**Postdoc Fellowships**

**List of scientific disciplines**

These descriptors are to be used by applicants in order to best describe the scientific content of their research proposal. Applicants are responsible for the choice of the discipline. The experts in charge of the evaluation of the research project will rise from this choice.

**CHE Chemistry**

* + 1. Physical chemistry
    2. Nanochemistry
    3. Spectroscopic and spectrometric techniques
    4. Molecular architecture and structure
    5. Surface chemistry
    6. Analytical chemistry
    7. Chemical instrumentation
    8. Electrochemistry, electrodialysis, microfluidics, sensors
    9. Combinatorial chemistry
    10. Method development in chemistry
    11. Physical chemistry of biological systems
    12. Chemical reactions: mechanisms, dynamics, kinetics and catalytic reactions
    13. Theoretical and computational chemistry
    14. Radiation and nuclear chemistry
    15. Photochemistry
    16. Structural properties of materials
    17. Solid state materials
    18. Surface modification
    19. Thin films
    20. Corrosion
    21. Porous materials
    22. Ionic liquids
    23. New materials: oxides, alloys, composite, organic-inorganic hybrid, nanoparticles
    24. Materials for sensors
    25. Nano-materials (production and properties)
    26. Biomaterials synthesis
    27. Intelligent materials, self-assembled materials
    28. Environment chemistry
    29. Coordination chemistry
    30. Colloid chemistry
    31. Biological chemistry
    32. Chemistry of condensed matter
    33. Heterogeneous catalysis
    34. Homogeneous catalysis
    35. Characterization methods of materials
    36. Macromolecular chemistry
    37. Polymer chemistry
    38. Supramolecular chemistry
    39. Organic chemistry
    40. Molecular chemistry
    41. Forensic chemistry
    42. Heterocyclic chemistry
    43. Peptide chemistry
    44. Natural product synthesis
    45. Translational chemistry
    46. Medicinal chemistry
    47. Food chemistry

**ECO Economic Sciences**

* 1. Macroeconomics
  2. Microeconomics
  3. Econometrics, statistical methods
  4. Financial markets, asset prices, international finance
  5. Competitiveness, innovation, research and development
  6. Natural resources and environmental economics
  7. Industrial economics
  8. Behavioural economics
  9. Organization studies: theory & strategy, industrial organization
  10. Human resource management
  11. Research management
  12. Social economics
  13. Urban and regional economics
  14. Public administration
  15. Public economics
  16. Labour economics, income distribution and poverty
  17. International trade
  18. Economic geography
  19. Economic history, development

**ENG Information Science and Engineering**

*Computer science and informatics*

* 1. Computer architecture, pervasive computing, ubiquitous computing
  2. Computer systems, parallel/distributed systems, grid, cloud processing systems
  3. Sensor networks, embedded systems, hardware platforms
  4. Theoretical computer science, formal methods, quantum computing
  5. Computer graphics, computer vision, multi media, computer games
  6. Cognitive science, human computer interaction, natural language processing
  7. Informatics and information systems
  8. Artificial intelligence, intelligent systems, multi agent systems
  9. Ontologies, neural networks, genetic programming, fuzzy logic
  10. Machine learning, statistical data processing and applications using signal processing (e.g. speech, image, video)
  11. Scientific computing and data processing
  12. Numerical analysis, simulation, optimisation, modelling tools, data mining
  13. Complexity and cryptography, electronic security, privacy, biometrics
  14. Computational geometry, theorem proving, symbolic, algebraic computations
  15. Internet and semantic web, database systems and libraries
  16. Algorithms, distributed, parallel and network algorithms, algorithmic game theory
  17. Computer games, multi-media, augmented and virtual reality
  18. e-commerce, e-business, computational finance
  19. Bioinformatics, e-Health, medical informatics
  20. e-learning, user modelling, collaborative systems
  21. Intelligent robotics, cybernetics
  22. Software engineering, operating systems, computer languages

