

2: Annexes

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: Physical Sciences and Engineering (10 Panels, PE1–PE10), Life Sciences (9 Panels, LS1–LS9) and Social Sciences and Humanities (6 Panels, SH1–SH6).

The panel names are accompanied by a list of ERC keywords indicating the fields of research covered by the respective ERC panels.

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

Social Sciences and Humanities

SH1 Individuals, Markets and Organisations: Economics, finance and management

- SH1_1 Macroeconomics; monetary economics; economic growth
- SH1_2 International trade; international business; international management; spatial economics
- SH1_3 Financial economics; monetary economics
- SH1_4 Financial economics; banking; corporate finance; international finance; accounting; auditing; insurance
- SH1_5 Labour and demographic economics; human resource management
- SH1_6 Econometrics; operations research
- SH1_7 Behavioural economics; experimental economics; neuro-economics
- SH1_8 Microeconomics; game theory
- SH1_9 Industrial organisation; strategy; entrepreneurship
- SH1_10 Management; marketing; organisational behaviour; operations management
- SH1_11 Technological change, innovation, research & development
- SH1_12 Agricultural economics; energy economics; environmental economics
- SH1_13 Public economics; political economics; law and economics
- SH1_14 Quantitative economic history; institutional economics; economic systems

SH2 Institutions, Values, Environment and Space: Political science, law, sustainability science, geography, regional studies and planning

- SH2_1 Political systems, governance
- SH2_2 Democratisation and social movements
- SH2_3 Conflict resolution, war
- SH2_4 Legal studies, constitutions, human rights, comparative law
- SH2_5 International relations, global and transnational governance
- SH2_6 Sustainability sciences, environment and resources
- SH2_7 Environmental and climate change, societal impact and policy
- SH2_8 Energy, transportation and mobility
- SH2_9 Urban, regional and rural studies
- SH2_10 Land use and regional planning
- SH2_11 Human, economic and social geography
- SH2_12 GIS, spatial analysis; big data in political, geographical and legal studies

SH3 The Social World, Diversity, Population: Sociology, social psychology, demography, education, communication

- SH3_1 Social structure, social mobility
- SH3_2 Inequalities, discrimination, prejudice, aggression and violence, antisocial behaviour
- SH3_3 Social integration, exclusion, prosocial behaviour

- SH3_4 Attitudes and beliefs
- SH3_5 Social influence; power and group behaviour; classroom management
- SH3_6 Diversity and identities, gender, interethnic relations
- SH3_7 Social policies, welfare
- SH3_8 Population dynamics; households, family and fertility
- SH3_9 Health, ageing and society
- SH3_10 Social aspects of learning, curriculum studies, educational policies
- SH3_11 Communication and information, networks, media
- SH3_12 Digital social research
- SH3_13 Science and technology studies

SH4 The Human Mind and Its Complexity: Cognitive science, psychology, linguistics, philosophy of mind

- SH4_1 Cognitive basis of human development and education, developmental disorders; comparative cognition
- SH4_2 Personality and social cognition; emotion
- SH4_3 Clinical and health psychology
- SH4_4 Neuropsychology
- SH4_5 Attention, perception, action, consciousness
- SH4_6 Learning, memory; cognition in ageing
- SH4_7 Reasoning, decision-making; intelligence
- SH4_8 Language learning and processing (first and second languages)
- SH4_9 Theoretical linguistics; computational linguistics
- SH4_10 Language typology
- SH4_11 Pragmatics, sociolinguistics, discourse analysis
- SH4_12 Philosophy of mind, philosophy of language
- SH4_13 Philosophy of science, epistemology, logic

SH5 Cultures and Cultural Production: Literature, philology, cultural studies, anthropology, study of the arts, philosophy

- SH5_1 Classics, ancient literature and art
- SH5_2 Theory and history of literature, comparative literature
- SH5_3 Philology and palaeography; historical linguistics
- SH5_4 Visual and performing arts, film, design
- SH5_5 Music and musicology; history of music
- SH5_6 History of art and architecture, arts-based research
- SH5_7 Museums, exhibitions, conservation and restoration
- SH5_8 Cultural studies, cultural identities and memories, cultural heritage
- SH5_9 Social anthropology, religious studies, symbolic representation
- SH5_10 Metaphysics, philosophical anthropology; aesthetics
- SH5_11 Ethics; social and political philosophy
- SH5_12 History of philosophy
- SH5_13 Computational Modelling and Digitisation in the Cultural Sphere

SH6 The Study of the Human Past: Archaeology and history

- SH6_1 Historiography, Theory and methods in history, including the analysis of digital data
- SH6_2 Classical archaeology, history of archaeology

