ESRF	**Experiment title:** EXAFS study on the magnetite biosynthesis of *Magnetospirillum gryphiswaldense*	**Experiment number:** LS- 2276
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Report:

Fe-K EXAFS experiments were performed on dried magnetotactic bacteria in a time-resolved study. As in a previous XANES experiment [1], bacterial samples were air-dried and enclosed in kapton tape, and in that shape were brought to the ESRF ready to be measured.

Measurements were performed with the synchrotron operating at 16-bunch to avoid sample damage. For the sake of optimizing the signal-to-noise ratio, measurements were performed at 60 K and the fluorescence and transmission signals were recorded simultaneously. An Fe foil was also measured simultaneously for a proper energy calibration. The fluorescence signal was recorded by using a 13-element solid state detector. The beam size in the samples was 1×2.5 mm^2.

Depending on the Fe content of the samples, we recorded between 4 and 8 scans per sample. Scans extended up to $k = 13$ Å^{-1} and we chose 5 s integration time per point. In these conditions, each scan took about 1 hour to complete.

Among the incidences occurring during the experiment we should mention the following: i) the cryostat had to be flushed with N_2 because condensation appeared in the

window that introduced noise in the transmission spectra; ii) we could only introduce two samples in the three-sample holder because the bottom of the cryostat was blocked; iii) there was one beam dump during the experiment.

The experiment was successful and we obtained high quality data that will soon be published.

References

[1] Fdez-Gubieda, M. L.; Muela, A.; Alonso, J.; García-Prieto, A.; Olivi, L.; Fernández-Pacheco, R.; Barandiarán, J. M. Magnetite Biomineralization in *Magnetospirillum gryphiswaldense*: Time-Resolved Magnetic and Structural Studies. *ACS Nano* **2013**, *7*, 3297–305