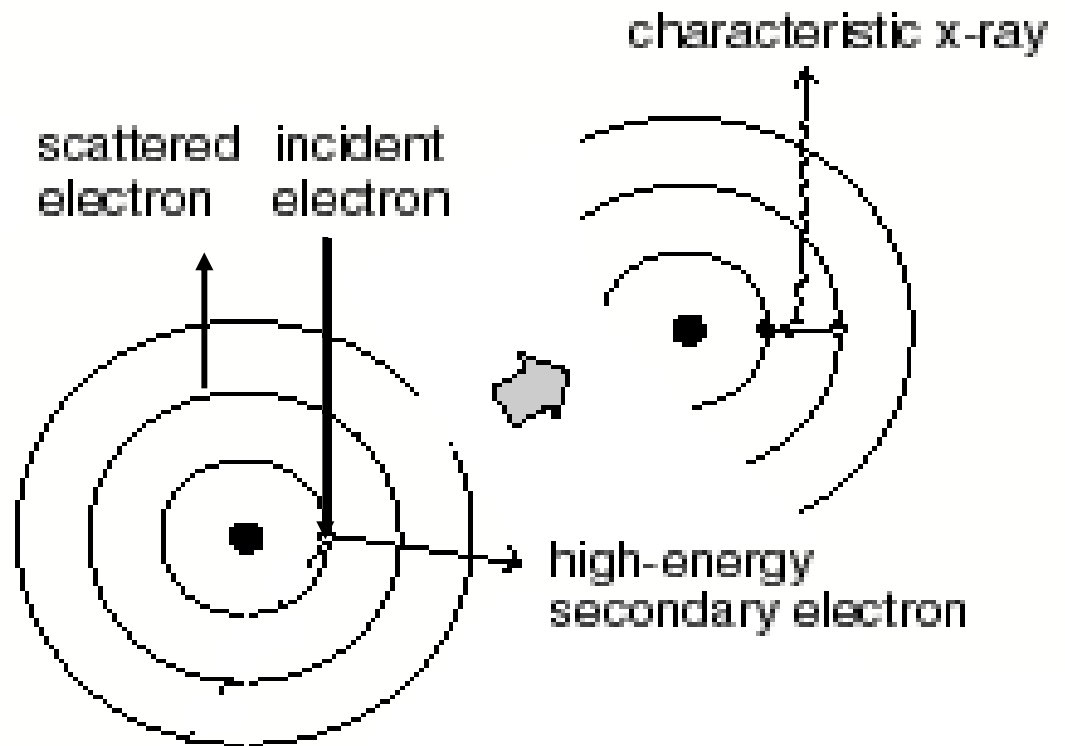# SEM/EDX

Group 3
Oskar
Samira
Johanna

Introduction

- Sample is bombarded with electrons from electron gun and signals are generated through detection of
  - backscattered electrons
  - secondary electrons
  - X-rays

Introduction

- The topographic pictures is generated by analysis of the secondary electrons

- The backscatter is generating a picture based on the mass of the elements

- X-Ray is used for identifying the elemental composition and gives the spectrum

Introduction

- Surface sample
  - Particle shape, size and surface structure (topography)
  - Particle/coating surface composition

  Particles from the sample are placed on a sample holder and coated with conducting carbon layer.