SH6_3	General archaeology, archaeometry, landscape archaeology
SH6_4	Prehistory, palaeoanthropology, palaeodemography, protohistory
SH6_5	Ancient history
SH6_6	Medieval history
SH6_7	Early modern history
SH6_8	Modern and contemporary history
SH6_9	Colonial and post-colonial history
SH6_10	Global history, transnational history, comparative history, entangled histories
SH6_11	Social and economic history
SH6_12	Gender history; Cultural History; History of Collective Identities and Memories
SH6_13	History of Ideas, Intellectual History, history of economic thought
SH6_14	History of Science, Medicine and Technologies

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 optimisation
PE1_20	Application of mathematics in sciences
PE1_21	Application of mathematics in industry and society

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 Condensed Matter Physics: Structure, electronic properties, fluids, nanosciences, biophysics

- PE3_1 Structure of solids and liquids
- PE3_2 Mechanical and acoustical properties of condensed matter, Lattice dynamics
- PE3_3 Transport properties of condensed matter
- PE3_4 Electronic properties of materials, surfaces, interfaces, nanostructures, etc.
- PE3_5 Semiconductors and insulators: material growth, physical properties
- PE3_6 Macroscopic quantum phenomena: superconductivity, superfluidity, etc.
- PE3_7 Spintronics
- PE3_8 Magnetism and strongly correlated systems
- PE3_9 Condensed matter – beam interactions (photons, electrons, etc.)
- PE3_10 Nanophysics: nanoelectronics, nanophotonics, nanomagnetism, nanoelectromechanics, etc.
- PE3_11 Mesoscopic physics
- PE3_12 Molecular electronics
- PE3_13 Structure and dynamics of disordered systems: soft matter (gels, colloids, liquid crystals, etc.), glasses, defects, etc.
- PE3_14 Fluid dynamics (physics)
- PE3_15 Statistical physics: phase transitions, noise and fluctuations, models of complex systems, etc.
- PE3_16 Physics of biological systems

PE4 Physical and Analytical Chemical Sciences: 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 and Nuclear chemistry
- PE4_15 Photochemistry
- PE4_16 Corrosion
- PE4_17 Characterisation methods of materials
- PE4_18 Environment chemistry

PE5 Synthetic Chemistry and Materials: 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, biomaterials synthesis
- PE5_8 Intelligent materials – self assembled materials
- PE5_9 Coordination chemistry
- PE5_10 Colloid chemistry
- PE5_11 Biological chemistry
- PE5_12 Chemistry of condensed matter
- PE5_13 Homogeneous catalysis
- PE5_14 Macromolecular chemistry
- PE5_15 Polymer chemistry
- PE5_16 Supramolecular chemistry
- PE5_17 Organic chemistry
- PE5_18 Molecular chemistry
- PE5_19 Combinatorial chemistry

PE6 Computer Science and Informatics: Informatics and information systems, computer science, scientific computing, intelligent systems

- PE6_1 Computer architecture, pervasive computing, ubiquitous computing
- PE6_2 Computer systems, parallel/distributed systems, sensor networks, embedded systems, cyber-physical systems
- PE6_3 Software engineering, operating systems, computer languages
- PE6_4 Theoretical computer science, formal methods, and quantum computing
- PE6_5 Cryptology, security, privacy, quantum crypto
- PE6_6 Algorithms, distributed, parallel and network algorithms, algorithmic game theory
- PE6_7 Artificial intelligence, intelligent systems, multi agent systems
- PE6_8 Computer graphics, computer vision, multi media, computer games
- PE6_9 Human computer interaction and interface, visualisation and natural language processing
- PE6_10 Web and information systems, database systems, information retrieval and digital libraries, data fusion

PE6_11 Machine learning, statistical data processing and applications using signal processing (e.g. speech, image, video)

PE6_12 Scientific computing, simulation and modelling tools

PE6_13 Bioinformatics, biocomputing, and DNA and molecular computation

PE7 Systems and Communication Engineering: Electrical, electronic, communication, optical and systems engineering

PE7_1 Control engineering

PE7_2 Electrical engineering: power components and/or systems

PE7_3 Simulation engineering and modelling

PE7_4 (Micro and nano) systems engineering

PE7_5 (Micro and nano) electronic, optoelectronic and photonic components

PE7_6 Communication technology, high-frequency technology

PE7_7 Signal processing

PE7_8 Networks (communication networks, sensor networks, networks of robots, etc.)