*Systems and communication engineering*

1. Control Engineering
2. Electrical and electronic engineering: semiconductors, components, systems
3. Simulation engineering and modelling
4. Systems engineering, sensorics, actorics, automation
5. Electronics, photonics
6. Wireless communications, communication, high frequency, mobile technology
7. Diagnostic and implantable devices, environmental monitoring
8. Signal processing
9. Networks (communication networks, sensor networks, networks of robots)
10. Man-machine-interfaces
11. Industrial Automation and Robotics, mechatronics

*Products and process engineering*

1. Aerospace engineering
2. Chemical engineering, technical chemistry
3. Civil engineering, maritime/hydraulic engineering, geotechnics, waste treatment
4. Transport engineering, intelligent transport systems
5. Computational engineering and computer aided design
6. Fluid mechanics, hydraulic-, turbo-, and piston engines
7. Energy systems, smart energy, smart grids, wireless energy transfer
8. Energy collection, conversion and storage, renewable energy
9. Optical engineering, photonics, lasers
10. Micro (system) engineering
11. Mechanical and manufacturing engineering (shaping, mounting, joining, separation)
12. Materials engineering
13. Nanotechnology, nano-materials, nano engineering
14. Production technology, process engineering
15. Industrial design (product design, ergonomics, man-machine interfaces)
16. Sustainable design (for recycling, for environment, eco-design)
17. Lightweight construction, textile technology
18. Industrial bioengineering
19. Architecture, smart buildings, smart cities, urban engineering
20. Agricultural engineering, food safety
21. Geological engineering, geophysical engineering, mining, geotechnics
22. Microfluidics
23. Medical engineering, biomedical engineering and technology
24. Geographical and positioning technologies, satellites
25. Critical infrastructure, emergency systems, security, safety engineering
26. Certification, Verification, Validation, Technical Compliance, Standards
27. Logistics, supply chain management, operational research

**ENV Environmental and Geosciences**

*Environment and society*

* + 1. Environment, resources and sustainability
    2. Environmental regulations and climate negotiations
    3. Social and industrial ecology
    4. Geographical information systems, cartography
    5. Spatial and regional planning
    6. Population dynamics
    7. Urbanization and urban planning, cities
    8. Mobility and transportation

*Earth system science*

1. Atmospheric chemistry, atmospheric composition, air pollution
2. Meteorology, Atmospheric physics and dynamics
3. Climatology and climate change
4. Terrestrial ecology, land cover change
5. Geology, tectonics, volcanology
6. Paleoclimatology, paleoecology
7. Physics of earth's interior, seismology, volcanology
8. Oceanography
9. Biogeochemistry, biogeochemical cycles, environmental chemistry
10. Mineralogy, petrology, igneous petrology, metamorphic petrology
11. Geochemistry, crystal chemistry, isotope geochemistry, thermodynamics
12. Sedimentology, soil science, palaeontology, earth evolution
13. Physical geography
14. Earth observations from space/remote sensing
15. Geomagnetism, paleomagnetism
16. Ozone, upper atmosphere, ionosphere
17. Hydrology, water and soil pollution
18. Water management
19. Natural Resources Exploration and Exploitation
20. Pollution (water, soil), waste disposal and treatment
21. Environmental engineering and geotechnics

*Evolutionary, population and environmental biology*

1. Animal behaviour
2. Biodiversity, comparative biology
3. Biogeography, macro-ecology
4. Conservation biology, ecology, genetics
5. Ecology
6. Environmental and marine biology
7. Environmental toxicology at the population and ecosystems level
8. Population biology, population dynamics, population genetics
9. Systems evolution, biological adaptation, phylogenetics, systematics, comparative biology

*Agricultural, animal, fishery, forestry and food science*

1. Agriculture related to animal husbandry, dairying, livestock raising
2. Aquaculture, fisheries
3. Agriculture related to crop production, soil biology and cultivation, applied plant biology
4. Food sciences
5. Agroindustry
6. Forestry, biomass production (e.g. for biofuels)
7. Environmental biotechnology, bioremediation, biodegradation
8. Applied biotechnology (non-medical), bioreactors, applied microbiology
9. Biomimetics
10. Biohazards, biological containment, biosafety, biosecurity

