

### Synthesis table of NEW SOLEIL PRCs

PRC	Title	Key words	Methods / instrumentation
PRC1	Diluted matter	Atomic molecular physics & chemistry, ions, clusters, complex isolated systems (nanoparticles, molecules of biological interest), atmosphere Universe sciences : interstellar species, planetology	Photoionisation HR Spectroscopies, Coincidences Inelastic Circular dichroism Mass spectrometry
PRC2	Electronic & magnetic property of matter, Surfaces and Interfaces	Electronic structures, magnetic properties, fundamental laws, Surfaces and solid interfaces, nano-objects Surface reactivity (model systems) Highly correlated systems Spintronic	Photoemission Magnetic dichroism, Magnetic diffraction Spectromicroscopy Reflectivities Spectroscopes (absorption, Auger, Raman) Inelastic High magnetic fields Diffusion, diffraction GISAXS 2D Imaging
PRC3	Matter & material properties: Structure, Organisation Characterisation, Elaboration	Phase & State transitions, (liquids, solids) in situ growth Self assembling, nanostructures, material (elaboration, stress etc...) Solid chemistry, Geoscience & Universe science (deep earth)	Diffraction (solid, surfaces) Absorption and X ray fluorescence, Raman X GISAXS HT & HP Electronic densities 3D Imaging of X absorption IR Spectroscopy Coherent diffraction, micro-Laue Tomodiffraction X Anomalous diffusion
PRC4	Chemistry & Physico-Chemistry, In situ reactivity, Soft matter	Catalysis: homogeneous and heterogenous (in operando), in situ electrochemistry, nanochemistry (real time) Interfaces: liquid-air, liquid-liquid & solid-liquid complex fluids (liquides ionic liqu., anisotropic liquids...) polymeres, polyelectrolytes, model systems macromolecular chemistry	Absorption and fluorescence X, Raman Spectromicroscopies, 2D Imaging Cinetics Diffusion Diffraction on liquids GISAXS Spectro IR
PRC5	Biology, Health	Atomic structure, assemblies and macromolecular interactions, folding, enzymology, Cellular and tissue imaging Toxicology and bio - remediation. Plant sciences and geobiosciences Functionnality of biomaterials	Diffraction Diffusion Circular dichroism Mass spectrometry IR, VUV and X Spectromicroscopies Absorption and X ray fluorescence, Raman X 2D and 3D Imaging
PRC6	Ancient materials Environment and Hearth	Archeometry, Conservation Paleontology, Ancient environments Environnement/Earth science: (soils, pollution, speciations of natural or induced origin). Environnement/climatology	Absorption and X ray fluorescence, Raman X 2D and 3D Imaging Diffraction Spectromicroscopies