Introduction

- Cross-sectional sample
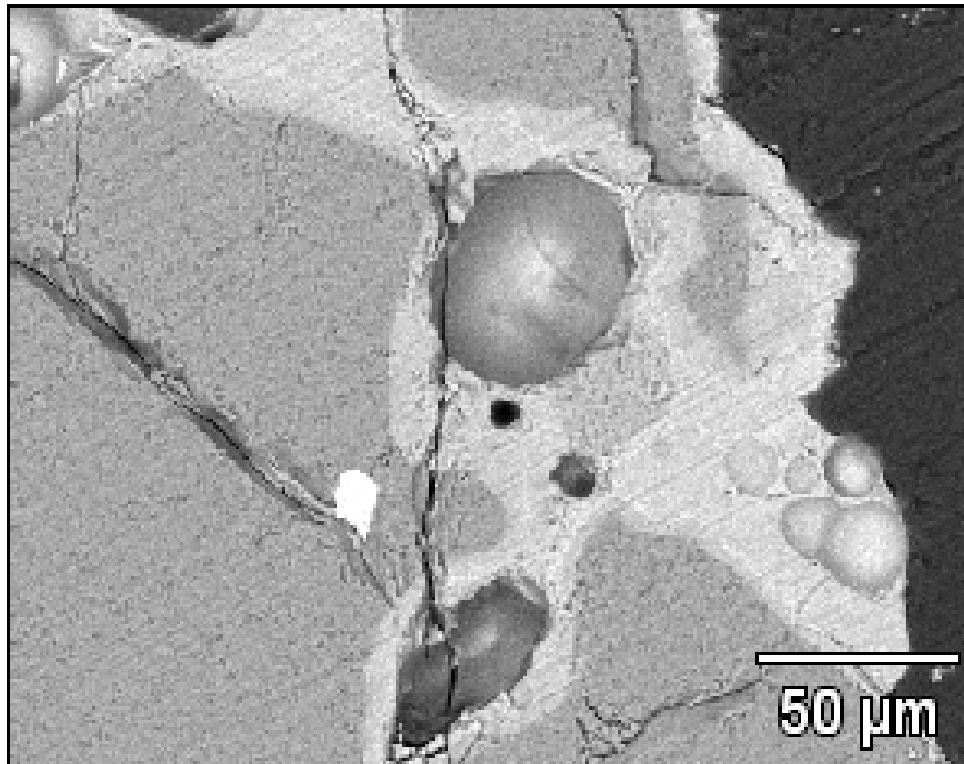 - Particle/coating cross-sectional size, structure and composition

    Particles are placed in a container and covered in epoxi resin. Once the resin is solid a cross sectional cut is made through the sample and the exposed surface is polished and coated with carbon.

Examples of results

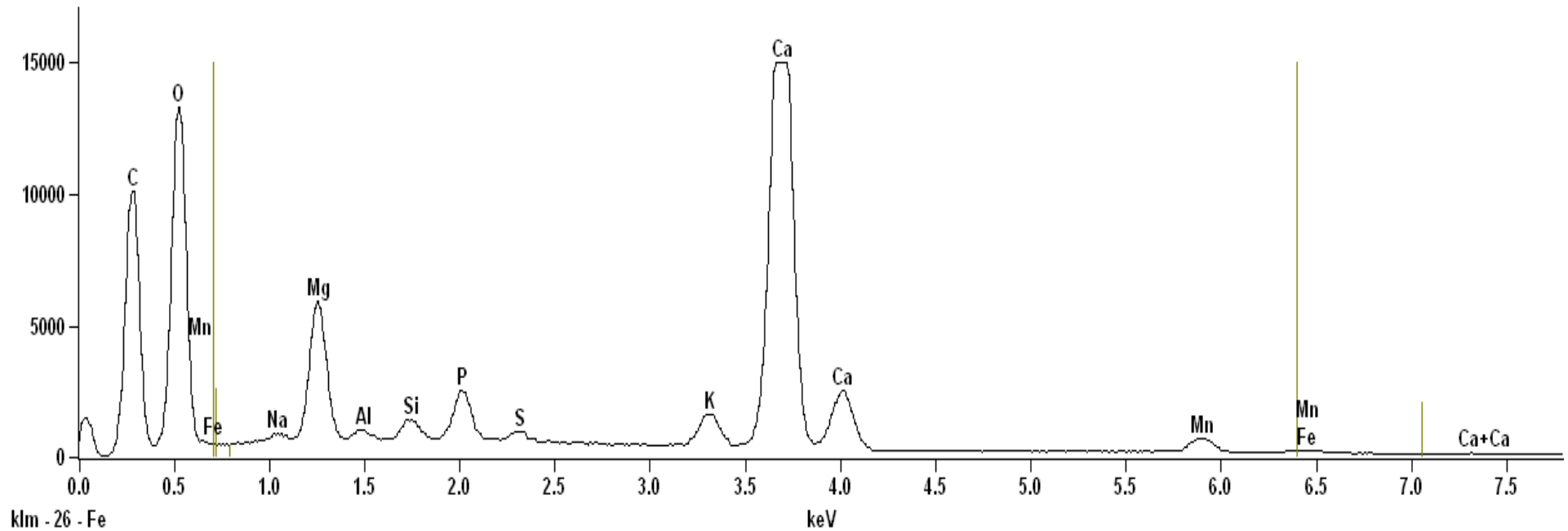- Back-scatter picture of bed sample in epoxi

