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
- SH1_2 Development, economic growth
- SH1_3 Microeconomics, behavioural economics
- SH1_4 Marketing
- SH1_5 Political economy, institutional economics, law and economics
- SH1_6 Econometrics, statistical methods
- SH1_7 Financial markets, asset prices, international finance
- SH1_8 Banking, corporate finance, accounting
- SH1_9 Competitiveness, innovation, research and development
- SH1_10 Organization studies: theory & strategy, industrial organization
- SH1_11 Labour economics, income distribution and poverty
- SH1_12 Public economics
- SH1_13 International trade
- SH1_14 History of economic thought and quantitative 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 Social policies, work and 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 studies, constitutions, comparative law, human rights
- SH2_9 Global and transnational governance, international studies
- SH2_10 Communication networks, media, information society
- SH2_11 Social studies of science and technology

SH3 Environment, Space and Population: Environmental studies, geography, demography, migration, regional and urban 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, aging, health and society
SH3_6 Households, family and fertility
SH3_7 Migration
SH3_8 Mobility, tourism, transportation and logistics
SH3_9 Spatial development and architecture, land use, regional planning
SH3_10 Urban studies, regional studies
SH3_11 Social geography, infrastructure,
SH3_12 Geo-information and spatial data analysis

SH4 The Human Mind and Its Complexity: Cognitive science, psychology, linguistics, education

SH4_1 Evolution of mind and cognitive functions, animal communication
SH4_2 Human life-span development
SH4_3 Neuropsychology
SH4_4 Cognitive and experimental psychology: perception, action, and higher cognitive processes
SH4_5 Social and clinical psychology
SH4_6 Linguistics: formal, cognitive, functional and computational linguistics
SH4_7 Linguistics: typological, historical and comparative linguistics
SH4_8 Psycholinguistics and neurolinguistics: acquisition and knowledge of language, language pathologies
SH4_9 Use of language: pragmatics, sociolinguistics, discourse analysis, second language teaching and learning, lexicography, terminology
SH4_10 Philosophy of mind, epistemology and logic
SH4_11 Education: systems and institutions, teaching and learning

SH5 Cultures and Cultural Production: Literature and philosophy, 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, palaeography and epigraphy
SH5_5 Visual arts, performing arts, design
SH5_6 Philosophy, history of philosophy
SH5_7 Museums and exhibitions
SH5_8 Music and musicology, history of music
SH5_9 History of art and 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, entangled histories
SH6_8 Social and economic history

SH6_9	gender history
SH6_10	History of ideas, intellectual history, history of sciences and techniques
SH6_11	Cultural history, history of collective identities and memories
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

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…
PE3_5 Semiconductors and insulators: material growth, physical properties
PE3_6 Macroscopic quantum phenomena: superconductivity, superfluidity…
PE3_7 Spintronics
PE3_8 Magnetism and strongly correlated systems
PE3_9 Condensed matter – beam interactions (photons, electrons…)
PE3_10 Nanophysics: nanoelectronics, nanophotonics, nanomagnetism, nanoelectromechanics…
PE3_11 Mesoscopic physics
PE3_12 Molecular electronics
PE3_13 Structure and dynamics of disordered systems: soft matter (gels, colloids, liquid crystals…), glasses, defects…
PE3_14 Fluid dynamics (physics)
PE3_15 Statistical physics: phase transitions, noise and fluctuations, models of complex systems…
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 Characterization 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 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, visualization 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: 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 Processes 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 Industrial design (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
- PE8_16 Architectural engineering

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, 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
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, eco-toxicology, 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: Agricultural, animal, fishery, forestry and food sciences; biotechnology, genetic engineering, synthetic and chemical biology, industrial biosciences; environmental biotechnology and remediation	
LS9_1	Applied genetic engineering, transgenic organisms, recombinant proteins, biosensors
LS9_2	Synthetic biology, chemical 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	Applied biotechnology (non-medical), bioreactors, applied microbiology
LS9_10	Biomimetics
LS9_11	Biohazards, biological containment, biosafety, biosecurity