



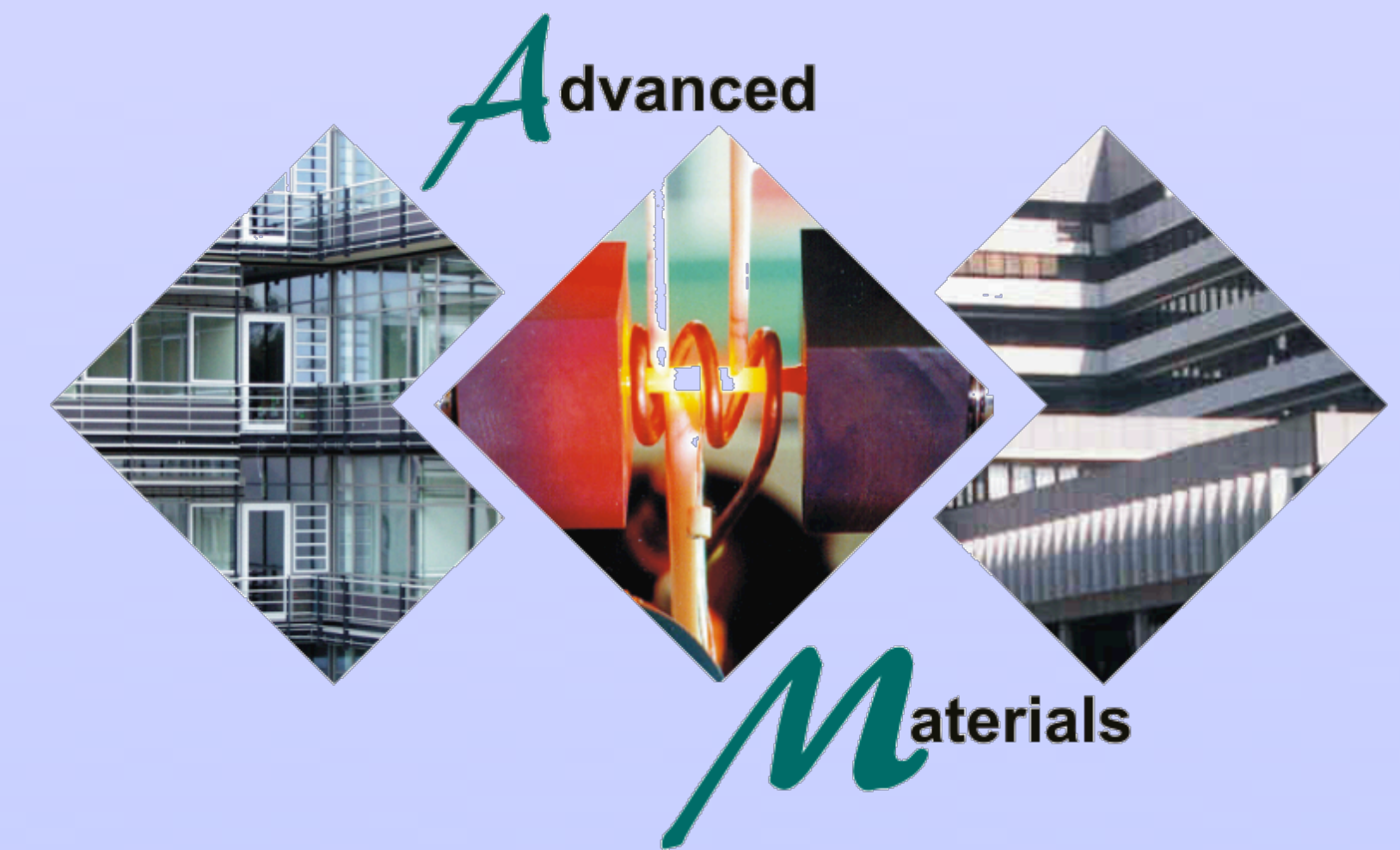
Characterization of Arc-grown Carbon Nanotubes after different Purification Steps