3BS 500x (1)

Examples of results
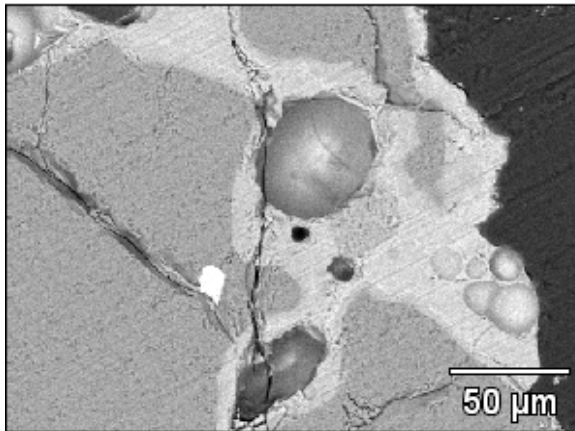
- Spectrum

Full scale counts: 14967   W9 50x area08
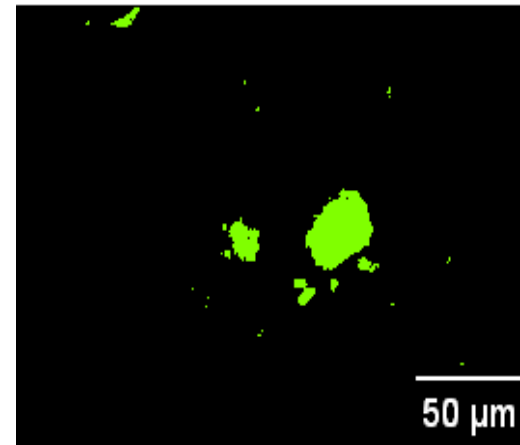
Examples of results
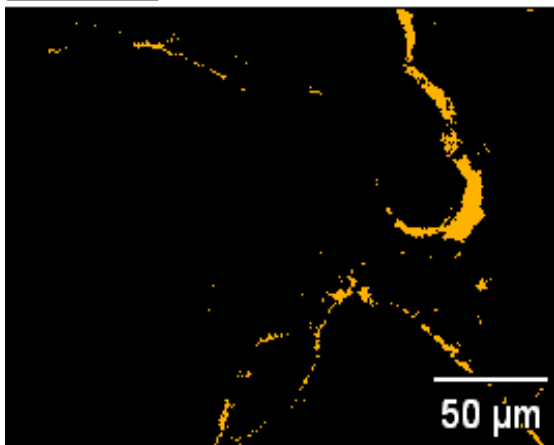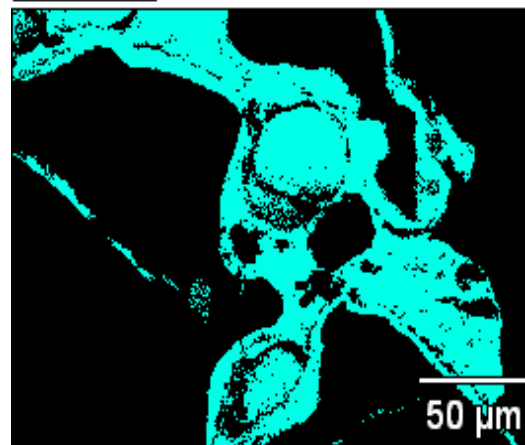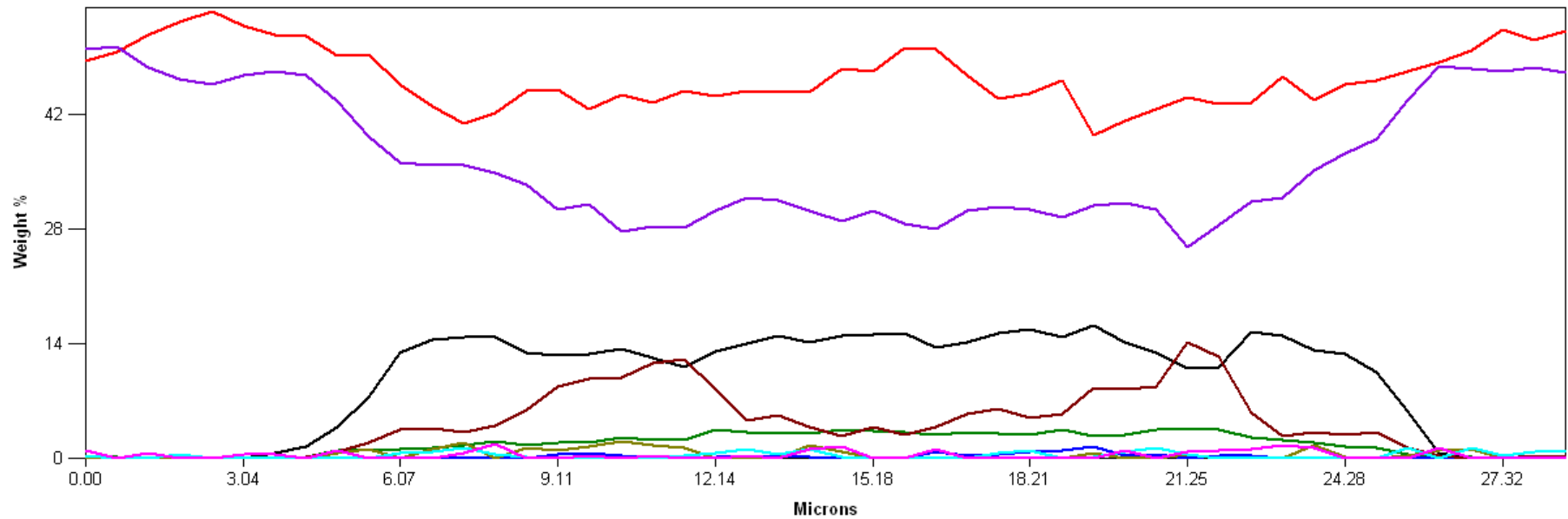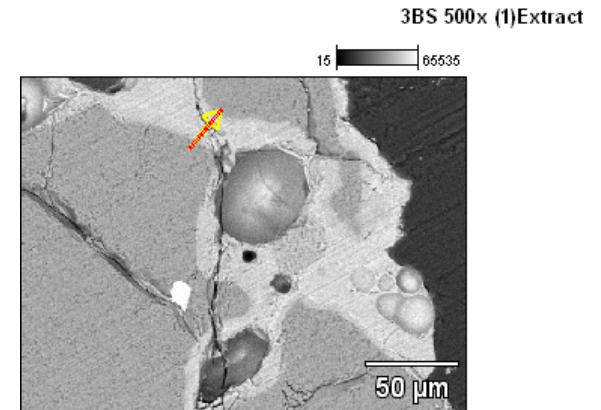
Examples of results

- Line analysis

3BS 500x (1)Extract

Conclusions

Upside

- High resolution and magnification (nm)
- Surface sensitive
- Structure and composition dependent on location
- Small sample size
- Mechanical intact

Downside

- Quantification of whole sample
- Surface sensitive
- No quantitative composition, only qualitative
- Sample not usable for other methods
- Sensitivity (species and concentration)
- Oxides/oxygen
- Overlapping peaks