Inventory of experimental and theoretical resources available for NanoSpace COST Action	
Country:	BELGIUM
Name of Institution/Laboratory:	Institute of Condensed Matter and Nanosciences – Modelling Division (MODL) University of Louvain (UCLouvain, Belgium)
Contact information (name, e-mail):	jean-christophe.charlier@uclouvain.be
Website:	https://perso.uclouvain.be/jean-christophe.charlier/
Short description **(max 0.5 page)** of available techniques (experiment or theory): If appropriate, please include 1 picture/figure and caption highlighting resources.	**ABINIT** is a software suite to calculate the optical, mechanical, vibrational, and other observable properties of materials. Starting from the quantum equations of **density functional theory**, you can build up to advanced applications with **perturbation theories** based on DFT, and **many-body Green's functions** (GW and DMFT) . **ABINIT** can calculate molecules, nanostructures and solids with any chemical composition, and comes with **several complete and robust tables of atomic potentials**. **On-line tutorials** are available for the main features of the code, and several schools and workshops are organized each year.
Sample/target description (e.g. gas, clusters, solid,…):	N/A
How to access to experimental/computational resources (e.g. through collaboration, user facility proposal calls,….):	https://www.abinit.org/
References **(max 5)**:	(1) Xavier Gonze, *et al.* *The Abinit project: Impact, environment and recent developments* Comput. Phys. Commun. **248**, 107042 (2020) (2) X. Gonze, *et al.* *Recent developments in the ABINIT software package* Comput. Phys. Commun. **205**, 106-131 (2016) (3) X. Gonze, *et al.* *ABINIT: First-principles approach to material and nanosystem properties* Comput. Phys. Commun. **180**, 2582-2615 (2009)