**LIF Life Sciences**

*Molecular and Structural Biology and Biochemistry*

1. Molecular biology and interactions
2. General biochemistry and metabolism
3. DNA synthesis, modification, repair, recombination and degradation
4. RNA synthesis, processing, modification and degradation
5. Protein synthesis, modification and turnover
6. Biophysics
7. Structural biology
8. Biochemistry and molecular mechanisms of signal transduction

*Genetics, Genomics, Bioinformatics and Systems Biology*

1. Genomics, comparative genomics, functional genomics
2. Transcriptomics
3. Proteomics
4. Metabolomics
5. Glycomics
6. Molecular genetics, reverse genetics and RNAi
7. Quantitative genetics
8. Epigenetics and gene regulation
9. Genetic epidemiology
10. Bioinformatics
11. Computational biology
12. Biostatistics
13. Systems biology
14. Biological systems analysis, modelling and simulation

*Cellular and Developmental Biology*

1. Morphology and functional imaging of cells
2. Cell biology and molecular transport mechanisms
3. Cell cycle and division
4. Apoptosis
5. Cell differentiation, physiology and dynamics
6. Organelle biology
7. Cell signalling and cellular interactions
8. Signal transduction
9. Animal-related development, development genetics, pattern formation and embryology
10. Plant-related development, development genetics, pattern formation and embryology
11. Cell genetics
12. Stem cell biology

*Physiology, Pathophysiology and Endocrinology*

1. Organ physiology and pathophysiology
2. Comparative physiology and pathophysiology
3. Endocrinology
4. Ageing
5. Metabolism, biological basis of metabolism related disorders
6. Cancer and its biological basis
7. Cardiovascular diseases
8. Non-communicable diseases (except for neural/psychiatric, immunity-related, metabolism-related disorders, cancer and cardiovascular diseases)

*Neurosciences and neural disorders*

1. Neuroanatomy and neurophysiology
2. Molecular and cellular neuroscience
3. Neurochemistry and neuropharmacology
4. Sensory systems (e.g. visual system, auditory system)
5. Mechanisms of pain
6. Developmental neurobiology
7. Cognition (e.g. learning, memory, emotions, speech)
8. Behavioural neuroscience (e.g. sleep, consciousness, handedness)
9. Systems neuroscience
10. Neuroimaging and computational neuroscience
11. Neurological disorders (e.g. Alzheimer's disease, Huntington's disease, Parkinson's disease)
12. Psychiatric disorders (e.g. schizophrenia, autism, Tourette's syndrome, obsessive compulsive disorder, depression, bipolar disorder, attention deficit hyperactivity disorder)

*Immunity and infection*

1. Innate immunity and inflammation
2. Adaptive immunity
3. Phagocytosis and cellular immunity
4. Immunosignalling
5. Immunological memory and tolerance
6. Immunogenetics
7. Microbiology
8. Virology
9. Bacteriology
10. Parasitology
11. Prevention and treatment of infection by pathogens (e.g. vaccination, antibiotics, fungicide)
12. Biological basis of immunity related disorders
13. Veterinary medicine and infectious diseases in animals

*Diagnostic tools, therapies and public health*

1. Medical engineering and technology
2. Diagnostic tools (e.g. genetic, imaging)
3. Pharmacology, pharmacogenomics, drug discovery and design, drug therapy
4. Gene therapy, cell therapy, regenerative medicine
5. Surgery
6. Radiation therapy
7. Health services, health care research
8. Public health and epidemiology
9. Environment and health risks, occupational medicine
10. Medical ethics
11. Medical pathology

*Applied life sciences*

1. Prokaryotic biology
2. Symbiosis
3. Applied genetic engineering, transgenic organisms, recombinant proteins, biosensors
4. Synthetic biology, chemical biology and new bio-engineering concepts

**MAT Mathematics**

1. Logic and foundations
2. Algebra
3. Number theory
4. Algorithms and complexity
5. Algebraic and complex geometry
6. Geometry
7. Topology
8. Lie groups, Lie algebras
9. Analysis
10. Operator algebras and functional analysis
11. ODE and dynamical systems
12. Theoretical aspects of partial differential equations
13. Mathematical physics
14. Probability and statistics
15. Discrete mathematics and combinatorics
16. Mathematical aspects of computer science
17. Numerical analysis and scientific computing
18. Control theory and optimization
19. Application of mathematics in sciences