PE7_9 Man-machine-interfaces

PE7_10 Robotics

PE7_11 Components and systems for applications (in e.g. medicine, biology, environment)

PE7_12 Electrical energy production, distribution, application

PE8 Products and Processes Engineering: Product design, process design and control, construction methods, civil engineering, energy processes, material engineering

PE8_1 Aerospace engineering

PE8_2 Chemical engineering, technical chemistry

PE8_3 Civil engineering, architecture, maritime/hydraulic engineering, geotechnics, waste treatment

PE8_4 Computational engineering

PE8_5 Fluid mechanics, hydraulic-, turbo-, and piston engines

PE8_6 Energy processes engineering

PE8_7 Mechanical and manufacturing engineering (shaping, mounting, joining, separation)

PE8_8 Materials engineering (metals, ceramics, polymers, composites, etc.)

PE8_9 Production technology, process engineering

PE8_10 Industrial design (product design, ergonomics, man-machine interfaces, etc.)

PE8_11 Sustainable design (for recycling, for environment, eco-design)

PE8_12 Lightweight construction, textile technology

PE8_13 Industrial bioengineering

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

PE10 Earth System Science: Physical geography, geology, geophysics, atmospheric sciences, oceanography, climatology, cryology, 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 Palaeoclimatology, palaeoecology
- 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, palaeomagnetism
- PE10_16 Ozone, upper atmosphere, ionosphere
- PE10_17 Hydrology, water and soil pollution
- PE10_18 Cryosphere, dynamics of snow and ice cover, sea ice, permafrosts and ice sheets

Life Sciences

LS1 Molecular and Structural Biology and Biochemistry: Molecular synthesis, modification and interaction, biochemistry, biophysics, structural biology, metabolism, signal transduction

- LS1_1 Molecular 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 Lipid synthesis, modification and turnover
- LS1_7 Carbohydrate synthesis, modification and turnover
- LS1_8 Biophysics (e.g. transport mechanisms, bioenergetics, fluorescence)
- LS1_9 Structural biology (crystallography and EM)
- LS1_10 Structural biology (NMR)
- LS1_11 Biochemistry and molecular mechanisms of signal transduction

LS2 Genetics, Genomics, Bioinformatics and Systems Biology: Molecular and population 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, stem cell biology

- 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, tumorigenesis, cardiovascular disease, metabolic syndrome

- LS4_1 Organ physiology and pathophysiology
- LS4_2 Comparative physiology and pathophysiology
- 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 and psychiatric disorders

- 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 Behavioural 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: The immune system and related disorders, infectious agents and diseases, prevention and treatment of infection

- LS6_1 Innate immunity and inflammation
- 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 (e.g. autoimmunity)
- LS6_13 Veterinary medicine and infectious diseases in animals

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 and Surgery
- LS7_5 Toxicology
- LS7_6 Gene therapy, cell therapy, regenerative medicine
- LS7_7 Radiation therapy
- LS7_8 Health services, health care research

- LS7_9 Public health and epidemiology
- LS7_10 Environment and health risks, occupational medicine
- LS7_11 Medical ethics

LS8 Evolutionary, Population and Environmental Biology: Evolution, ecology, animal behaviour, population biology, biodiversity, biogeography, marine biology, ecotoxicology, microbial ecology

- LS8_1 Ecology (theoretical and experimental; population, species and community level)
- LS8_2 Population biology, population dynamics, population genetics
- LS8_3 Systems evolution, biological adaptation, phylogenetics, systematics, comparative biology
- LS8_4 Biodiversity, conservation biology, conservation genetics, invasion biology
- LS8_5 Evolutionary biology: evolutionary ecology and genetics, co-evolution
- LS8_6 Biogeography, macro-ecology
- LS8_7 Animal behaviour
- LS8_8 Environmental and marine biology
- LS8_9 Environmental toxicology at the population and ecosystems level
- LS8_10 Microbial ecology and evolution
- LS8_11 Species interactions (e.g. food-webs, symbiosis, parasitism, mutualism)

LS9 Applied Life Sciences and Non-Medical Biotechnology: Applied plant and animal sciences; food sciences; forestry; industrial, environmental and non-medical biotechnologies, bioengineering; synthetic and chemical biology; biomimetics; bioremediation

- LS9_1 Non-medical biotechnology and genetic engineering (including transgenic organisms, recombinant proteins, biosensors, bioreactors, microbiology)
- LS9_2 Synthetic biology, chemical biology and bio-engineering
- LS9_3 Animal sciences (including animal husbandry, aquaculture, fisheries, animal welfare)
- LS9_4 Plant sciences (including crop production, plant breeding, agroecology, soil biology)
- LS9_5 Food sciences (including food technology, nutrition)
- LS9_6 Forestry and biomass production (including biofuels)
- LS9_7 Environmental biotechnology (including bioremediation, biodegradation)
- LS9_8 Biomimetics
- LS9_9 Biohazards (including biological containment, biosafety, biosecurity)