PIKTORIALISMI-KUVATYYPPIEN TUNNISTAMINEN JA MATERIAALITUTKIMUS

SUOMEN VALOKUVATAITEEN MUSEO

29.11.2021 SVM

Seppo Hornytzkyj, Riitta Koskivirta, Hanne Tikkala ja Laura Sallas

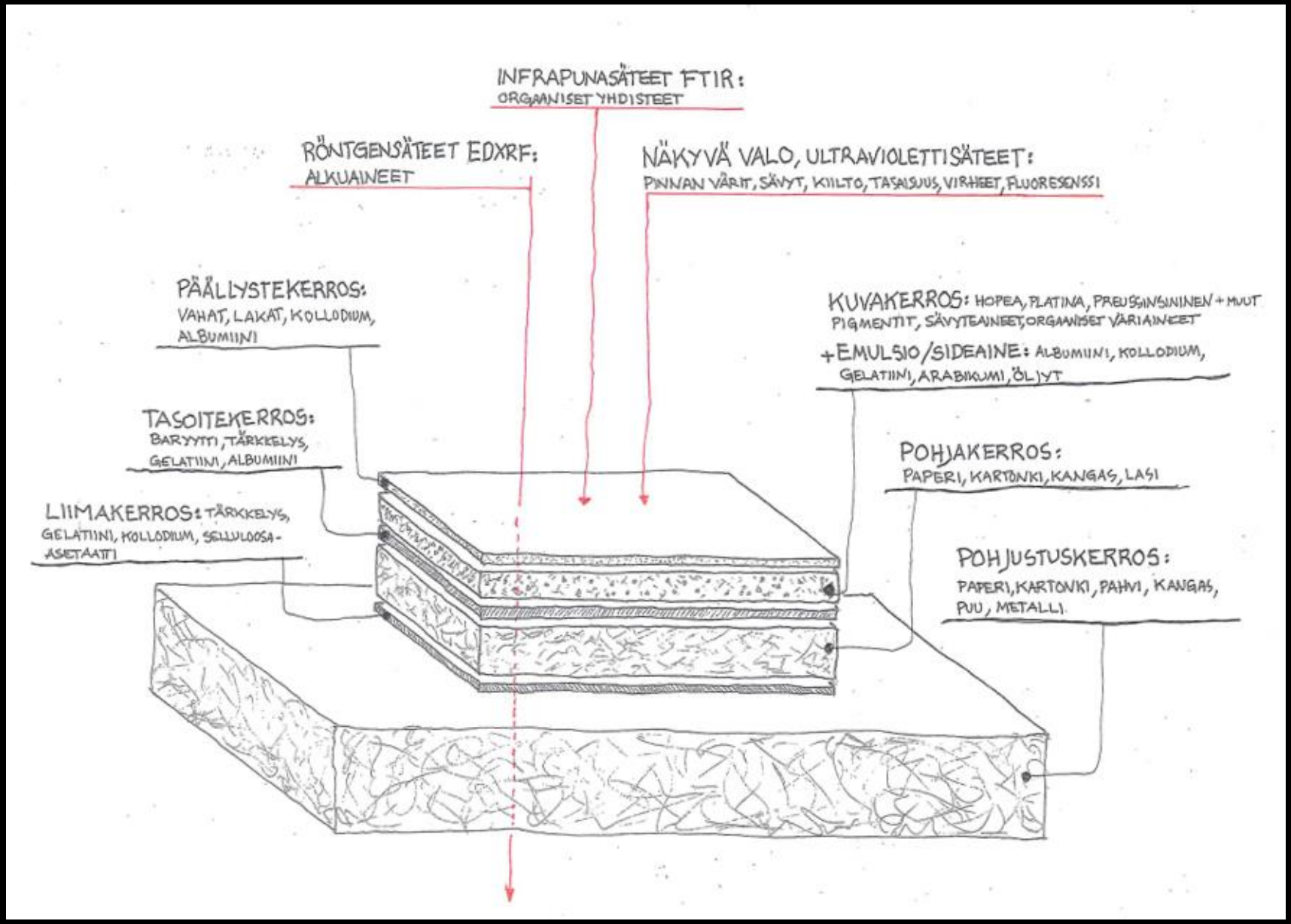
Kuvat: Virve Laustela

VALOKUVIEN MONIKERROKSELLISYYS JA -MATERIAALISUUS

Valokuvan fyysinen rakenne voi olla hyvinkin monikerroksinen ja -materiaalinen.

Valokuvien materiaalista olemusta tutkittaessa ja kuvatyyppejä määriteltäessä eritellään kuva-aines, sideaine ja pohjamateriaali.

Valokuvien jälkikäsittely, esim. sävyttäminen, värittäminen tai lakkaaminen, tuo lisähaasteita tunnistamiseen.

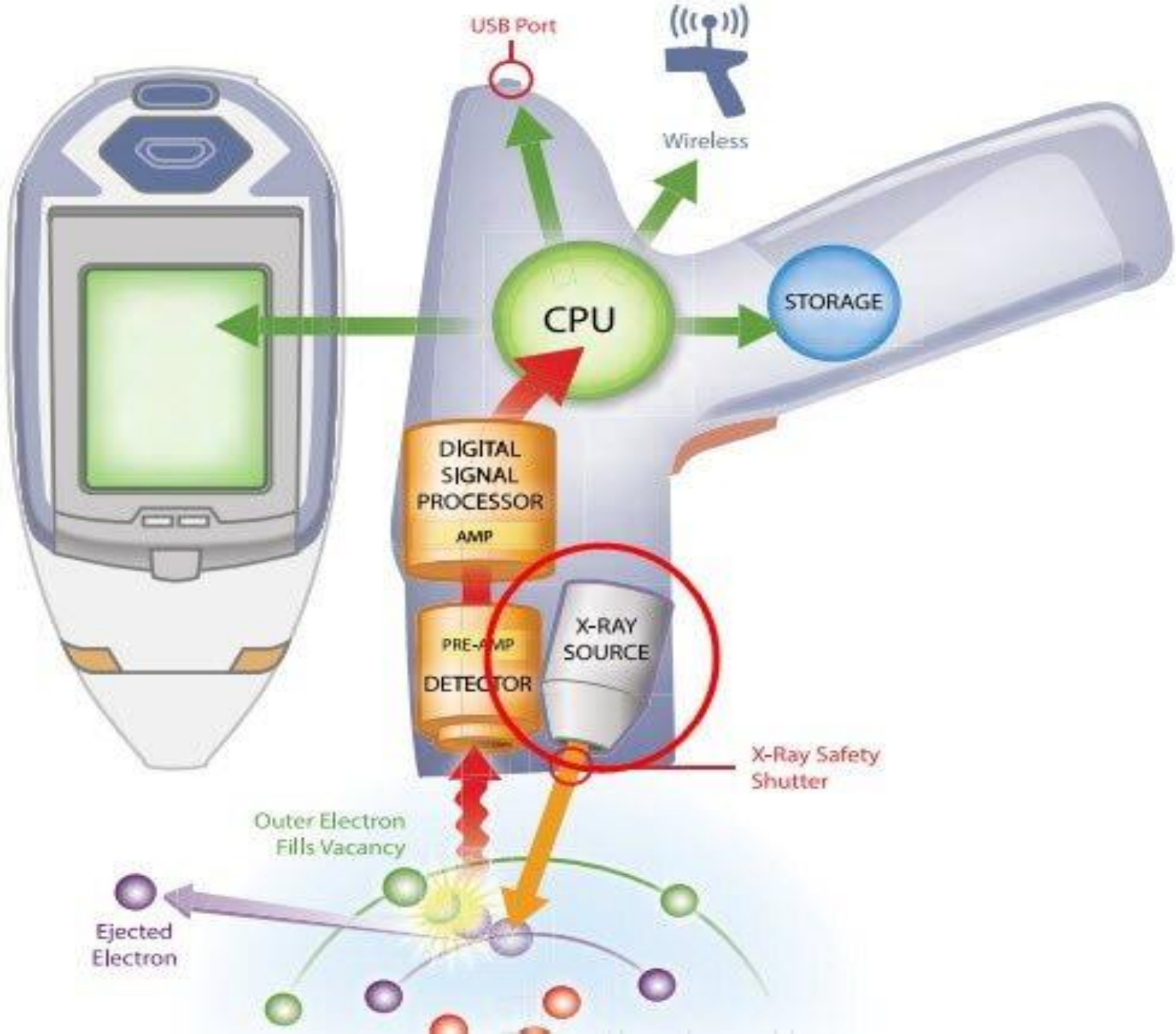

INFRAPUNASÄTEET FTIR:
ORGAANISET YHDISTEET
RÖNTGENSÄTEET EDXRF:
ALKUAINEET
NÄKYVÄ VALO, ULTRAVIOLETTISÄTEET:
PINNAN VÄRIT, SÄVYT, KIILTO, TASAISUUS, VIRHEET, FLUORESENSSI
PÄÄLLYSTEKERROS:
VAHAT, LAKAT, KOLLODIUM, ALBUMIINI
KUVAKERROS: HOPEA, PLATINA, PREUSSINSININEN + MUUT PIGMENTIT, SÄVYTEAINEET, ORGAANISET VÄRIAINEET
+EMULSIO/SIDEAINE: ALBUMIINI, KOLLODIUM, GELATIINI, ARABIKUMI, ÖLJYT
TASOITEKERROS:
BARYYTTI, TÄRKKELYS, GELATIINI, ALBUMIINI
POHJAKERROS:
PAPERI, KARTONKI, KANGAS, LASI
LIIMAKERROS: TÄRKKELYS, GELATIINI, KOLLODIUM, SELLULOOSA-ASETAATTI
POHJUSTUSKERROS:
PAPERI, KARTONKI, PAHVI, KANGAS, PUU, METALLI

