind and its complexity: cognition, psychology, linguistics, philosophy and education	
SH4_1	Evolution of mind and cognitive functions, animal communication
SH4_2	Human life-span development
SH4_3	Neuropsychology and clinical psychology
SH4_4	Cognitive and experimental psychology: perception, action, and higher cognitive processes
SH4_5	Linguistics: formal, cognitive, functional and computational linguistics
SH4_6	Linguistics: typological, historical and comparative linguistics
SH4_7	Psycholinguistics and neurolinguistics: acquisition and knowledge of language, language pathologies
SH4_8	Use of language: pragmatics, sociolinguistics, discourse analysis, second language teaching and learning, lexicography, terminology
SH4_9	Philosophy, history of philosophy
SH4_10	Epistemology, logic, philosophy of science
SH4_11	Ethics and morality, bioethics
SH4_12	Education: systems and institutions, teaching and learning
SH5 Cultures and cultural production: literature, visual and performing arts, music, cultural and comparative studies	
SH5_1	Classics, ancient Greek and Latin literature and art
SH5_2	History of literature
SH5_3	Literary theory and comparative literature, literary styles
SH5_4	Textual philology and palaeography
SH5_5	Visual arts
SH5_6	Performing arts
SH5_7	Museums and exhibitions
SH5_8	Music and musicology, history of music
SH5_9	History of art and history of architecture
SH5_10	Cultural studies, cultural diversity
SH5_11	Cultural heritage, cultural memory
SH6 The study of the human past: archaeology, history and memory	
SH6_1	Archaeology, archaeometry, landscape archaeology
SH6_2	Prehistory and protohistory
SH6_3	Ancient history
SH6_4	Medieval history
SH6_5	Early modern history

SH6_6	Modern and contemporary history
SH6_7	Colonial and post-colonial history, global and transnational history
SH6_8	Social and economic history
SH6_9	History of ideas, intellectual history, history of sciences and techniques
SH6_10	Cultural history
SH6_11	History of collective identities and memories, history of gender
SH6_12	Historiography, theory and methods of history

Physical Sciences and Engineering

PE1 Mathematics: all areas of mathematics, pure and applied, plus mathematical foundations of computer science, mathematical physics and statistics	
PE1_1	Logic and foundations
PE1_2	Algebra
PE1_3	Number theory
PE1_4	Algebraic and complex geometry
PE1_5	Geometry
PE1_6	Topology
PE1_7	Lie groups, Lie algebras
PE1_8	Analysis
PE1_9	Operator algebras and functional analysis
PE1_10	ODE and dynamical systems
PE1_11	Theoretical aspects of partial differential equations
PE1_12	Mathematical physics
PE1_13	Probability
PE1_14	Statistics
PE1_15	Discrete mathematics and combinatorics
PE1_16	Mathematical aspects of computer science
PE1_17	Numerical analysis
PE1_18	Scientific computing and data processing
PE1_19	Control theory and optimization
PE1_20	Application of mathematics in sciences
PE1_21	Application of mathematics in industry and society life
PE2 Fundamental constituents of matter: particle, nuclear, plasma, atomic, molecular, gas, and optical physics	
PE2_1	Fundamental interactions and fields
PE2_2	Particle physics
PE2_3	Nuclear physics
PE2_4	Nuclear astrophysics
PE2_5	Gas and plasma physics
PE2_6	Electromagnetism
PE2_7	Atomic, molecular physics
PE2_8	Ultra-cold atoms and molecules
PE2_9	Optics, non-linear optics and nano-optics
PE2_10	Quantum optics and quantum information
PE2_11	Lasers, ultra-short lasers, and laser physics
PE2_12	Acoustics
PE2_13	Relativity

