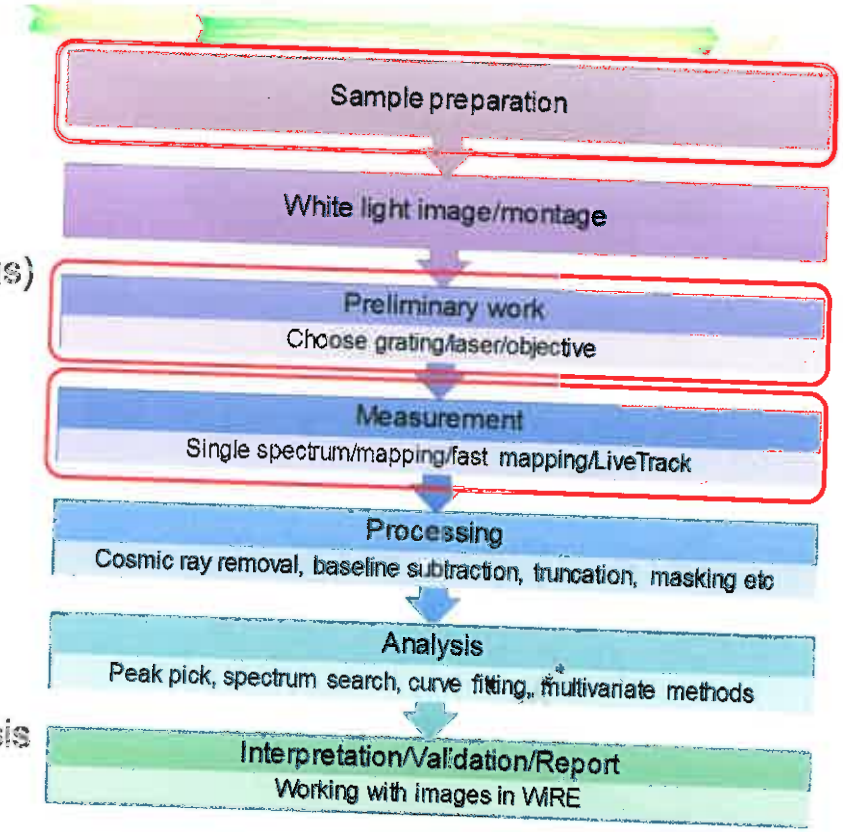
RENISHAW
apply innovation

Summary

- Overview of inVia
- Laser safety
- Sample preparation
- Operating the microscope
- Experiment setup (objectives, lasers, gratings)
- Measurement setup in WiRE
- Notification area
- Tips and tricks
- Instrument stability (environmental, laser)
- Alignment procedures (daily and weekly)
- Differences between inVia Qontor/Reflex/Basis
- Troubleshooting alignment procedures
- Good practices

Summary overview very important



RENISHAW
apply innovation

Sample preparation

- The following aspects of sample preparation / presentation are important when collecting Raman map data:

  - **Choice of substrate** for mounting the sample, if the sample is thin or transparent. Some substrates have Raman or fluorescence bands that may cover the Raman data from the sample
    Some examples include:
    - a powder or solid sample – metal slide → metal slide usually doesn't generate any raman.
    - a liquid sample – vial or well → glass can generate a broad peak at... → glass gener fluoresce need to subtra quart
    - a graphene sample – metal slide
    - a cell culture or tissue specimen (dry) – suitable slide (CaF_2, Mica, Quartz)
    - a biological specimen in water – Petri dish

  - **Sample flatness** to maintain the laser focus (and good signal intensity) throughout map data acquisition.
    Worse case scenario – the sample may strike the objective.
    Some examples include
    - a pharmaceutical tablet – mill the tablet flat (small & melt)
    - a powder sample – compress powder onto slide

RENISHAW
apply innovation

Sample preparation

- **Sample immobilisation** for accurate and repeatable movement during map data acquisition. Options include magnets, sticky tape, clamps.
  Some examples include:
  - a sample fixed to a slide – clamp slide to stage plate
  - a thin film for depth profiling – use magnets to hold film flat to stage plate

High Speed Encoded Stage (HSES)

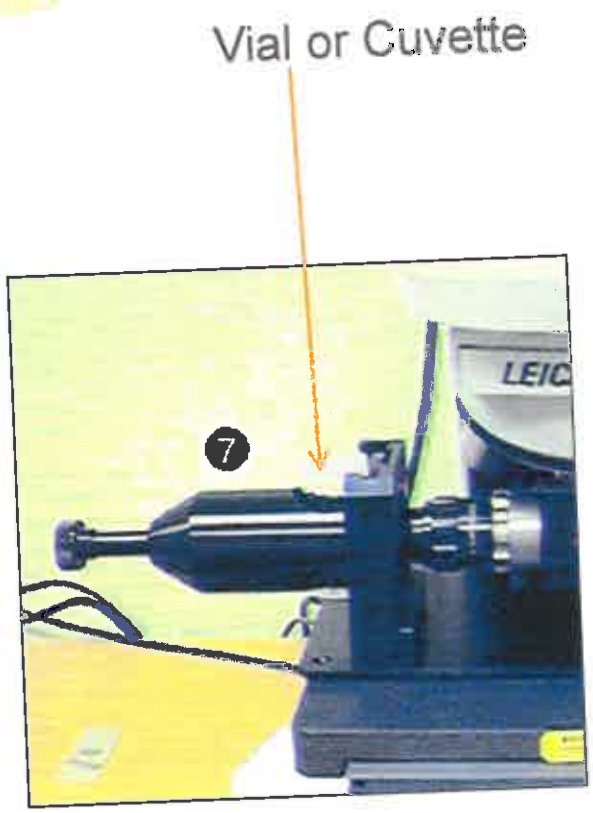
HSES accessory kit

RENISHAW
apply innovation

Sample preparation – liquids and gases

Important to do

- Place in a sealed vial
- Option to measure from above as standard or horizontally with the macro sampling kit
- Horizontally – do not need to worry about air bubbles
- Glass may fluoresce, better to use quartz
- Water has its own spectrum which may cover Raman data from dilute solutions
- Choice to use a low magnification microscope objective with a large depth of field OR a high NA microscope objective



- Buy a square vial of quartz for liquid samples. That can be placed on the stage