ANALYYSIMENETELMÄT

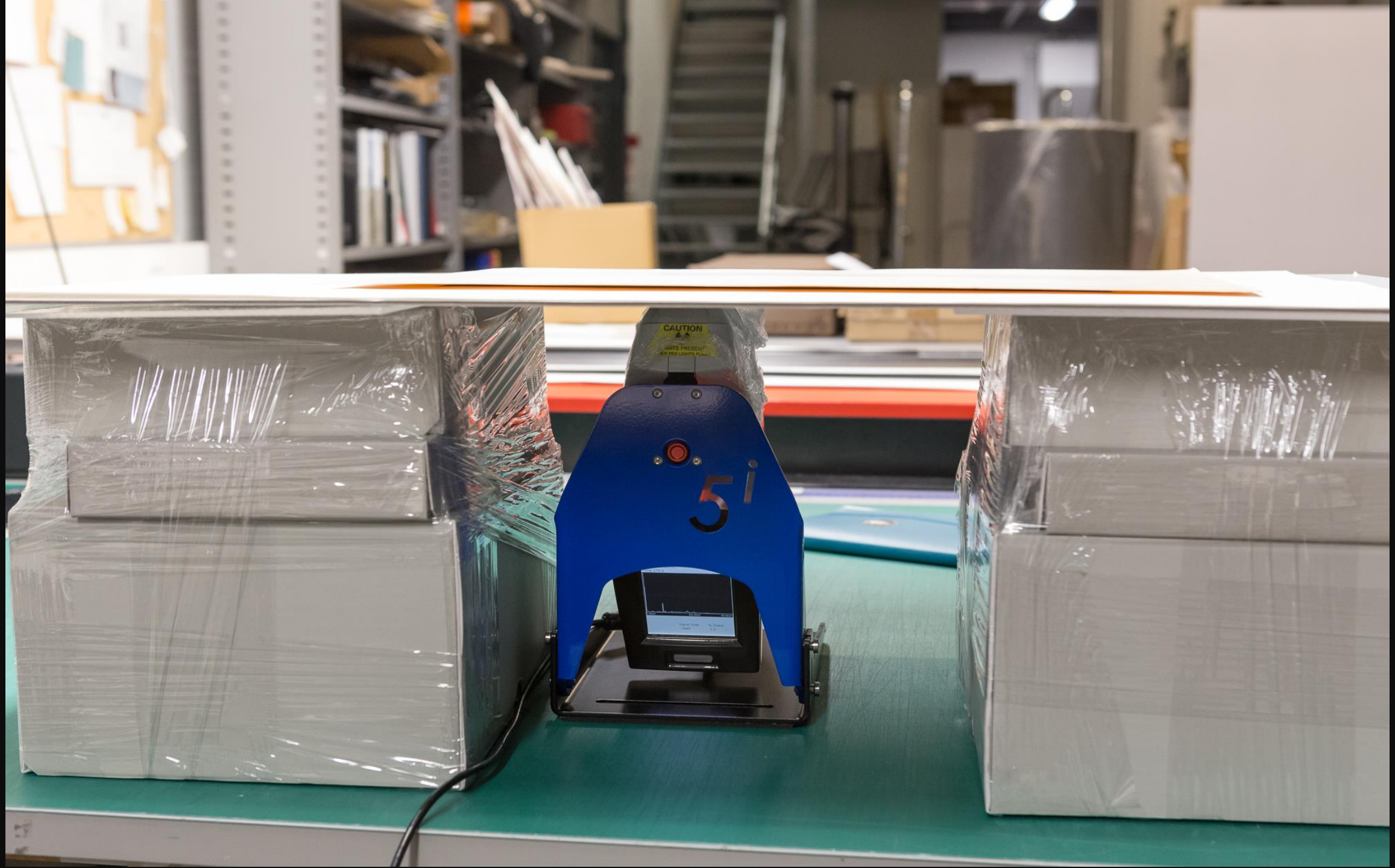
Kuvatyyppien tunnistaminen visuaalisilla menetelmillä sekä kohdetta vahingoittamattomilla analyysimenetelmillä.

Käytetyt analyysimenetelmät ovat:

- Energiadispersiivinen röntgenfluoresenssispektroskopia (EDXRF)
- Fouriermuunnos infrapunaspektroskopia (FTIR)
- Valomikroskopia (LM) ja UV-valo


USB Port
Wireless
CPU
STORAGE
DIGITAL
SIGNAL
PROCESSOR
AMP
PRE-AMP
DETECTOR
X-RAY
SOURCE
X-Ray Safety
Shutter
Outer Electron
Fills Vacancy
Ejected
Electron

TRACER
BRUKER
CAUTION • ATTENTION


CAUTION
5i


CAUTION
X-RAYS PRESENT
WHEN RED LIGHTS FLASH
5i


PHILIPS


1004
Ready to Test
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+
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OK
Capture
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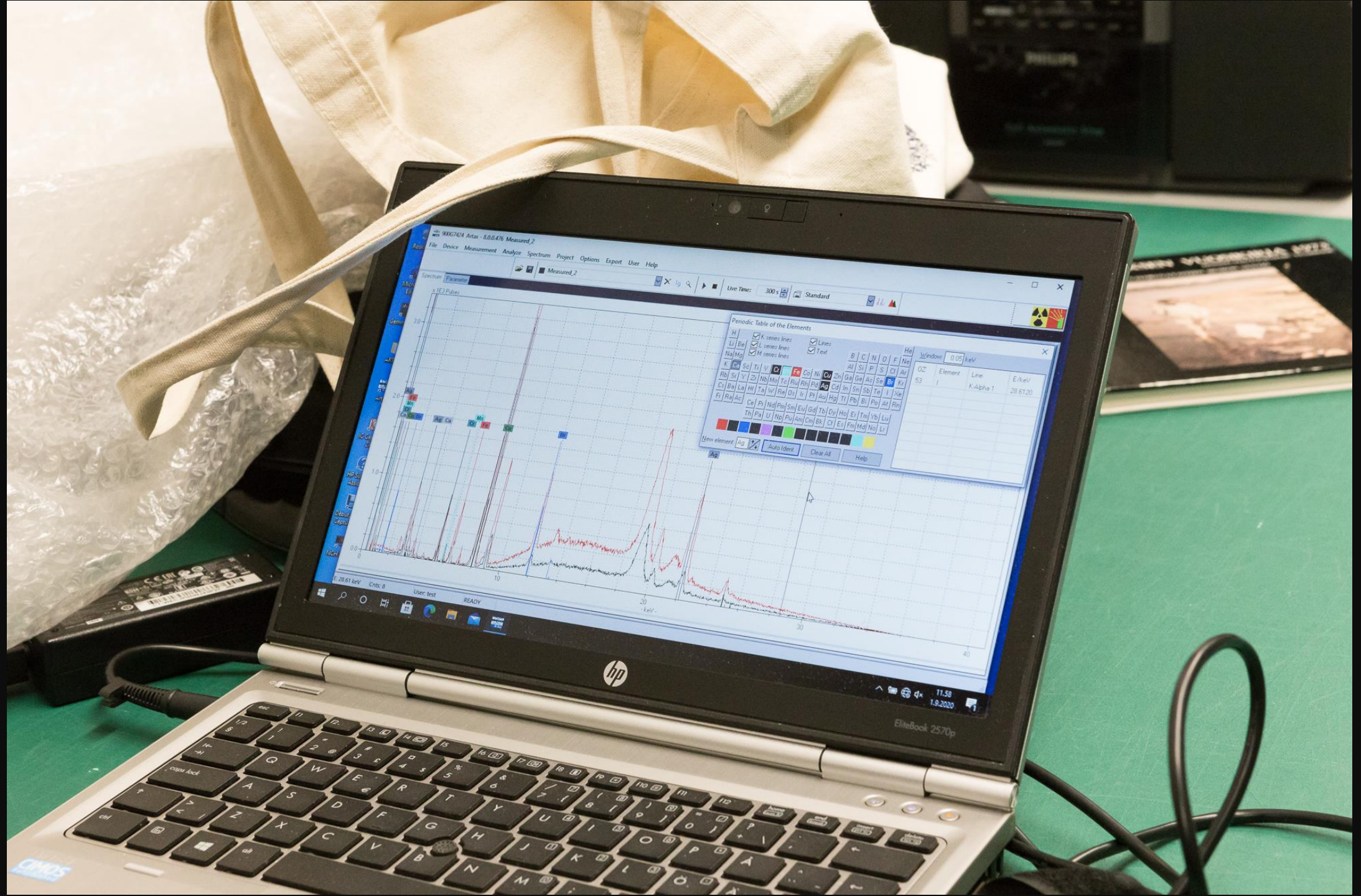
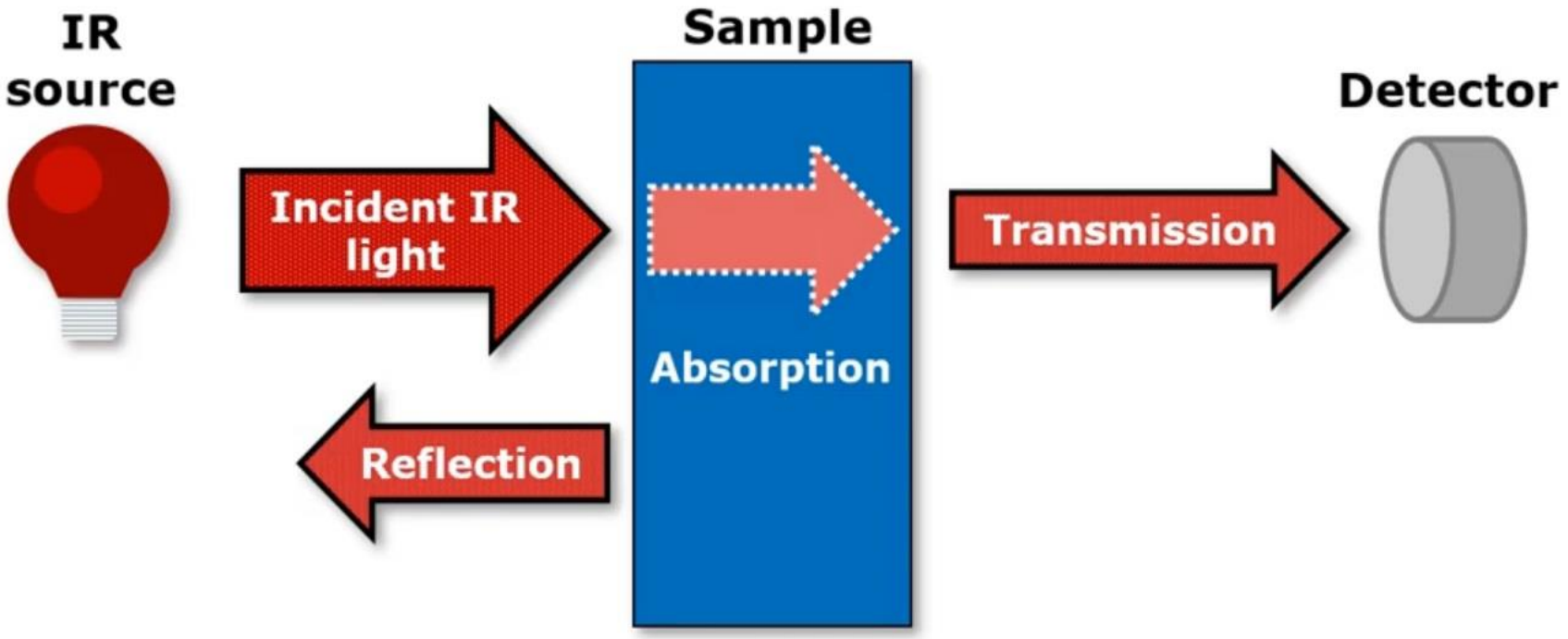

Periodic Table of the Elements
Auto Ident
Clear All
Help
READY
EliteBook 2570p

The principles of infrared spectroscopy

How is an infrared spectrum measured?