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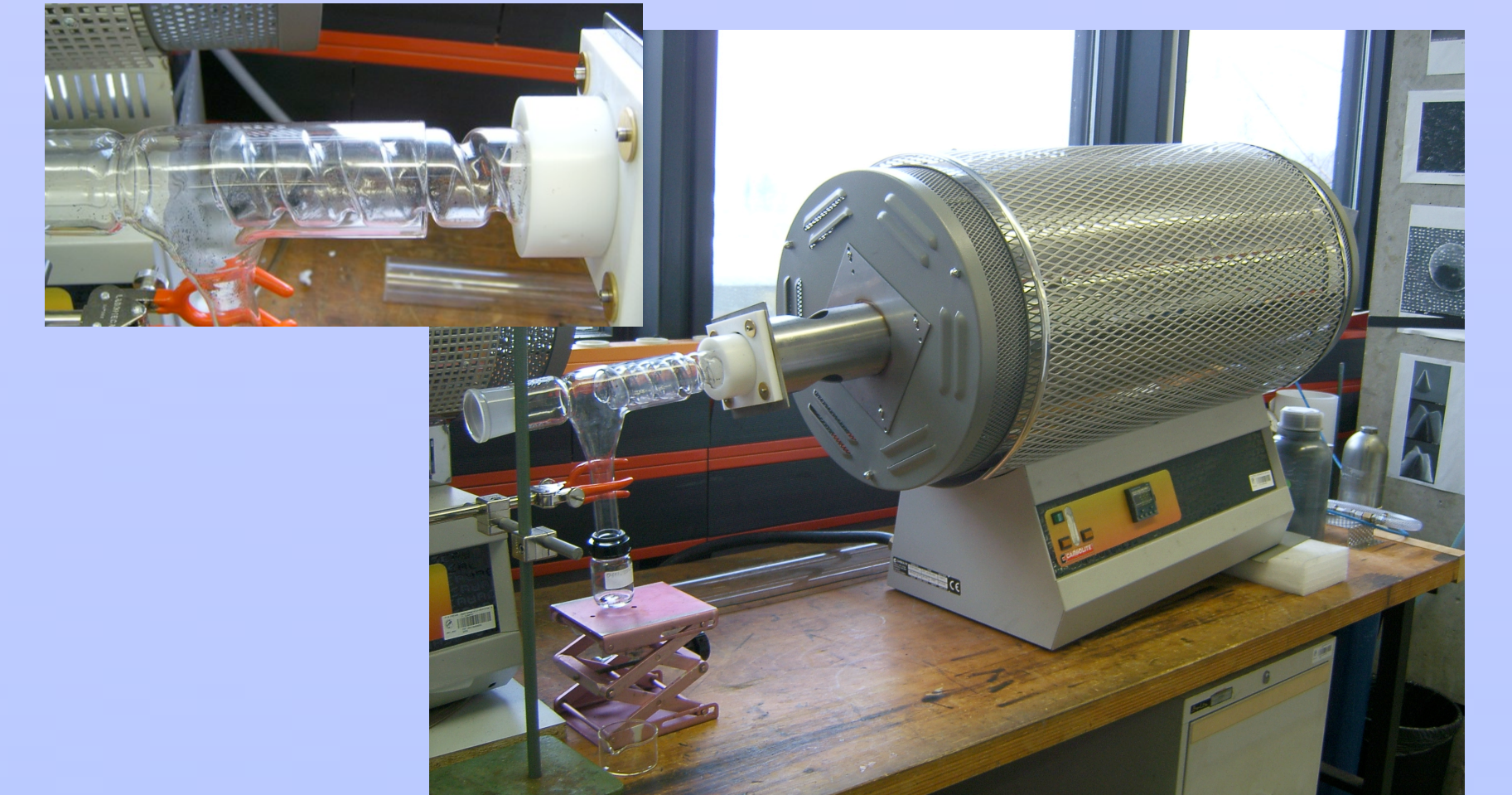
