Inventory of experimental and theoretical resources available for NanoSpace COST Action	
Country:	FRANCE
Name of Institution/Laboratory:	Centre de recherche sur les Ions, les MAtériaux et la Photonique (CIMAP, UMR 6252)
Contact information (name, e-mail):	Clara Grygiel grygiel@ganil.fr (head of CIRIL platform) Patrick Rousseau prousseau@ganil.fr (device 1) Alicja Domaracka domaracka@ganil.fr (device 2)
Website:	CIRIL-CIMAP Platform https://cimap.ensicaen.fr/spip.php?rubrique137
Short description **(max 0.5 page)** of available techniques (experiment or theory): If appropriate, please include 1 picture/figure and caption highlighting resources.	CIRIL-CIMAP platform is the platform at ion beam GANIL facility for all non-nuclear or interdisciplinary research experiments. Interdisciplinary research via CIRIL-CIMAP can be defined along different topics whose objective is to study the mechanisms of ion – atom collisions, their consequences on the atomic arrangements, on the physical and chemical properties, no matter what is the atomic arrangement. The target can consist of atoms, molecules, clusters, surfaces and materials of all types. We can offer: • 4 beamlines for Interdisciplinary Physics : ARIBE, IRRSUD, SME and HE • Ion beams from keV to GeV of helium to uranium • Variable irradiation temperatures from 10 K up to 1500K • Variable irradiation angles down to grazing values of 0.2° Examples of available set-up: **Device 1: COLIMACON** An UHV crossed beam device to investigate low-energy ion collisions with isolated molecules and clusters (coincidence time-of-flight). **Device 2: IGLIAS** (UHV) **and CASIMIR** (HV) set-up are equipped with infrared spectrometers to monitor sample changes under ion irradiation. Target temperate can be varied from 10 K to 300 K. **Device 3: Plate irradiation chamber** For other devices available at CIMAP see: https://cimap.ensicaen.fr/spip.php?rubrique156 User can also bring his/her set-up to be installed at GANIL beam lines.

Sample/target description (e.g. gas, clusters, solid,…):	D**evice 1**- gas phase (isolated molecules or clustres): gas line injection, oven device up to 600°C, cluster gas aggregation source **Device 2**-solid samples in the form of icy mantles or films (gas, volatile samples at room temperature, solid samples - an oven device to heated up to 400°C). **Device 3**: solid. No strict constrain about size (up to 10cmx20cm)
How to access to experimental/computational resources (e.g. through collaboration, user facility proposal calls,….):	CIRIL-CIMAP is user facility. Call once par year. For "how to get a beam time" see: https://cimap.ensicaen.fr/spip.php?article431
References **(max 5)**:	Related to **device 1**: M. Capron at al.; A multicoincidence study of fragmentation dynamics in collision of γ-aminobutyric acid with low-energy ions; Chem. Eur. J. 18 (2012) 9321 DOI: 10.1002/chem.201103922 P. Rousseau et al.; Polypeptide formation in clusters of *β*-alanine amino acids by single ion impact; Nat. Commun. 11 (2020) 3818 DOI: 10.1038/s41467-020-17653-z A.Domaracka et al. ; Ion collision-induced chemistry in pure and mixed loosely bound clusters of coronene and C_{60} molecules; PCCP 20 (2018) 15052 DOI: 10.1039/C8CP01179F Related to **device 2**: B. Auge et al.; IGLIAS: A new experimental set-up for low temperature irradiation studies at large irradiation facilities; RSI 89 (2018) 75105 DOI: 10.1063/1.5028056 E. Seperuelo Duarte et al. ; Laboratory simulation of heavy-ion cosmic-ray interaction with condensed CO; AA 512 (2010) A71