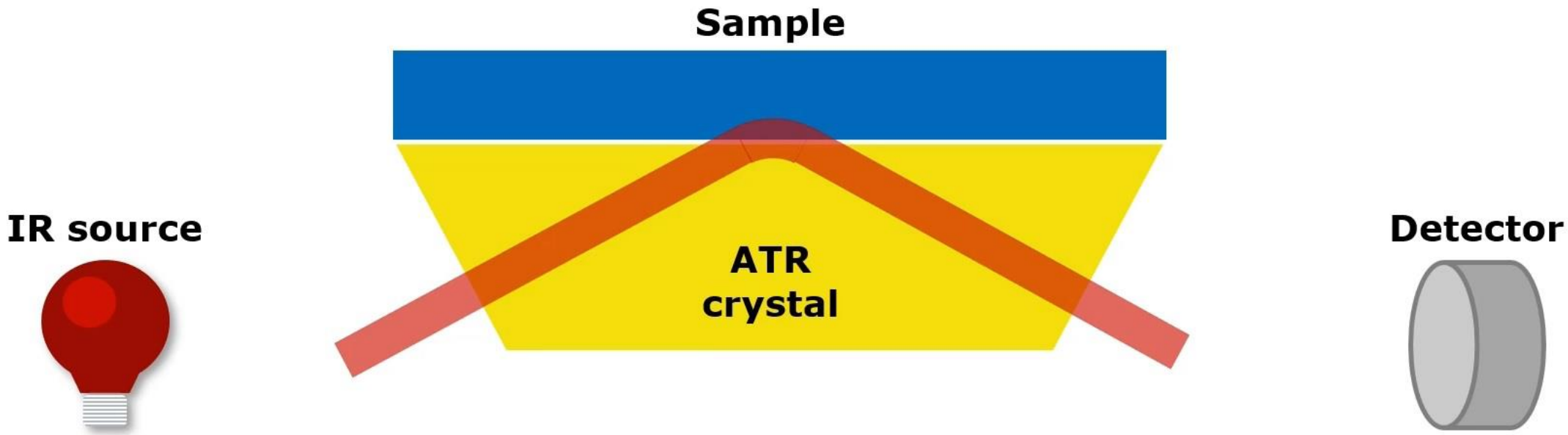
- The remaining light is transmitted and collected by a detector



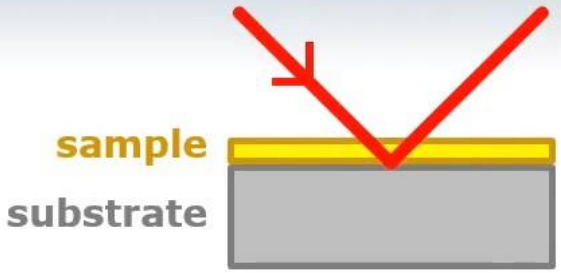
ATR Measurements | Repeating the Basics

How are spectra in attenuated total reflection (ATR) collected?

- The sample is placed on the ATR crystal. Good contact between crystal and sample is very important!
- IR light passes the crystal, is reflected internally and is partially absorbed by the sample on-top

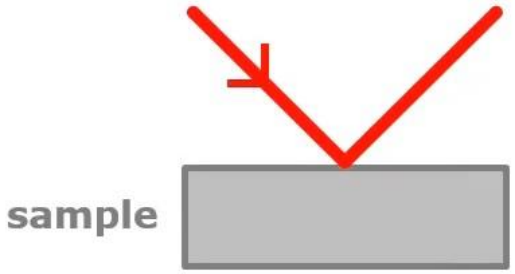


Overview: External Reflection Measurements



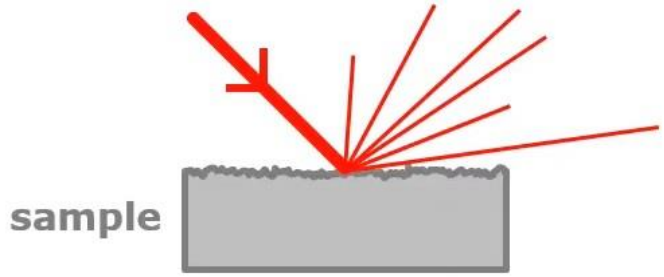
Reflection-absorption:

- IR first light passes the analyzed material
- IR is then reflected by the (metallic) substrate



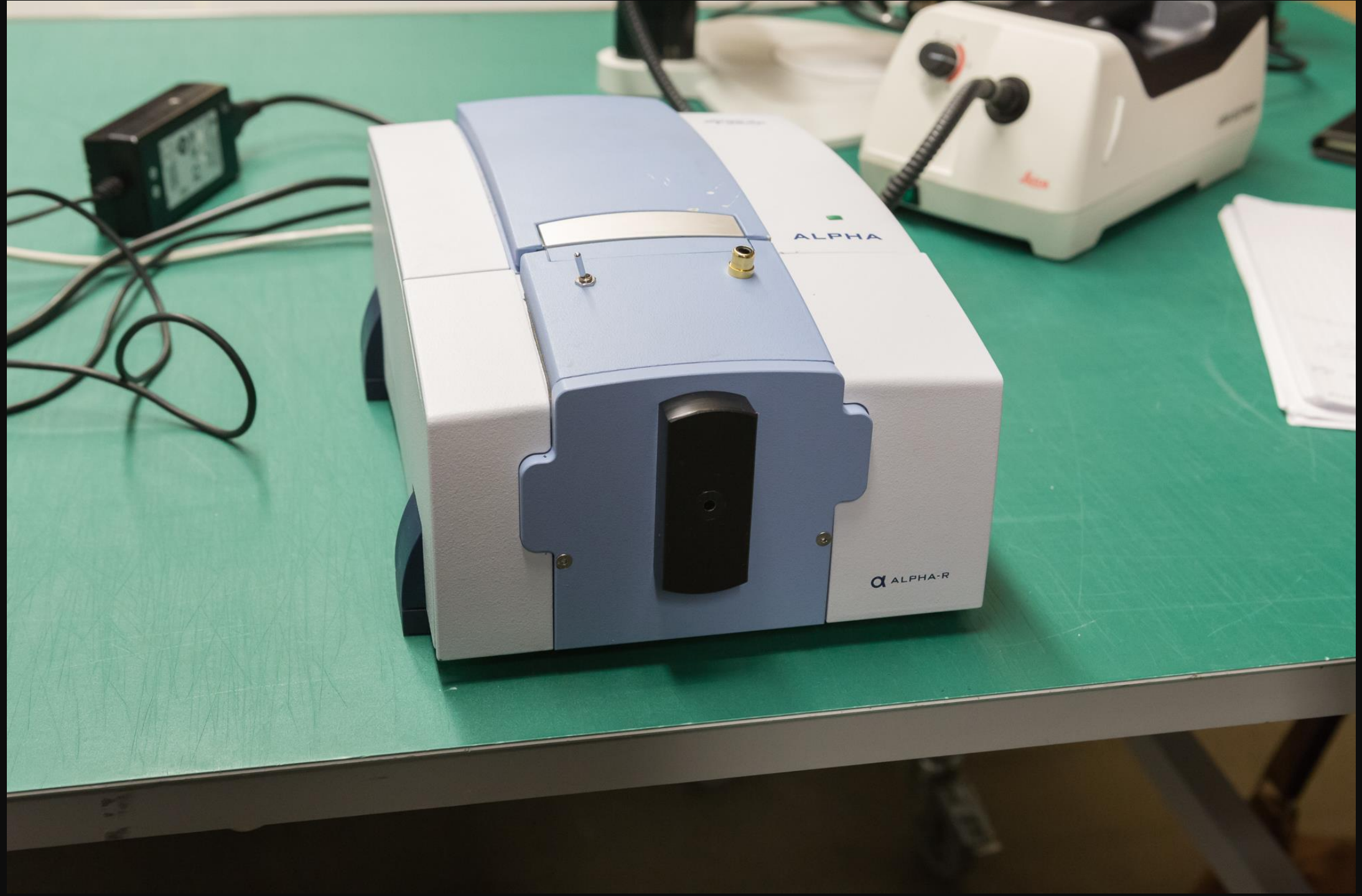
Specular reflection:

- IR light is directly reflected on the sample surface
- Sample itself needs to be reflective to acquire spectra



Diffuse reflection:

