Successive hydrogenation of CO in interstellar ice mixtures

a short work visit report

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In this short report, a summary of what has been achieved during the work visit of Dr. AlRimawi to Dr. Fraser is provided. The work visit took full 4 working days (from Tuesday, September the 27th, till Friday, September the 30th.

During this visit, an intensive work has been done on a paper, which both the host and the guest have been involved in writing two years ago. The paper discusses the issue of CO hydrogenation along the lines of the available experimental data in ice mixtures, through CO reactions with H-atoms landing at the surface. During this visit, a literature review of the available existing papers that tackle the issue of CO hydrogenation experimentally has been made, involving an extensive discussion between the guest and the host over the validity of these experiments and the possible explanation of the observations published in those papers.

Regarding the paper on which both the host and guest are working, the introduction and review sections have been finished. With respect to the results section, we have managed to fit the experimental data and construct a detailed model describing the evolution chemistry that could possibly take place, aiming for a chemical understanding of the possible reactions' pathways. However, we still need to program and run the model, and check out the results. The obtained results will be compared with those obtained from the fits and with those obtained from the experiment.