



Interreg-IPA Cross-border Cooperation Programme Romania-Serbia

PORTABLE EDXRF SPECTROMETRY

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PORTABLE EDXRF SPECTROMETRY -Instrumentation-

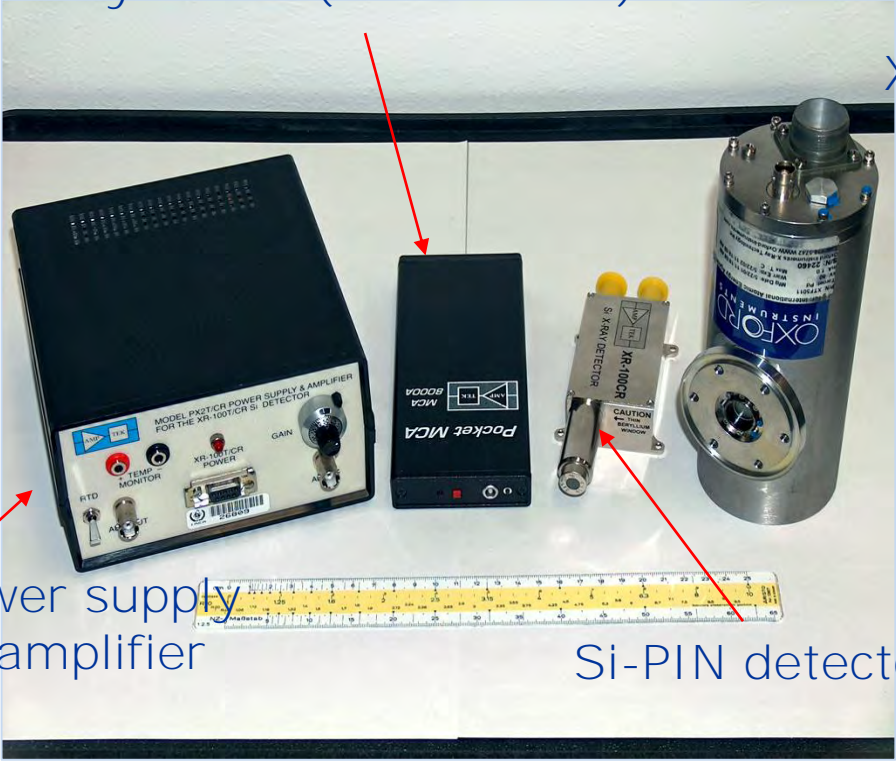
Portable instrumentation

ADC and histogram
memory buffer (Pocket MCA)

X-ray tube

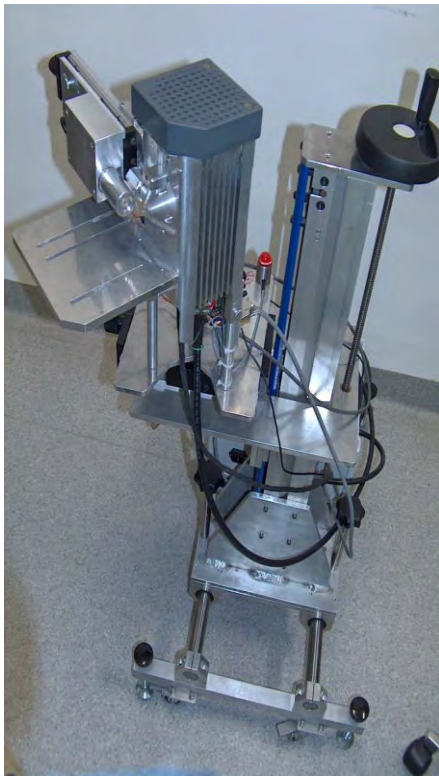
Detector power supply
and signal amplifier

Si-PIN detector



PORTABLE EDXRF SPECTROMETRY -Instrumentation-

Portable and transportable instrumentation



KH Museum Vienna



Portable EDXRF spectrometer
constructed in VINCA Institute



PORTABLE EDXRF SPECTROMETRY -Instrumentation-

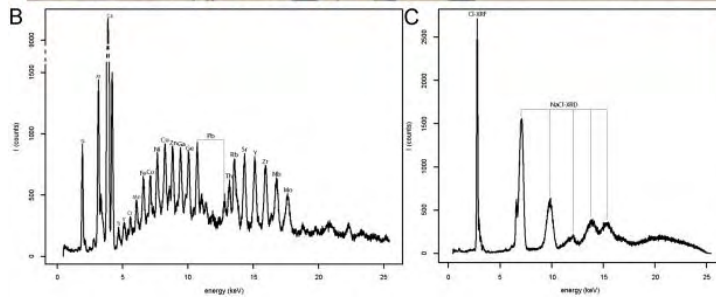


Portable XRF unit with thermoelectrically cooled Si-PIN detector.