- IR light is diffusely scattered on the sample surface
- Scattered light is collected and directed to detector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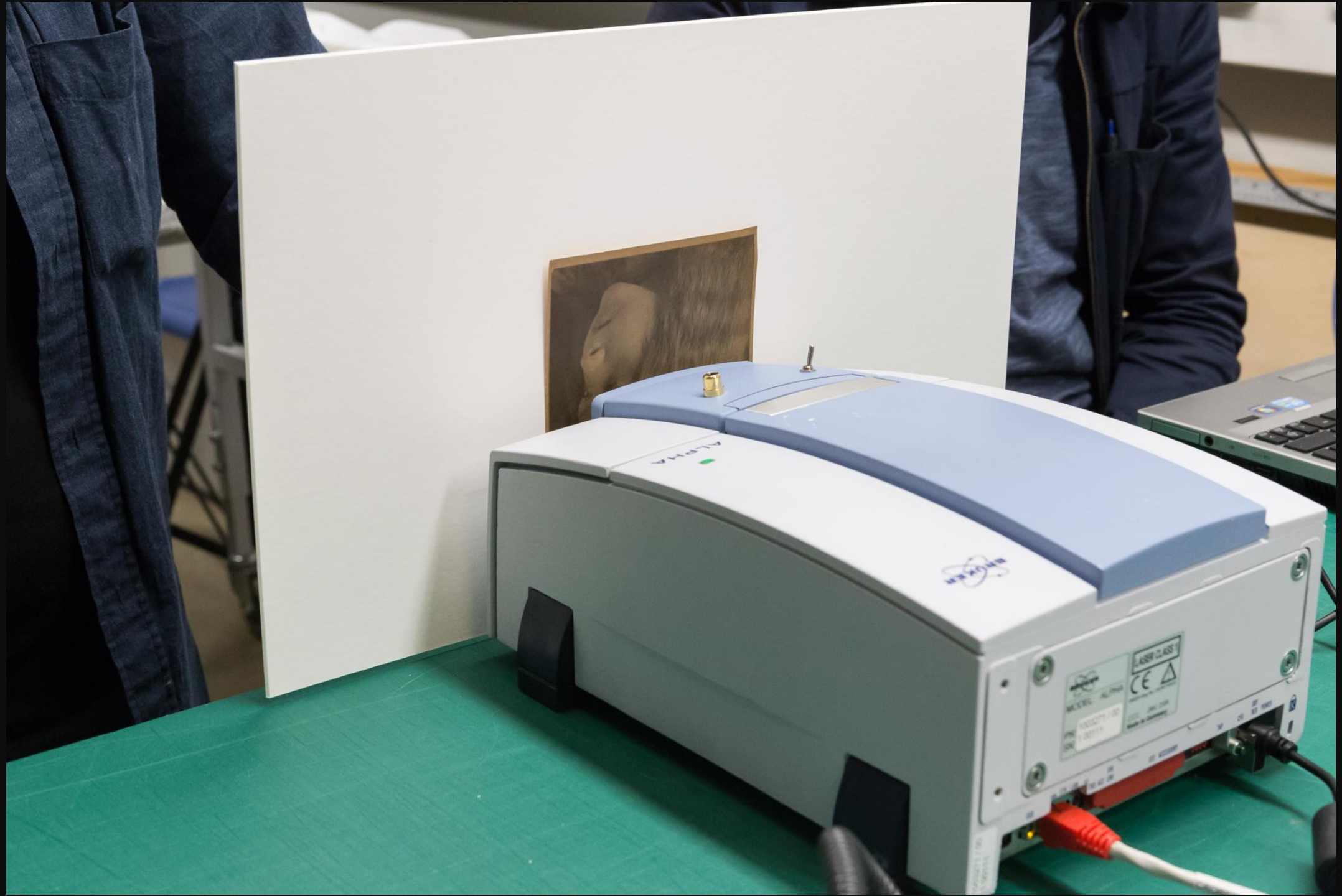
ALPHA-R


ALPHA


ALPHA


ALPHA
LASER CLASS 1


OPUS - Operator: Admin (Administrator) - [Display - alpha_advanced.ows]
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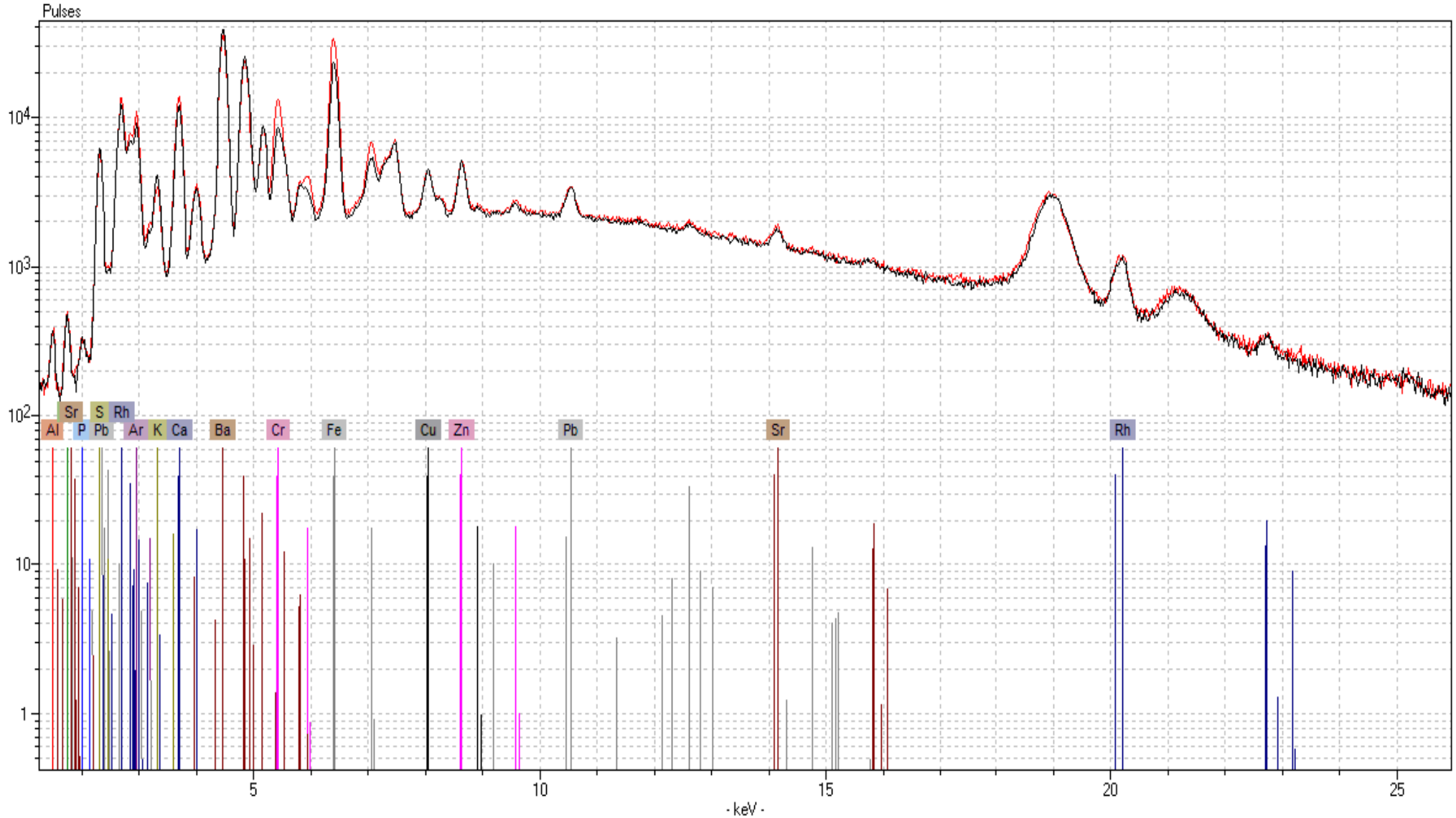
CAP NUM SCRL
14.02
8.9.2020
EliteBook 2570p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Sr S Rh
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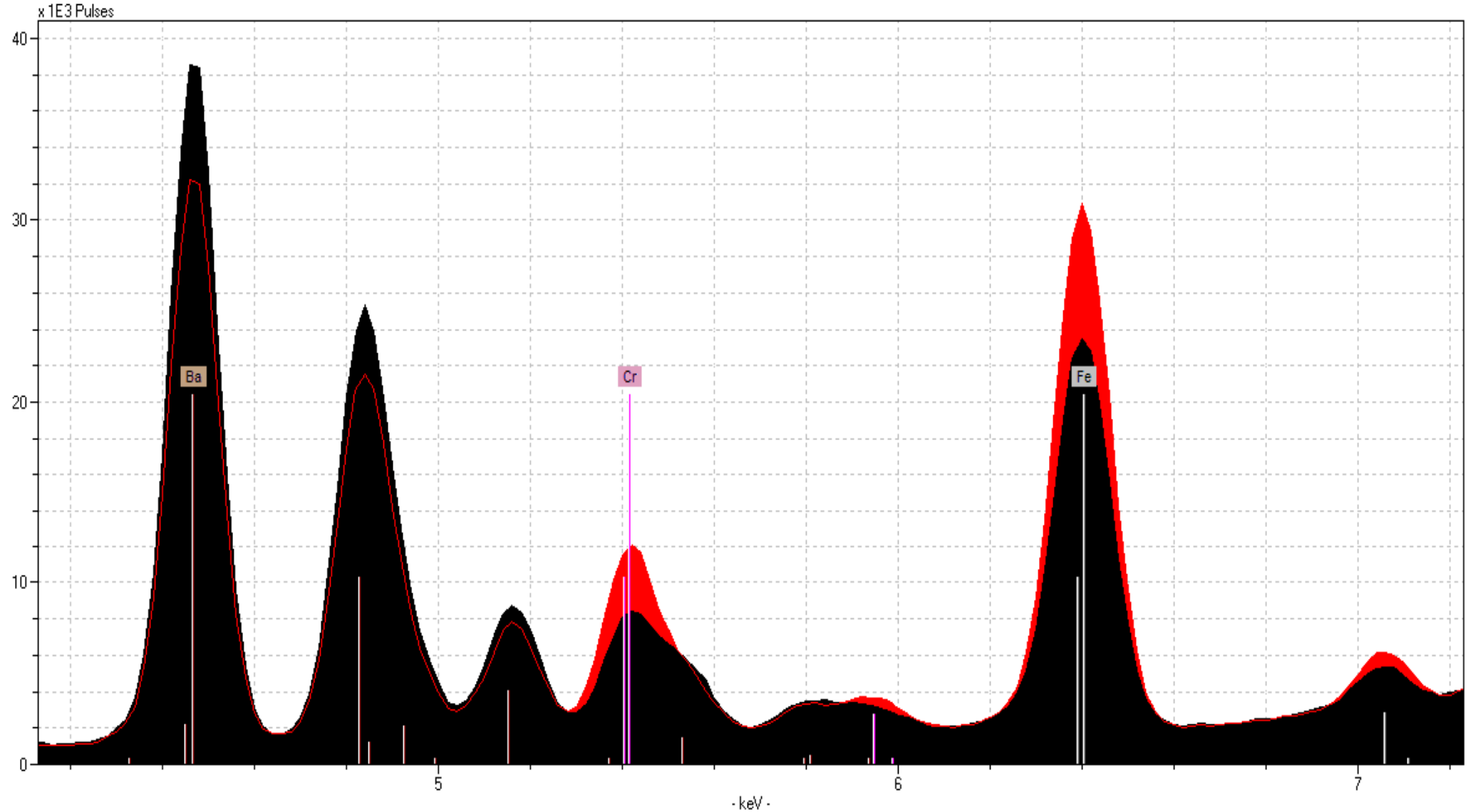
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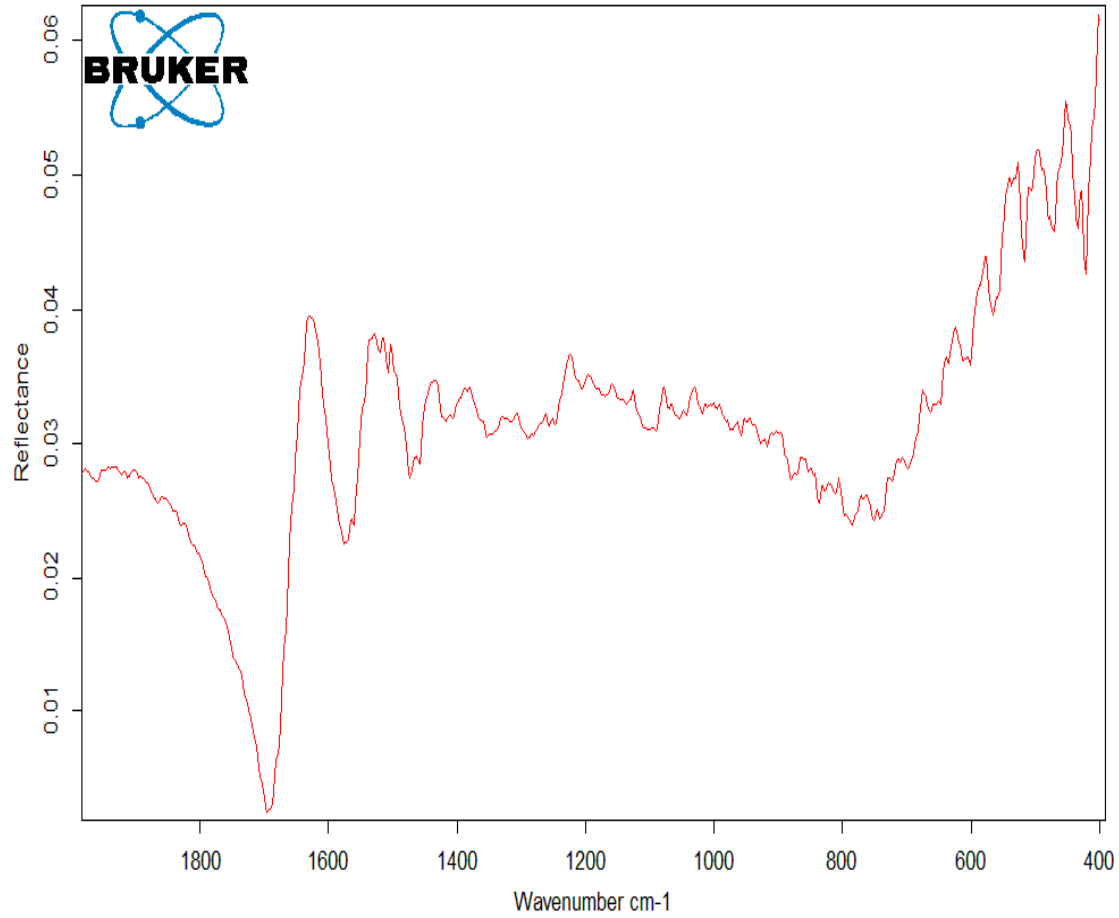