PE2_14	Thermodynamics
PE2_15	Non-linear physics
PE2_16	General physics
PE2_17	Metrology and measurement
PE2_18	Statistical physics (gases)
PE3	<u>Condensed matter physics:</u> structure, electronic properties, fluids, nanosciences
PE3_1	Structure of solids and liquids
PE3_2	Mechanical and acoustical properties of condensed matter
PE3_3	Thermal properties of condensed matter
PE3_4	Transport properties of condensed matter
PE3_5	Electronic properties of materials and transport
PE3_6	Lattice dynamics
PE3_7	Semiconductors, material growth, physical properties
PE3_8	Superconductivity
PE3_9	Superfluids
PE3_10	Spintronics
PE3_11	Magnetism
PE3_12	Electro-optics
PE3_13	Nanophysics: nanoelectronics, nanophotonics, nanomagnetism
PE3_14	Mesoscopic physics
PE3_15	Molecular electronics
PE3_16	Soft condensed matter (liquid crystals...)
PE3_17	Fluid dynamics (physics)
PE3_18	Statistical physics (condensed matter)
PE3_19	Phase transitions, phase equilibria
PE3_20	Biophysics
PE4	<u>Physical and Analytical Chemical sciences:</u> analytical chemistry, chemical theory, physical chemistry/chemical physics
PE4_1	Physical chemistry
PE4_2	Spectroscopic and spectrometric techniques
PE4_3	Molecular architecture and Structure
PE4_4	Surface science and nanostructures
PE4_5	Analytical chemistry
PE4_6	Chemical physics
PE4_7	Chemical instrumentation
PE4_8	Electrochemistry, electrodialysis, microfluidics, sensors
PE4_9	Method development in chemistry
PE4_10	Heterogeneous catalysis
PE4_11	Physical chemistry of biological systems
PE4_12	Chemical reactions: mechanisms, dynamics, kinetics and catalytic reactions
PE4_13	Theoretical and computational chemistry
PE4_14	Radiation chemistry
PE4_15	Nuclear chemistry
PE4_16	Photochemistry
PE4_17	Corrosion
PE4_18	Characterization methods of materials

PE5 Materials and Synthesis: materials synthesis, structure-properties relations, functional and advanced materials, molecular architecture, organic chemistry	
PE5_1	Structural properties of materials
PE5_2	Solid state materials
PE5_3	Surface modification
PE5_4	Thin films
PE5_5	Ionic liquids
PE5_6	New materials: oxides, alloys, composite, organic-inorganic hybrid, nanoparticles
PE5_7	Biomaterials synthesis
PE5_8	Intelligent materials – self assembled materials
PE5_9	Environment chemistry
PE5_10	Coordination chemistry
PE5_11	Colloid chemistry
PE5_12	Biological chemistry
PE5_13	Chemistry of condensed matter
PE5_14	Homogeneous catalysis
PE5_15	Macromolecular chemistry
PE5_16	Polymer chemistry
PE5_17	Supramolecular chemistry
PE5_18	Organic chemistry
PE5_19	Molecular chemistry
PE5_20	Combinatorial chemistry
PE6 Computer science and informatics: informatics and information systems, computer science, scientific computing, intelligent systems	
PE6_1	Computer architecture, parallel, distributed and pervasive computing
PE6_2	Database systems and management
PE6_3	Formal methods, theoretical computer science including quantum information
PE6_4	Graphics, image processing, computer vision and visualization
PE6_5	Human computer interaction and interface
PE6_6	Speech and language processing, speech synthesis
PE6_7	Informatics, Web and information systems including information retrieval and digital libraries
PE6_8	Intelligent systems, multi agent systems, machine learning
PE6_9	Scientific computing
PE6_10	Simulation and modelling tools
PE6_11	Multimedia
PE6_12	Software, operating systems, development methods, languages, algorithms
PE6_13	Cryptology, security and privacy
PE6_14	Bioinformatics, biocomputing
PE7 Systems and communication engineering: electronic, communication, optical and systems engineering	
PE7_1	Control engineering
PE7_2	Electrical and electronic engineering: semiconductors, components, systems
PE7_3	Simulation engineering and modelling
PE7_4	Systems engineering, sensorics, actorics, automation
PE7_5	Micro- and nanoelectronics, optoelectronics
PE7_6	Communication technology, high-frequency technology

