

## Round-robin results of the quantitative analysis of FeNi nanoparticle compositions

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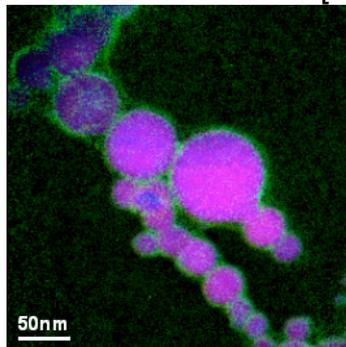
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Developments in microscopes, spectrometers, imaging filters, detectors and data processing are leading to the development of new techniques and improvements in quantitative electron microscopy and analysis. In order to determine the accuracy of chemical measurements from nanoscale structures with complex morphologies, we have compared different analytical techniques by applying them to the characterisation of a known object in a "blind" round-robin test.

The samples investigated were nanocrystals of FeNi with sizes of between 10 and 120 nm, a range of chemical compositions and thin oxide surface layers. The crystals were prepared using cryogenic evaporation-condensation with known chemical compositions.

EELS, EFTEM and EDX analyses were performed on the FeNi particles in different laboratories. Different models for scattering cross-sections were used during data analysis, different approaches were used to extract chemical information from the experimental measurements, and near edge fine structures from O, Fe and Ni ionization edges were recorded both from the centres and from the surface layers on the crystals. The results of these experiments will be compared and contrasted, and discrepancies between the results will be discussed [1].



### References

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