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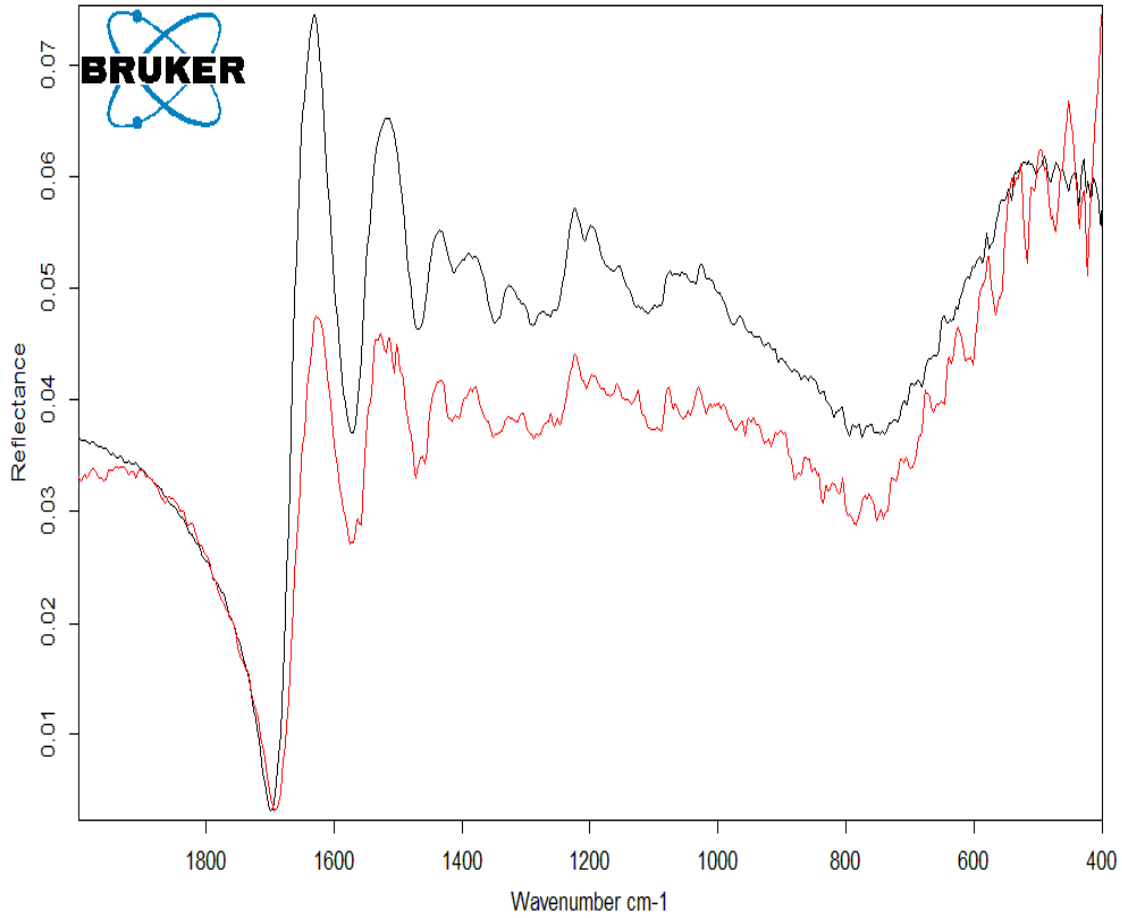