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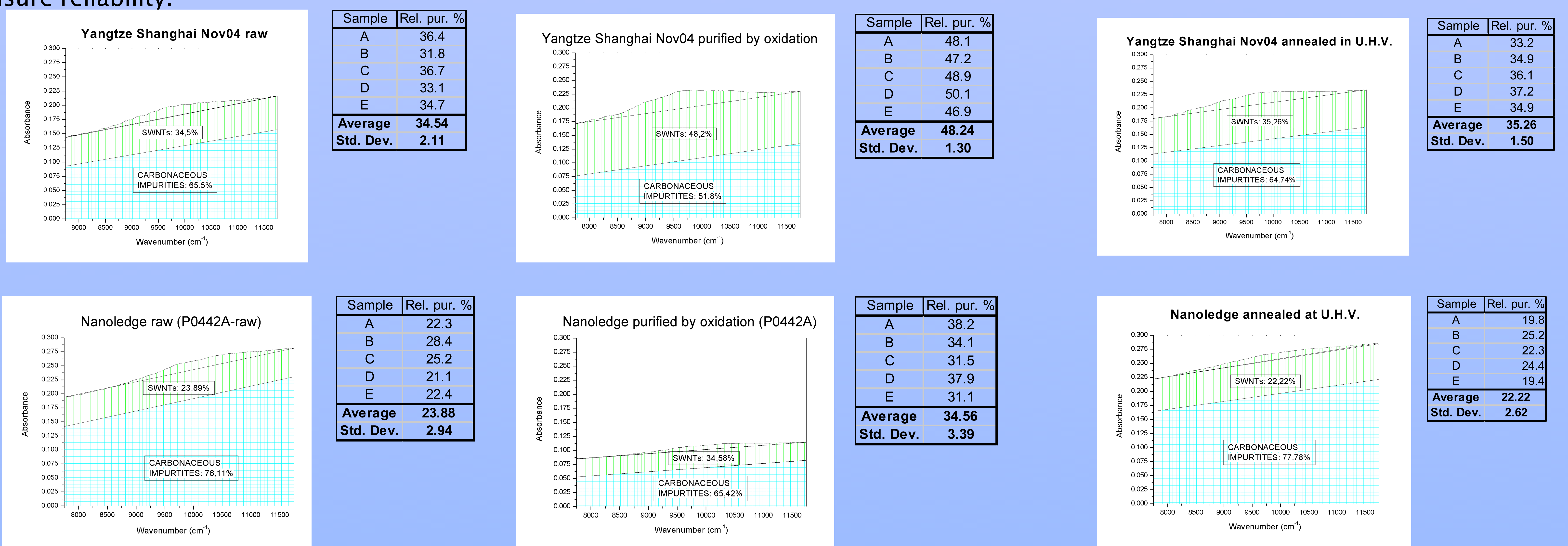
1. Introduction