Designed for soil analysis.

IAEA Laboratory
Seibesdorf Vienna

PORTABLE EDXRF SPECTROMETRY -Instrumentation-



XGLab, Italy
Combined EDXRF and XRF spectrometer



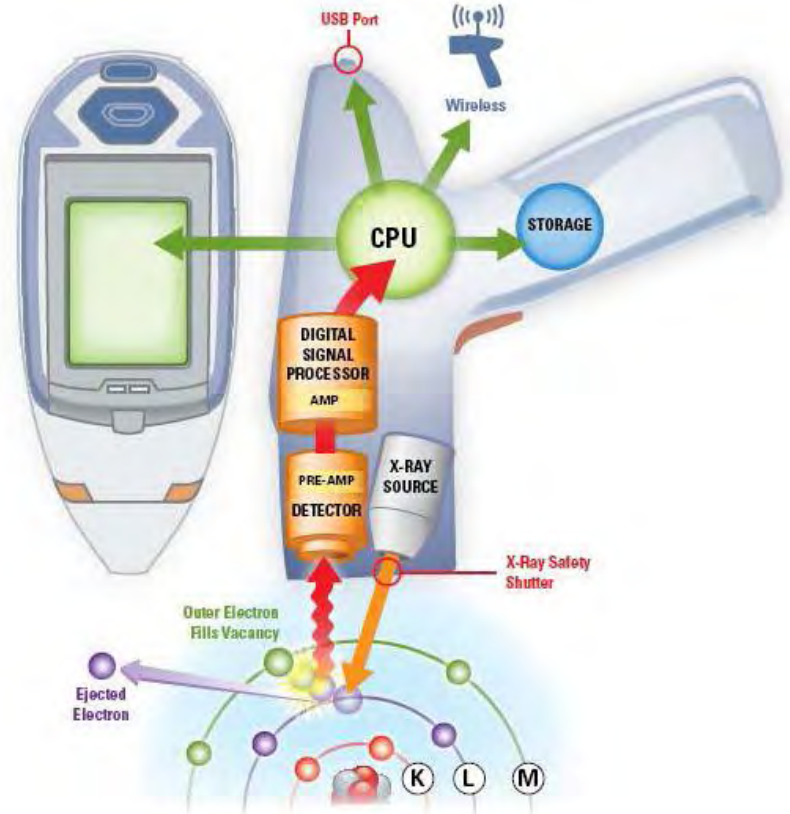
XGLab, Italy
Scanning EDXRF spectrometer

Portable EDXRF instrumentation:

- Excitation source and detector unit
- Focus on the portability, robustness, easy to operate characteristics;
- Limited analytical capabilities due to work *in situ*;
- In most cases analysis is performed in the air so light elements (below Si) are difficult for detection and quantification;
- Work with generators of the ionizing radiation (radioisotopes and X – Ray tubes) in the open space (public) require specific precautions and even permissions.
- Enables work with objects instead of the samples;
- Portable EDXRF spectrometry can be used for determination of hot spots on the contaminated lands leading to representative sampling procedure.

PORTABLE EDXRF SPECTROMETRY -Instrumentation-

HAND-HELD XRF SPECTROMETERS



PORTABLE EDXRF SPECTROMETRY -Hand Held Analyzers-

HAND-HELD XRF SPECTROMETERS

User friendly and easy to operate instruments;

Battery operated – approx. 6 hours work;

Optimized experimental geometry;

Small power and current, high voltage up to 50kV;

X-Ray tubes with Pd, Rh, W, Au, Ag,...,

Direct or filtered excitation (option);

Measurement in the air or under He flush (option)

Silicon drift detector, 120-140 eV FWHM at 5.9keV Mn Ka line;

Fully Digital Signal Processing;

Additional collimators for different spot sizes;

Camera for spot identification and focusing.



PORTABLE EDXRF SPECTROMETRY -Hand Held Analyzers-

Hand Held XRF analyzer Niton XL3t GOLDD+

- Manufactured by Thermo Fisher Scientific Company
- Geometrically Optimized Large Area Silicon Drift Detector
- Operated by Lithium ion battery
- 3mm small-spot collimation
- Integrated CCD camera for locating and storing images
- Ag anode 50 kV and 200 μ A
- Analytical range Mg - U
- Weight 1.3kg



Wide range of applications:

- Environmental studies (including detection of light elements);
- Geochemistry (including quantification of macro-components of rocks and solids);
- Metal identification;
- Rare metal detection and quantification;
- ROHS directive monitoring;
- Analysis of art objects;
- Analysis of precious metals and objects,
- All non-destructive types of analysis – quality control.



Thank you!