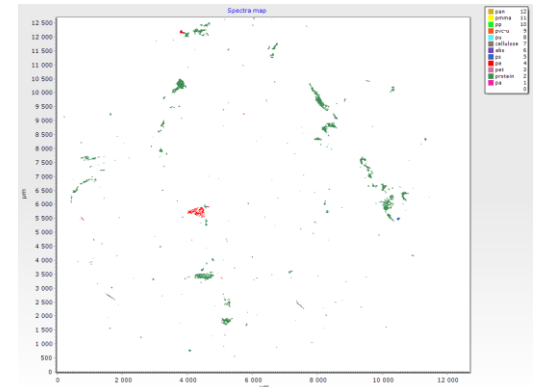


# DETERMINATION OF MICROPLASTICS FROM ENVIRONMENTAL SAMPLES WITH FTIR MICROSCOPY

- FTIR microspectroscopy = Fourier transform infrared spectroscopy coupled to microscopy, provides spectral maps
- Particle numbers, sizes, polymer types and mass estimations are automatically calculated from the spectral map



## WORKFLOW

### SAMPLE PREPARATION

- Pre-treatments: density separation of inorganic and digestion of organic solids, filtrations
- Filtration to IR transparent or reflective filter
- Or application to transmission windows



Also Raman microspectroscopy is suitable for microplastic analysis!

### Sample types

- Water: sea water, freshwater, drinking water, bottled water, wastewater
- Sediments
- Biota and foodstuffs

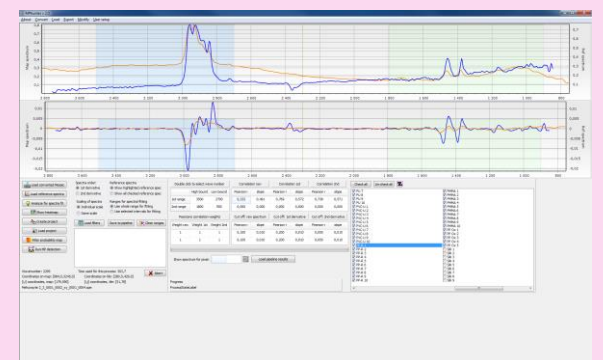
### EXAMPLES

### Research questions

- How much microplastics? What effects they cause?

### MEASUREMENT AND DATA ANALYSIS

- Automatic particle recognition with siMPLe software (<https://simple-plastics.eu/>) from spectral maps
- Statistics, interpretation



## SIB LABS INFRASTRUCTURE



**IMAGING FTIR**  
Agilent Cary  
670/620, 128x128  
FPA detector

**CONFOCAL  
IMAGING RAMAN  
MICROSCOPE**  
Thermo DXR2xi



### CONTACT

Emilia Uurasjärvi, +358 50 591 7846, emilia.uurasjarvi@uef.fi  
Arto Koistinen, +358 44 716 3260, arto.koistinen@uef.fi