PE7_7	Signal processing
PE7_8	Networks (communication networks, sensor networks, networks of robots.....)
PE7_9	Man-machine-interfaces
PE7_10	Robotics
PE8 Products and process engineering: product design, process design and control, construction methods, civil engineering, energy systems, material engineering	
PE8_1	Aerospace engineering
PE8_2	Chemical engineering, technical chemistry
PE8_3	Civil engineering, maritime/hydraulic engineering, geotechnics, waste treatment
PE8_4	Computational engineering
PE8_5	Fluid mechanics, hydraulic-, turbo-, and piston engines
PE8_6	Energy systems (production, distribution, application)
PE8_7	Micro (system) engineering,
PE8_8	Mechanical and manufacturing engineering (shaping, mounting, joining, separation)
PE8_9	Materials engineering (biomaterials, metals, ceramics, polymers, composites, ...)
PE8_10	Production technology, process engineering
PE8_11	Product design, ergonomics, man-machine interfaces
PE8_12	Sustainable design (for recycling, for environment, eco-design)
PE8_13	Lightweight construction, textile technology
PE8_14	Industrial bioengineering
PE8_15	Industrial biofuel production
PE9 Universe sciences: astro-physics/chemistry/biology; solar system; stellar, galactic and extragalactic astronomy, planetary systems, cosmology; space science, instrumentation	
PE9_1	Solar and interplanetary physics
PE9_2	Planetary systems sciences
PE9_3	Interstellar medium
PE9_4	Formation of stars and planets
PE9_5	Astrobiology
PE9_6	Stars and stellar systems
PE9_7	The Galaxy
PE9_8	Formation and evolution of galaxies
PE9_9	Clusters of galaxies and large scale structures
PE9_10	High energy and particles astronomy – X-rays, cosmic rays, gamma rays, neutrinos
PE9_11	Relativistic astrophysics
PE9_12	Dark matter, dark energy
PE9_13	Gravitational astronomy
PE9_14	Cosmology
PE9_15	Space Sciences
PE9_16	Very large data bases: archiving, handling and analysis
PE9_17	Instrumentation - telescopes, detectors and techniques
PE9_18	Solar planetology
PE10 Earth system science: physical geography, geology, geophysics, atmospheric sciences, oceanography, climatology, ecology, global environmental change, biogeochemical cycles, natural resources management	
PE10_1	Atmospheric chemistry, atmospheric composition, air pollution
PE10_2	Meteorology, atmospheric physics and dynamics
PE10_3	Climatology and climate change

PE10_4	Terrestrial ecology, land cover change,
PE10_5	Geology, tectonics, volcanology,
PE10_6	Paleoclimatology, paleoecology
PE10_7	Physics of earth's interior, seismology, volcanology
PE10_8	Oceanography (physical, chemical, biological, geological)
PE10_9	Biogeochemistry, biogeochemical cycles, environmental chemistry
PE10_10	Mineralogy, petrology, igneous petrology, metamorphic petrology
PE10_11	Geochemistry, crystal chemistry, isotope geochemistry, thermodynamics,
PE10_12	Sedimentology, soil science, palaeontology, earth evolution
PE10_13	Physical geography
PE10_14	Earth observations from space/remote sensing
PE10_15	Geomagnetism, paleomagnetism
PE10_16	Ozone, upper atmosphere, ionosphere
PE10_17	Hydrology, water and soil pollution

Life Sciences

LS1	Molecular and Structural Biology and Biochemistry: molecular biology, biochemistry, biophysics, structural biology, biochemistry of signal transduction
LS1_1	Molecular biology and interactions
LS1_2	General biochemistry and metabolism
LS1_3	DNA synthesis, modification, repair, recombination and degradation
LS1_4	RNA synthesis, processing, modification and degradation
LS1_5	Protein synthesis, modification and turnover
LS1_6	Biophysics
LS1_7	Structural biology (crystallography, NMR, EM)
LS1_8	Biochemistry of signal transduction
LS2	Genetics, Genomics, Bioinformatics and Systems Biology: genetics, population genetics, molecular genetics, genomics, transcriptomics, proteomics, metabolomics, bioinformatics, computational biology, biostatistics, biological modelling and simulation, systems biology, genetic epidemiology
LS2_1	Genomics, comparative genomics, functional genomics
LS2_2	Transcriptomics
LS2_3	Proteomics
LS2_4	Metabolomics
LS2_5	Glycomics
LS2_6	Molecular genetics, reverse genetics and RNAi
LS2_7	Quantitative genetics
LS2_8	Epigenetics and gene regulation
LS2_9	Genetic epidemiology
LS2_10	Bioinformatics
LS2_11	Computational biology
LS2_12	Biostatistics
LS2_13	Systems biology
LS2_14	Biological systems analysis, modelling and simulation

LS3 Cellular and Developmental Biology: cell biology, cell physiology, signal transduction, organogenesis, developmental genetics, pattern formation in plants and animals

- LS3_1 Morphology and functional imaging of cells
- LS3_2 Cell biology and molecular transport mechanisms
- LS3_3 Cell cycle and division
- LS3_4 Apoptosis
- LS3_5 Cell differentiation, physiology and dynamics
- LS3_6 Organelle biology
- LS3_7 Cell signalling and cellular interactions
- LS3_8 Signal transduction
- LS3_9 Development, developmental genetics, pattern formation and embryology in animals
- LS3_10 Development, developmental genetics, pattern formation and embryology in plants
- LS3_11 Cell genetics
- LS3_12 Stem cell biology

LS4 Physiology, Pathophysiology and Endocrinology: organ physiology, pathophysiology, endocrinology, metabolism, ageing, regeneration, tumorigenesis, cardiovascular disease, metabolic syndrome