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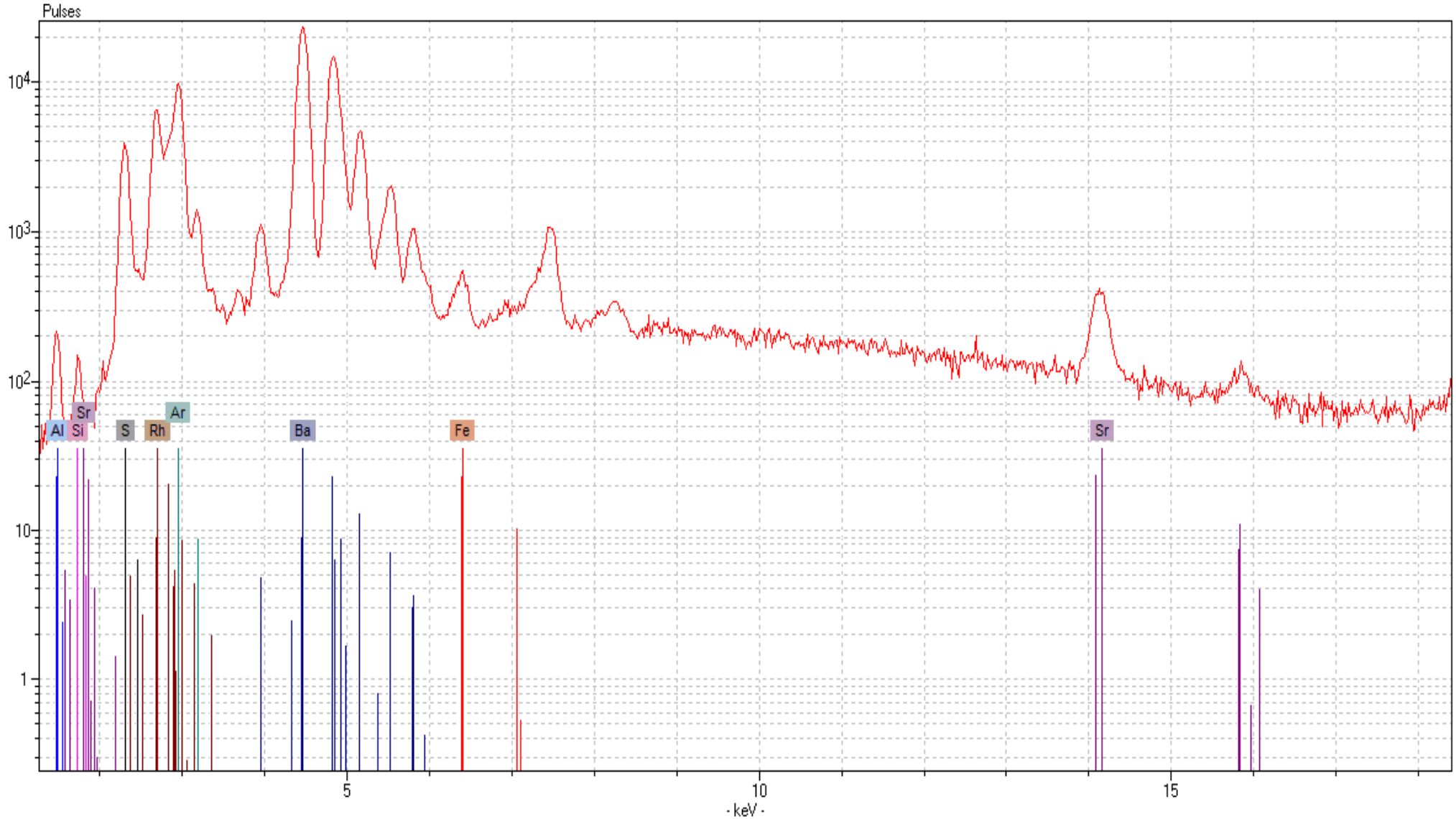
Pulses
10^4
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Al
Si
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Rh
Ar
Ba
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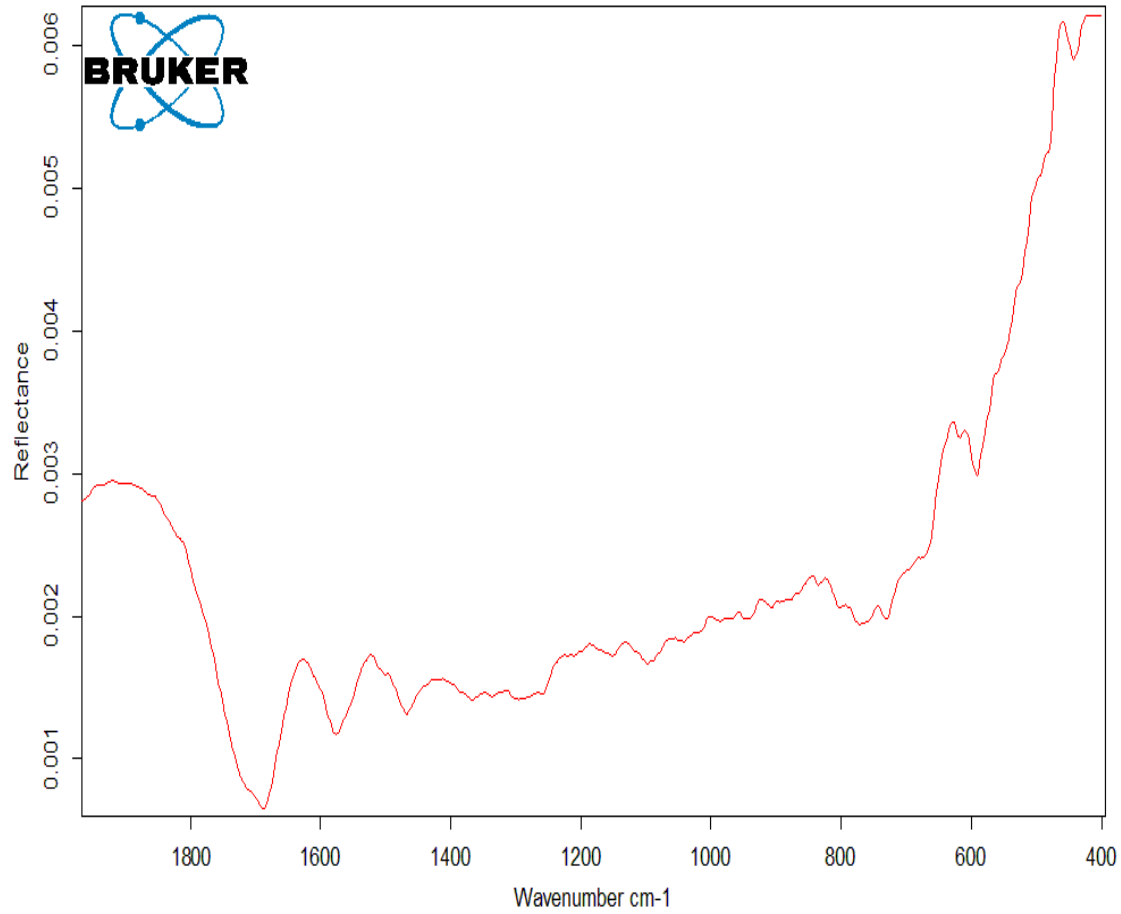
- keV -



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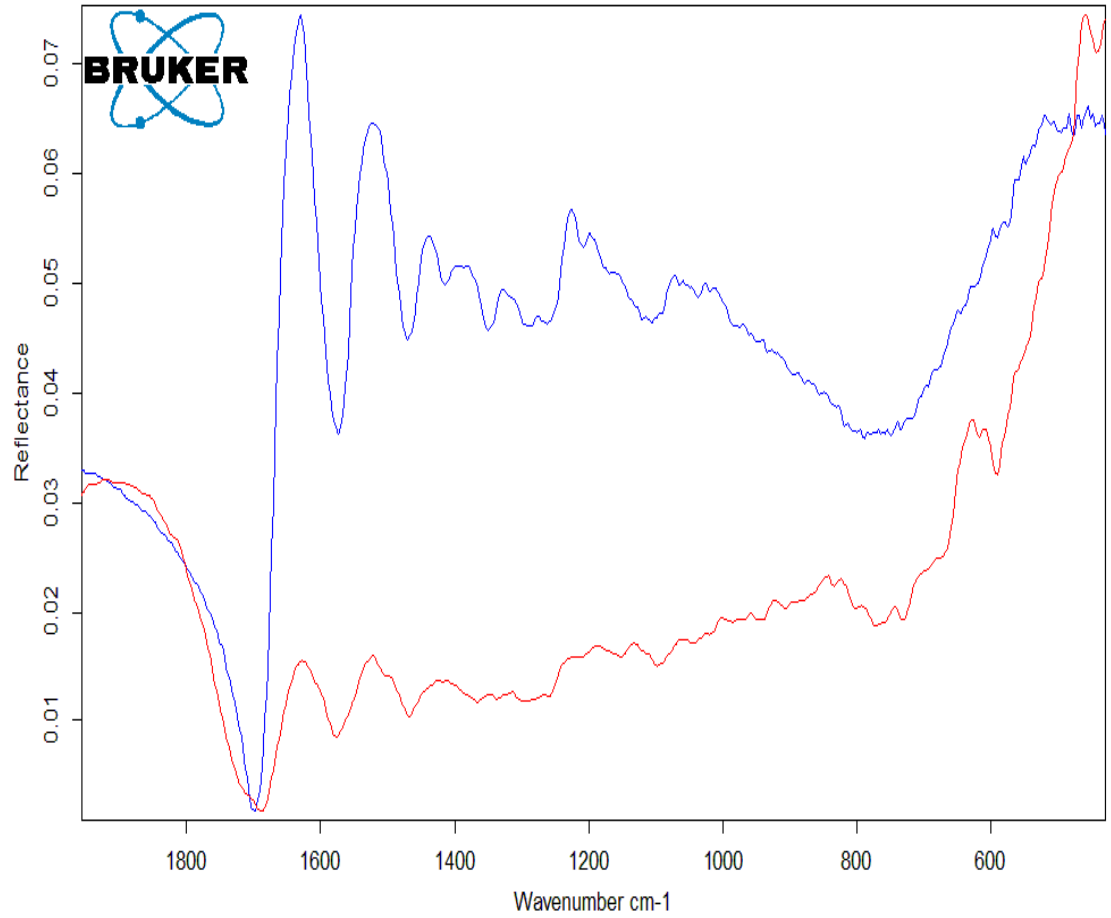

