

Laboratory Reports

Format and Deadline

Your report should be no longer than two typeset pages. Please focus on the actual experiment and do not repeat the theory you learned in class or from textbooks. Your report should be submitted in PDF format (preferred) or as a MS-Word document by e-mail to fxe5@po.cwru.edu. Please name your file according to the following convention:

Lastname-No.pdf,

where “Lastname” is your last name (starting on a captial letter) and “No” is the number of the laboratory demonstration, e. g. 1, 2, 3...

**Reports must be submitted no later than
one week after the experiment.**

Contents

The following list of items in your report is neither mandatory nor comprehensive; it should be considered as a guideline.

1. Instrument

- Provide the full designation of instrument, model and vendor.
- How do you rank the instrument among its peers? Is the facility state of the art?
- Enumerate special capabilities or deficiencies.

2. Specimen

- Describe the material of the specimen and, if appropriate, the way it was prepared for the microcharacterization technique of interest.

3. Preparation for Experimental Work

- Describe any potential procedures required for preparing the instrument for the desired measurements.
- This may include evacuation, alignment, calibration, etc.

4. Typical Data

- Present one or two examples of typical data that is obtained with the method of interest. This could be an image, a spectrum, or similar.
- Describe what kind of information you can obtain from the respective output.

5. Scope of Applications and Synergistic Effects

- What further applications of the particular instrumentation can you conceive?
- How could the capabilities of the present method be leveraged by combining it with other methods discussed in the course?

6. Capabilities and Limitations

- Comment on resolution limits, potential sources of error, disturbing influences from the environment, reproducibility, and overall robustness of the method.

7. Advantages and Disadvantages

- Comment on quality of data, breadth of applicability, required effort of specimen preparation, required time for obtaining data, instruments cost, the learning curve, etc.

8. Comparison with Competing Methods

- From your response to the previous items, conclude in which case the present method is most appropriate, and how it compares to other methods of microcharacterization discussed in this course.

9. Insights and Significance

- Summarize the insights you have gained from the demonstration in addition to what you have learned in class and from textbooks.

10. Suggestions

- If you have any suggestions for improving the laboratory demonstration you have seen, please let us know.

11. References