- LS4_1 Organ physiology
- LS4_2 Comparative physiology
- LS4_3 Endocrinology
- LS4_4 Ageing
- LS4_5 Metabolism, biological basis of metabolism related disorders
- LS4_6 Cancer and its biological basis
- LS4_7 Cardiovascular diseases
- LS4_8 Non-communicable diseases (except for neural/psychiatric, immunity-related, metabolism-related disorders, cancer and cardiovascular diseases)

LS5 Neurosciences and neural disorders: neurobiology, neuroanatomy, neurophysiology, neurochemistry, neuropharmacology, neuroimaging, systems neuroscience, neurological disorders, psychiatry

- LS5_1 Neuroanatomy and neurophysiology
- LS5_2 Molecular and cellular neuroscience
- LS5_3 Neurochemistry and neuropharmacology
- LS5_4 Sensory systems (e.g. visual system, auditory system)
- LS5_5 Mechanisms of pain
- LS5_6 Developmental neurobiology
- LS5_7 Cognition (e.g. learning, memory, emotions, speech)
- LS5_8 Behavioral neuroscience (e.g. sleep, consciousness, handedness)
- LS5_9 Systems neuroscience
- LS5_10 Neuroimaging and computational neuroscience
- LS5_11 Neurological disorders (e.g. Alzheimer's disease, Huntington's disease, Parkinson's disease)
- LS5_12 Psychiatric disorders (e.g. schizophrenia, autism, Tourette's syndrome, obsessive-compulsive disorder, depression, bipolar disorder, attention deficit hyperactivity disorder)

LS6 Immunity and infection: immunobiology, aetiology of immune disorders, microbiology, virology, parasitology, global and other infectious diseases, population dynamics of infectious diseases, veterinary medicine

LS6_1 Innate immunity

LS6_2 Adaptive immunity

LS6_3 Phagocytosis and cellular immunity

LS6_4 Immunosignalling

LS6_5 Immunological memory and tolerance

LS6_6 Immunogenetics

LS6_7 Microbiology

LS6_8 Virology

LS6_9 Bacteriology

LS6_10 Parasitology

LS6_11 Prevention and treatment of infection by pathogens (e.g. vaccination, antibiotics, fungicide)

LS6_12 Biological basis of immunity related disorders

LS6_13 Veterinary medicine

LS7 Diagnostic tools, therapies and public health: aetiology, diagnosis and treatment of disease, public health, epidemiology, pharmacology, clinical medicine, regenerative medicine, medical ethics

LS7_1 Medical engineering and technology

LS7_2 Diagnostic tools (e.g. genetic, imaging)

LS7_3 Pharmacology, pharmacogenomics, drug discovery and design, drug therapy

LS7_4 Analgesia

LS7_5 Toxicology

LS7_6 Gene therapy, stem cell therapy, regenerative medicine

LS7_7 Surgery

LS7_8 Radiation therapy

LS7_9 Health services, health care research

LS7_10 Public health and epidemiology

LS7_11 Environment and health risks including radiation

LS7_12 Occupational medicine

LS7_13 Medical ethics

LS8 Evolutionary, population and environmental biology: evolution, ecology, animal behaviour, population biology, biodiversity, biogeography, marine biology, ecotoxicology, prokaryotic biology

LS8_1 Ecology (theoretical, community, population, microbial, evolutionary ecology)

LS8_2 Population biology, population dynamics, population genetics, plant-animal interactions

LS8_3 Systems evolution, biological adaptation, phylogenetics, systematics

LS8_4 Biodiversity, comparative biology

LS8_5 Conservation biology, ecology, genetics

LS8_6 Biogeography

LS8_7 Animal behaviour (behavioural ecology, animal communication)

LS8_8 Environmental and marine biology

LS8_9 Environmental toxicology

LS8_10 Prokaryotic biology

LS8_11 Symbiosis

LS9 Applied life sciences and biotechnology: agricultural, animal, fishery, forestry and food sciences; biotechnology, chemical biology, genetic engineering, synthetic biology, industrial biosciences; environmental biotechnology and remediation

LS9_1 Genetic engineering, transgenic organisms, recombinant proteins, biosensors

LS9_2 Synthetic biology and new bio-engineering concepts

LS9_3 Agriculture related to animal husbandry, dairying, livestock raising

LS9_4 Aquaculture, fisheries

LS9_5 Agriculture related to crop production, soil biology and cultivation, applied plant biology

LS9_6 Food sciences

LS9_7 Forestry, biomass production (e.g. for biofuels)

LS9_8 Environmental biotechnology, bioremediation, biodegradation

LS9_9 Biotechnology (non-medical), bioreactors, applied microbiology

LS9_10 Biomimetics

LS9_11 Biohazards, biological containment, biosafety, biosecurity