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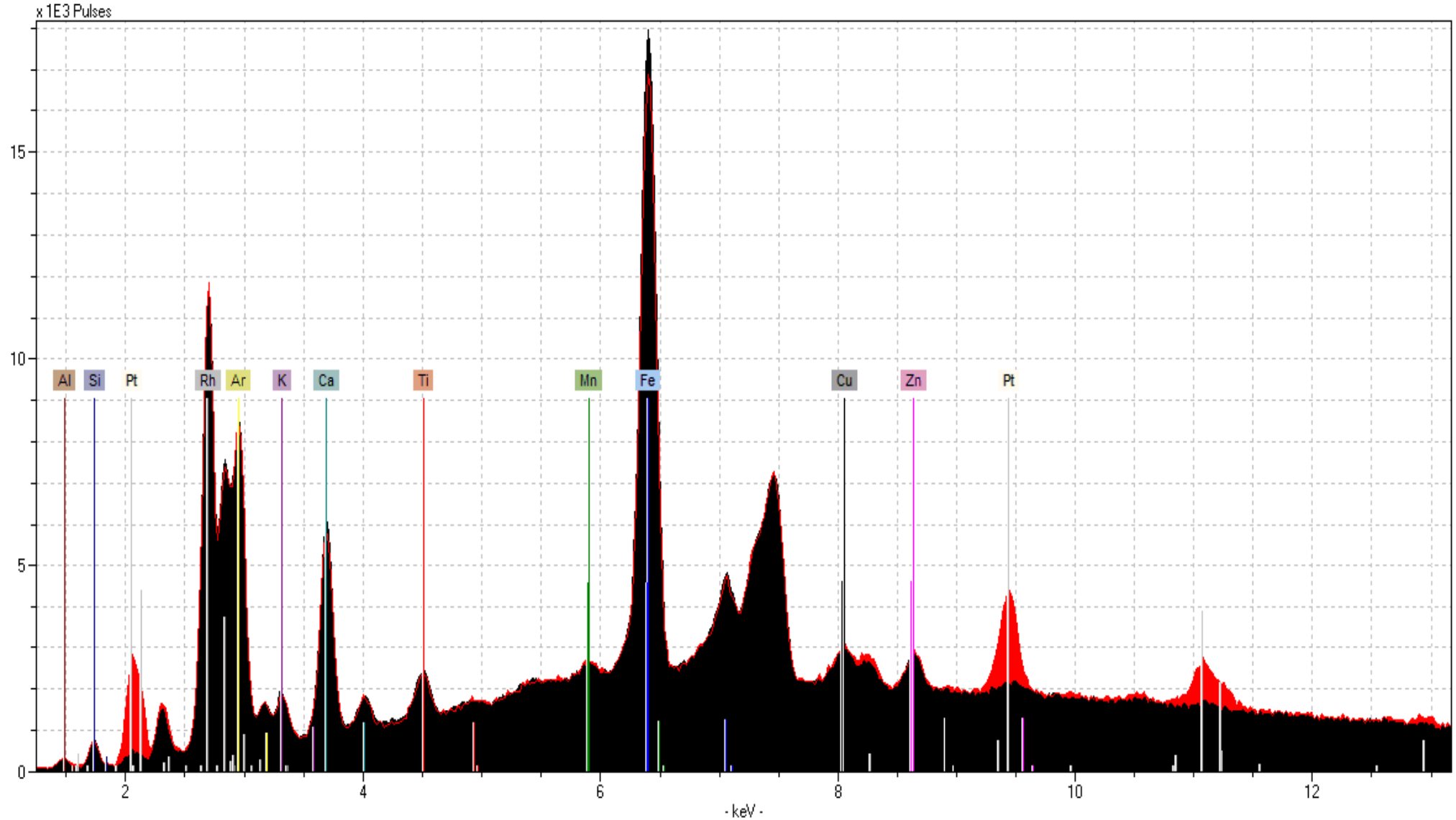
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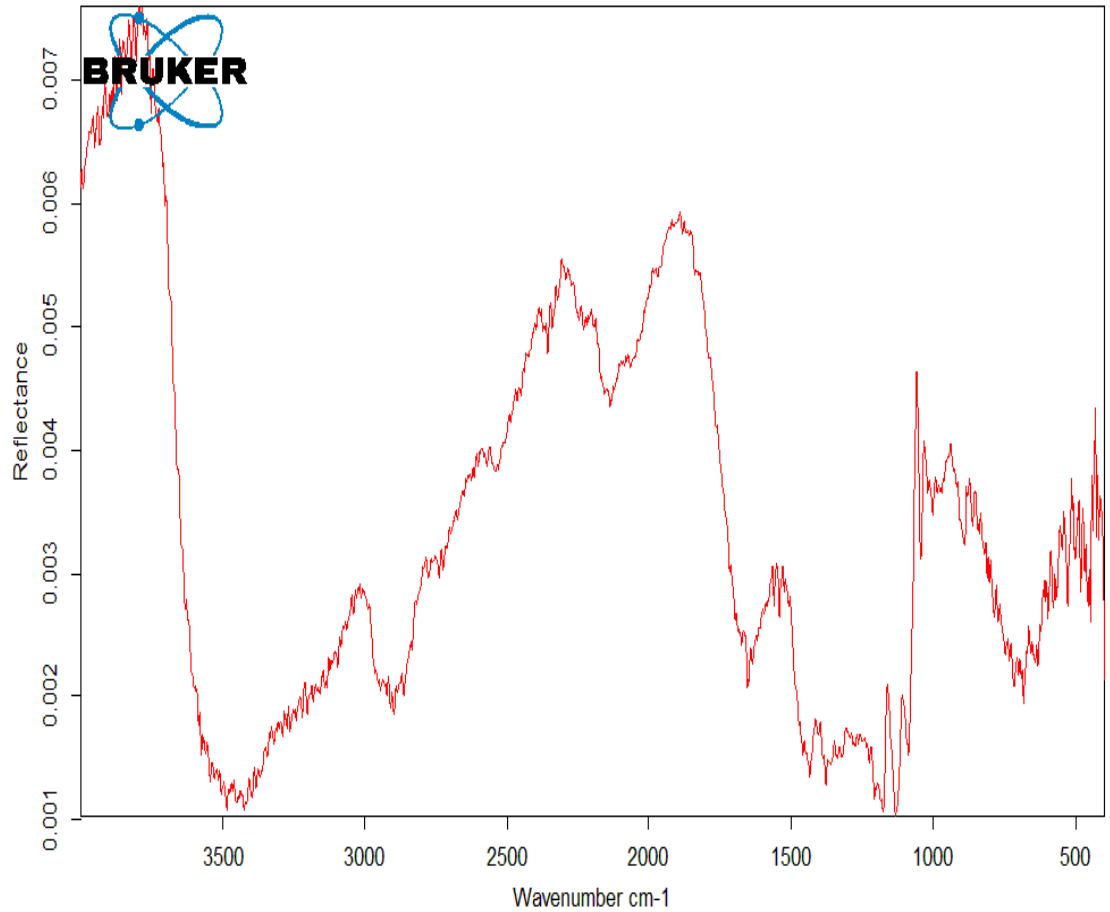

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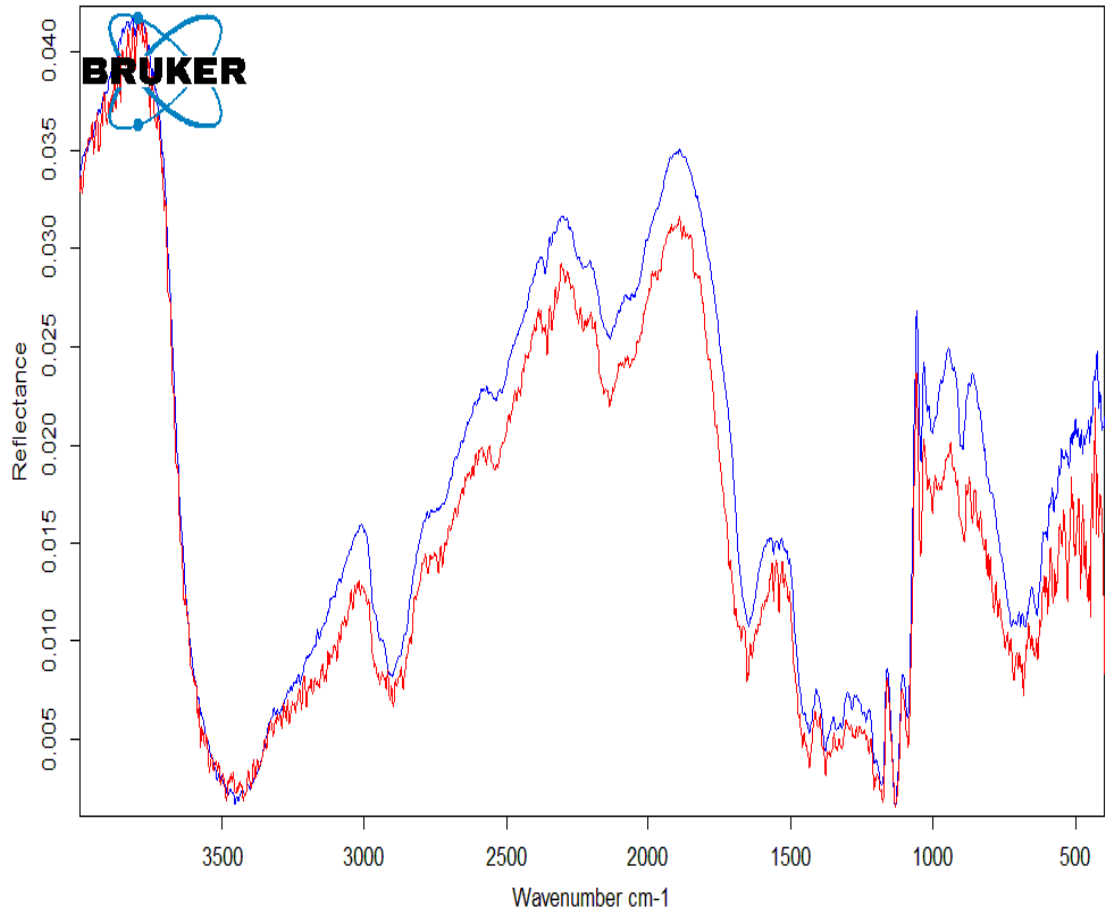