We characterized the raw SWCNT materials (produced by Yangtze Nanomaterials Shanghai and Nanoledge Montpellier) in different purification steps to verify our new SWCNT characterization protocol based on VIS/NIR spectroscopy and to investigate the influence of purification by dry oxidation in air. Such oxidation is highly scalable, continuous technique, often proposed for industrial use.

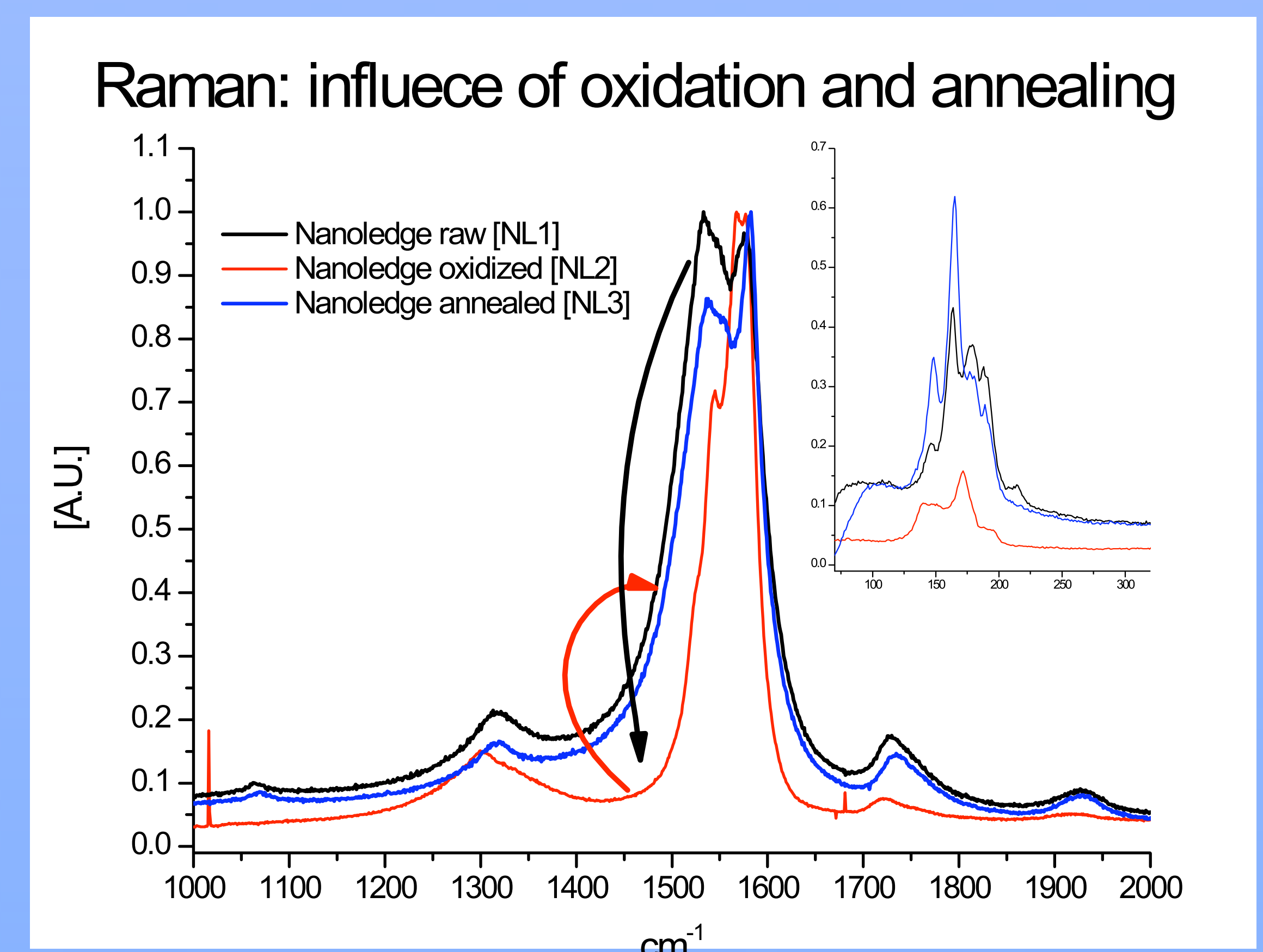
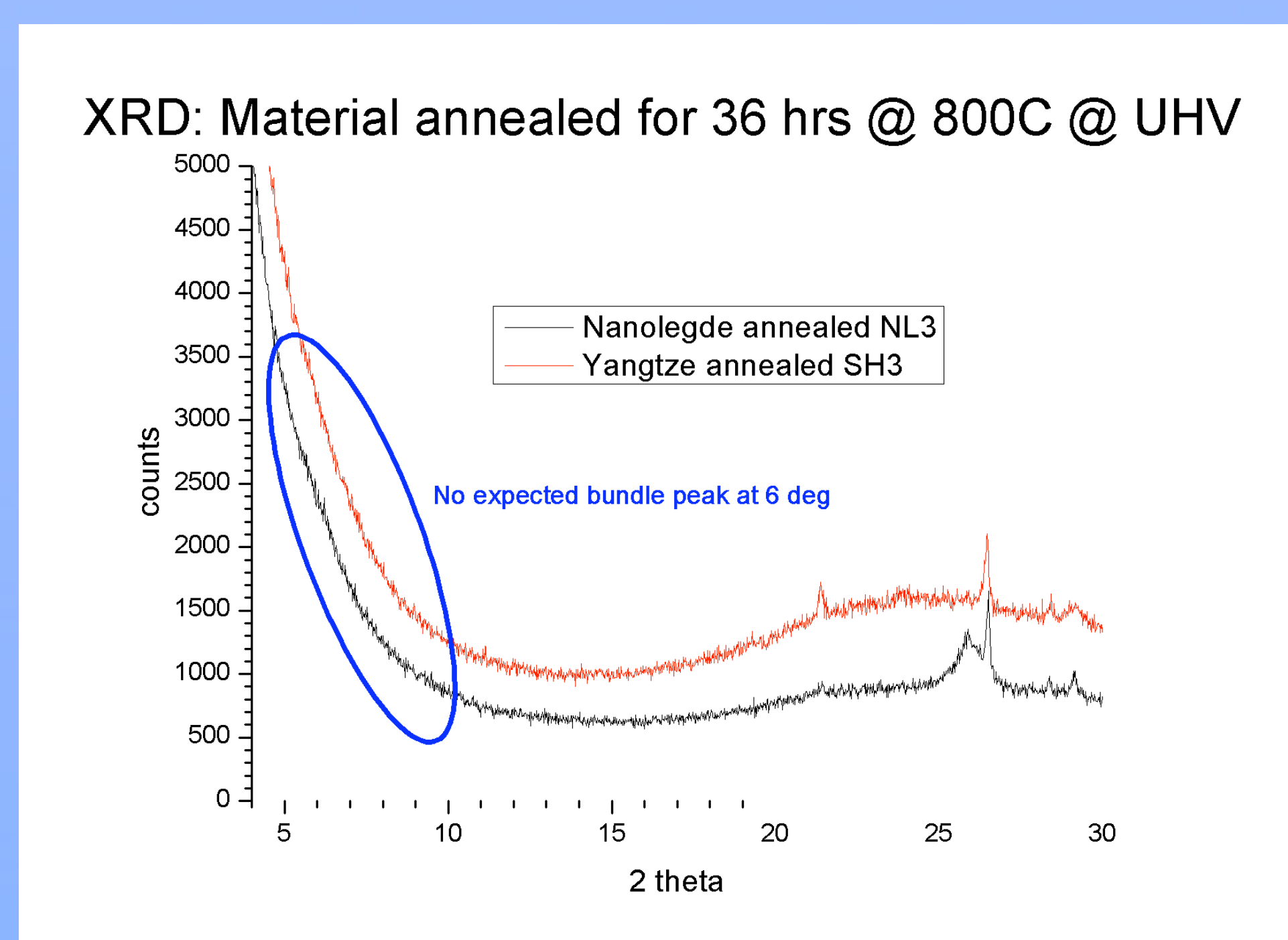


2. Results

Both materials were first dry-homogenized (for better repeatability), then oxidized in air at 370 C (with continuous transport and mixing by specially developed oven), and then annealed at UVH conditions at 800C for 36 hours. We tested 5 samples of each material in each stage to ensure reliability.



The VIS/NIR spectroscopy follows a protocol presented here at Poster P86 by U. Dettlaff–Weglikowska et al.



3. Conclusion

Raw Arc-Discharge material of good suppliers contains up to 20–30% of SWCNT, we observed reversible increase as material undergo oxidative purification, the indicated nanotube fraction goes up to 50%, but after annealing at high temperature the indicated content returns to that of initial material.

In contrary to our expectation, there is no significant forming of bundles detectable by XRD.

Raman shows the same reversible effect of oxidative treatment, which suggests some sort of doping-like effect.

4. Acknowledgement

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