Please note that I will move to Leiden University (the Netherlands) in September 2023. I will change my contact information to the COST Action.

Inventory of experimental and theoretical resources available for NanoSpace COST Action	
Country:	United Kingdom
Name of Institution/Laboratory:	University of Leeds
Contact information (name, e-mail):	Marie Van de Sande, m.vandesande@leeds.ac.uk
Website:	/
Short description **(max 0.5 page)** of available techniques (experiment or theory): If appropriate, please include 1 picture/figure and caption highlighting resources.	I have developed a one-dimensional chemical kinetics code that models the chemistry within the outflows of asymptotic giant branch (AGB) stars. It is based on the publicly available outflow model of the UMIST Database for Astrochemistry (http://udfa.ajmarkwick.net/). The model includes gas-phase reactions, dust-gas interactions, and grain-surface reactions (Van de Sande et al. 2019, 2020, 2021). Spherical asymmetries can be taken into account using the theoretical porosity formalism (Van de Sande et al. 2018). The influence of the UV field of a close-by stellar companion can also be included (Van de Sande & Millar 2022). The model is regularly used to help interpret observations and to test the influence of new reactions and/or reaction rates to the chemistry of AGB outflows.
Sample/target description (e.g. gas, clusters, solid,…):	Computational model
How to access to experimental/computational resources (e.g. through collaboration, user facility proposal calls,….):	The gas-phase chemical model that includes porosity and companion photons will be made publicly available with the next release of the UMIST Database for Astrochemistry. I am happy to share it and the dust-gas chemical model with collaborators.
References **(max 5)**:	Van de Sande, Sundqvist, Millar et al., A&A, 616, A108 (2018) Van de Sande, Walsh, Mangan et al., MNRAS, 490, 2023 (2019) Van de Sande, Walsh & Danilovich, MNRAS, 495, 1650 (2020) Van de Sande, Walsh & Millar, MNRAS, 501, 491 (2021)

	Van de Sande & Millar, MNRAS, 510, 1204 (2022)