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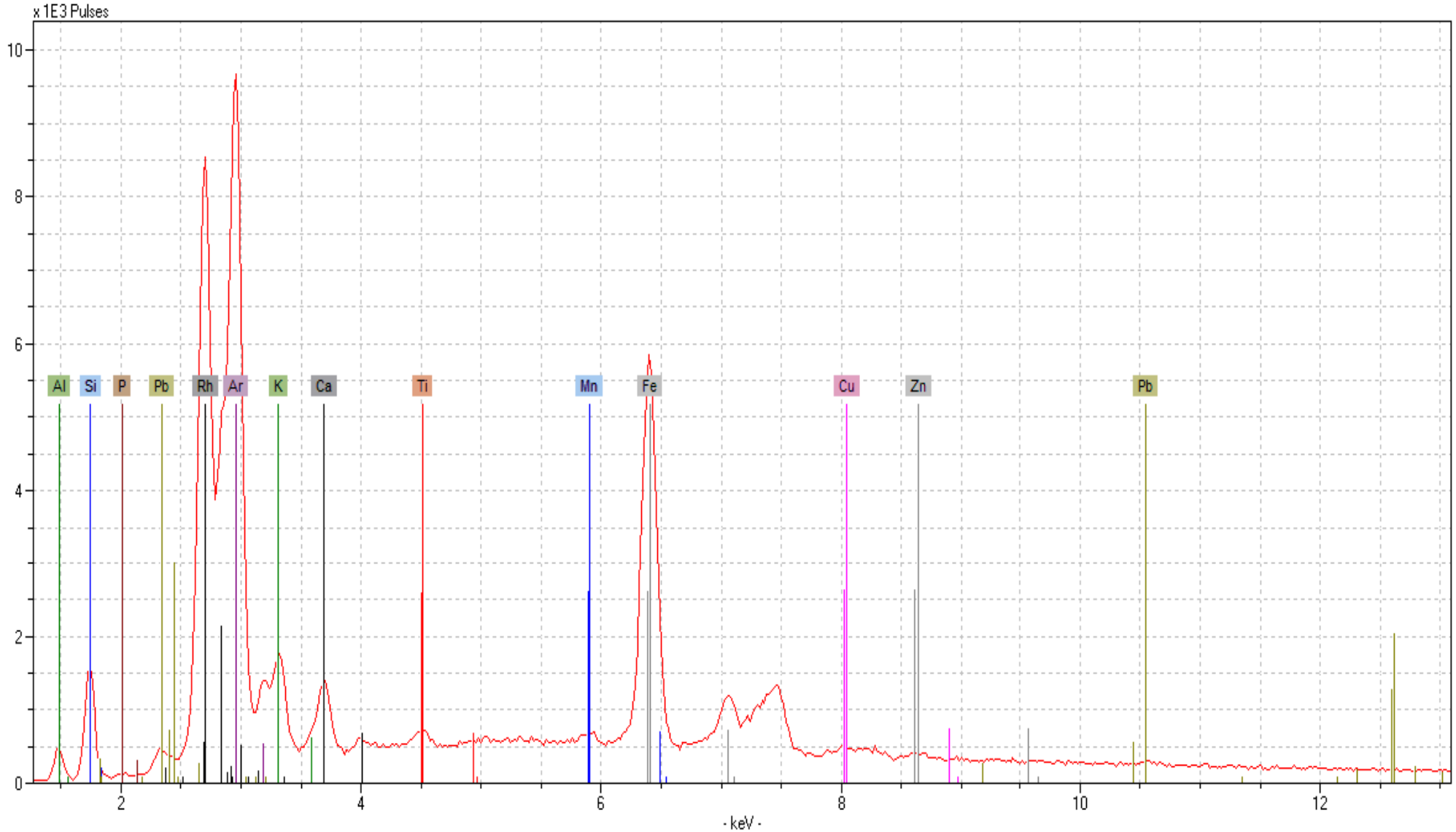
x 1E3 Pulses
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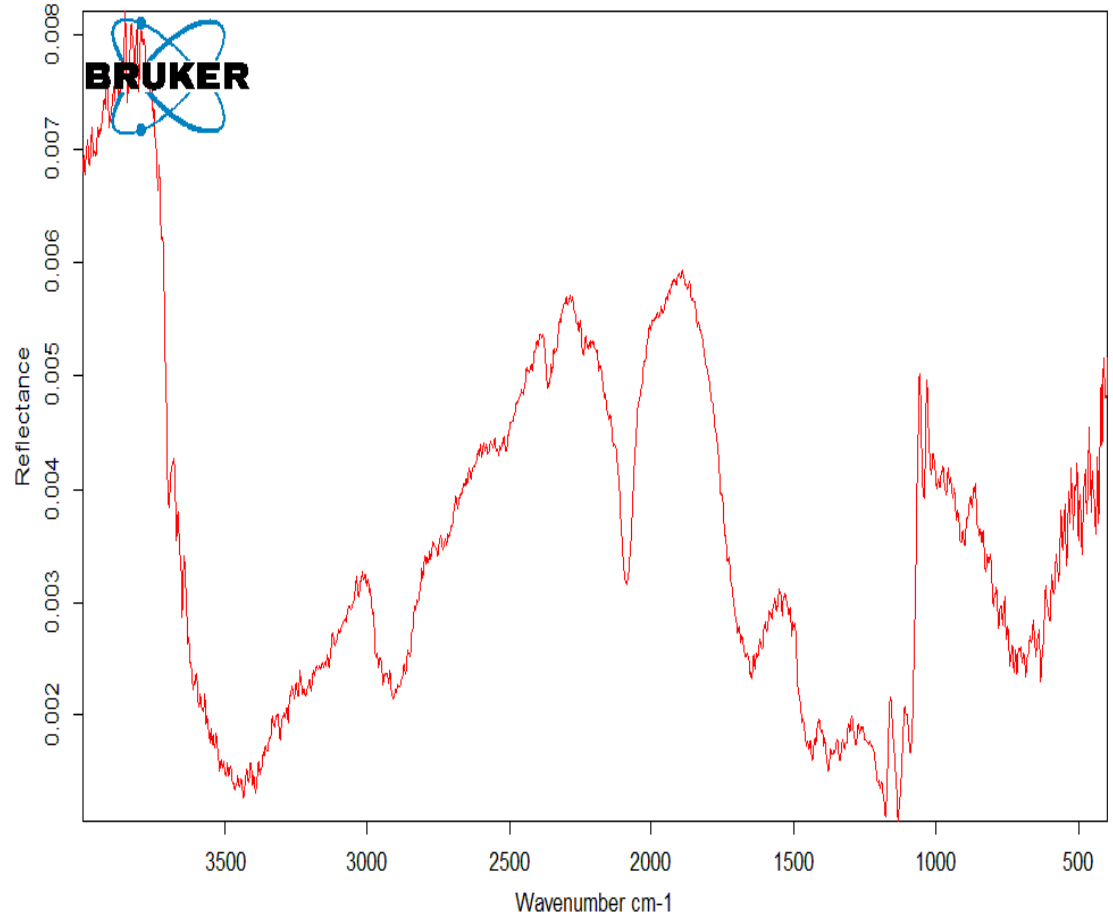

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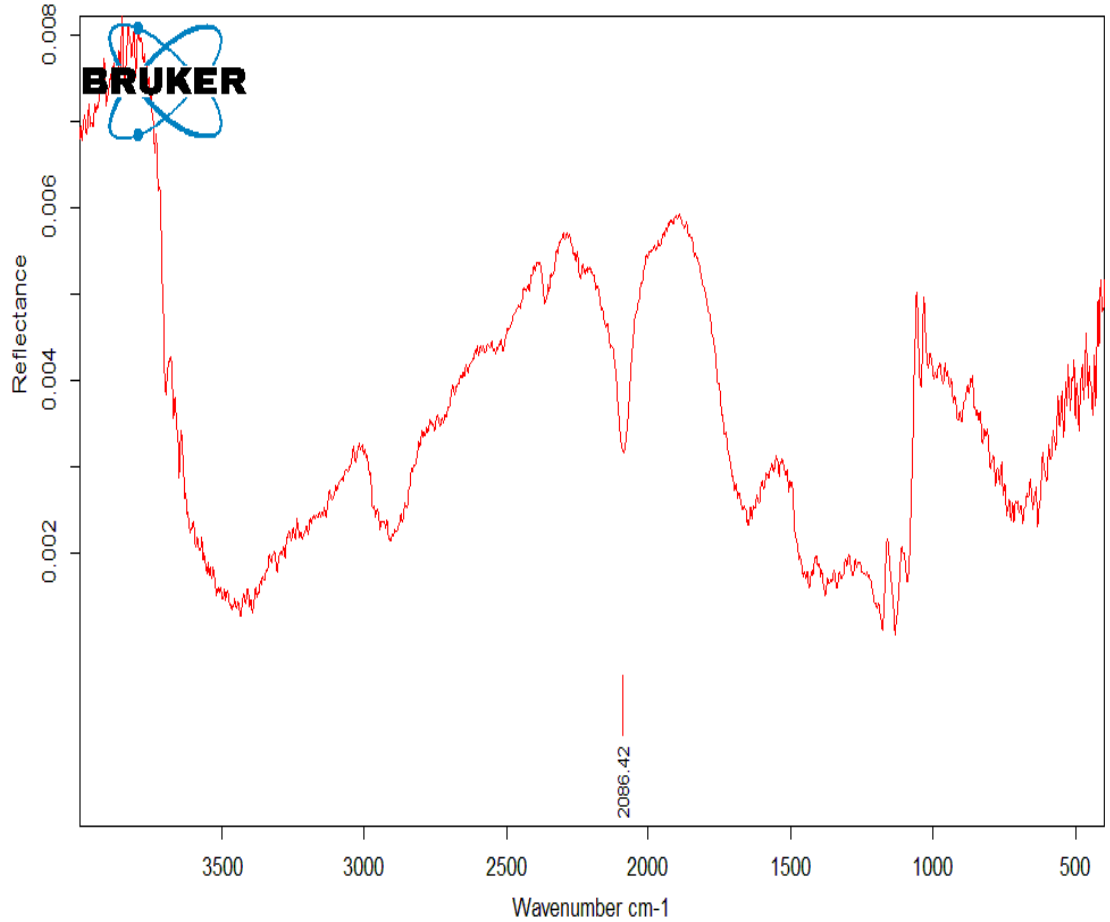

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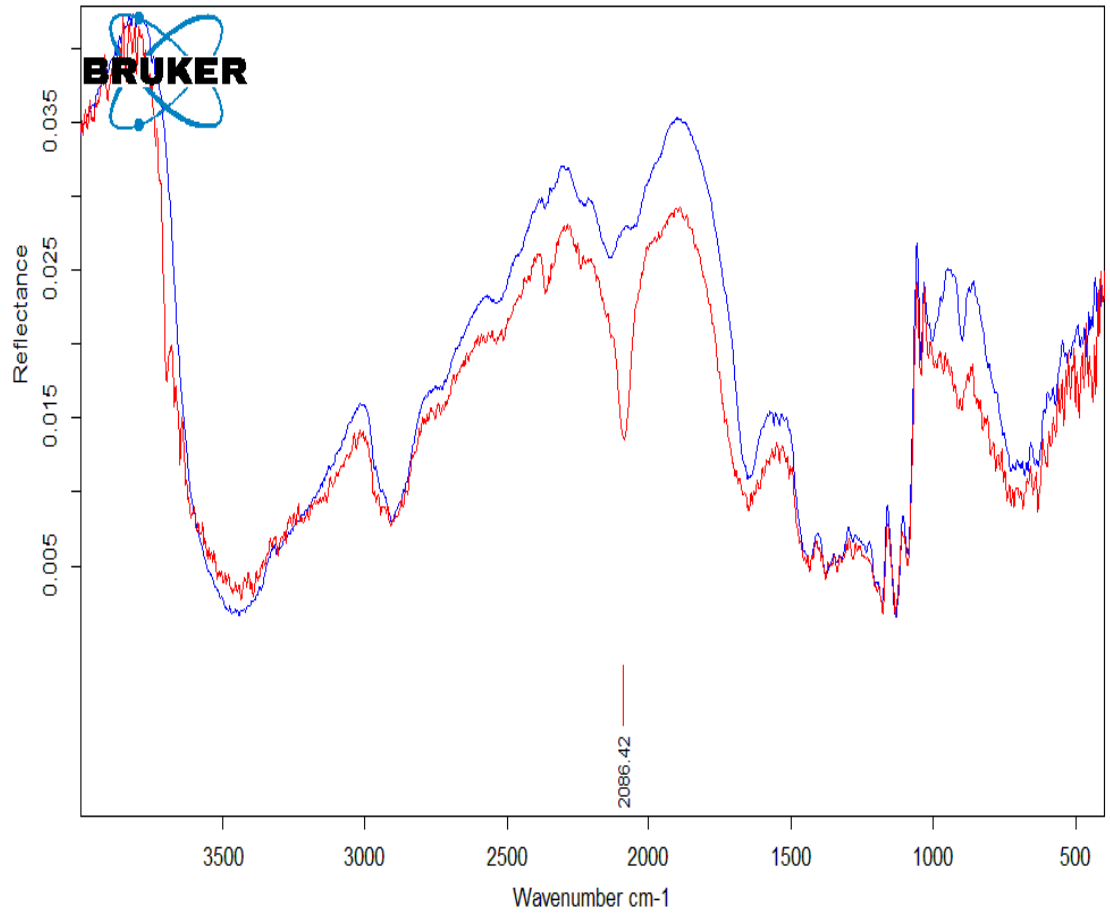

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