**PHY Physics**

*Fundamental constituents of matter*

1. Fundamental interactions and fields
2. Particle physics
3. Nuclear physics
4. Nuclear astrophysics
5. Gas and plasma physics
6. Electromagnetism
7. Atomic, molecular physics
8. Quantum optics and quantum information
9. Lasers, ultra-short lasers and laser physics
10. Acoustics
11. Relativity
12. Classical physics
13. Thermodynamics
14. Non-linear physics
15. General physics
16. Metrology and measurement
17. Statistical physics (gases)

*Condensed matter physics*

1. Structure of solids and liquids
2. Mechanical and acoustical properties of condensed matter, Lattice dynamics
3. Thermal properties of condensed matter
4. Transport properties of condensed matter
5. Electronic properties of materials and transport
6. Semiconductors
7. Superconductivity
8. Superfluids
9. Spintronics
10. Magnetism and strongly correlated systems
11. Nanophysics: nanoelectronics, nanophotonics, nanomagnetism, nanoelectromechanics
12. Mesoscopic physics
13. Molecular electronics
14. Soft condensed matter
15. Fluid dynamics (physics)
16. Statistical physics (condensed matter)
17. Phase transitions, phase equilibria

*Universe sciences*

1. Astronomy (including astrophysics, space science)
2. Surface science and nanostructures
3. Chemical physics
4. Medical physics
5. Surface physics

**SOC Social Sciences and Humanities**

*Sociology, social anthropology, political science, law, communication*

1. Social structure, inequalities, social mobility, interethnic relations
2. Ageing, work, social policies
3. Kinship, cultural dimensions of classification and cognition, identity, gender
4. Myth, ritual, symbolic representations, religious studies
5. Ethnography
6. Globalization, migration, interethnic relations
7. Transformation of societies, democratization, social movements
8. Human and social geography
9. Political systems and institutions, governance
10. Legal systems, constitutions, foundations of law
11. Private, public and social law
12. Global and transnational governance, international law, human rights
13. Communication networks, media, information society
14. Social studies of science and technology
15. History of science and technology

*Cognition, psychology, linguistics, philosophy and education*

1. Evolution of mind and cognitive functions, animal communication
2. Human life-span development
3. Neuropsychology and cognitive psychology
4. Clinical and experimental psychology
5. Formal, cognitive, functional and computational linguistics
6. Typological, historical and comparative linguistics
7. Psycholinguistics and neurolinguistics: acquisition and knowledge of language, language pathologies
8. Use of language: pragmatics, sociolinguistics, discourse analysis, second language teaching and learning, lexicography, terminology
9. Language pathologies, lexicography
10. Philosophy, history of philosophy
11. Epistemology, logic, philosophy of science
12. Ethics and morality, bioethics
13. Education: systems and institutions, teaching and learning
14. Education policy

*Literature, arts, music, cultural and comparative studies*

1. Classics, ancient Greek and Latin literature and art
2. History of literature
3. Literary theory and comparative literature, literary styles
4. Textual philology, palaeography and epigraphy
5. Visual arts, performing arts, design
6. Museums and exhibitions
7. Numismatics, epigraphy
8. Music and musicology, history of music
9. History of art and architecture
10. Cultural studies, cultural diversity
11. Cultural memory, intangible cultural heritage

*Archaeology, history and memory*

1. Archaeology, archaeometry, landscape archaeology
2. Prehistory and protohistory
3. Ancient history
4. Medieval history
5. Modern and contemporary history
6. Colonial and post-colonial history, global and transnational history, entangled histories
7. Military history
8. Historiography, theory and methods of history
9. History of ideas, intellectual history, history of sciences and techniques
10. Social, economic, cultural and political history
11. Collective memories, identities, lieux de mémoire, oral history
12. Cultural heritage, cultural memory