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# *Color Analysis of Historic Samples*

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# Introduction



**J&M diode array spectrometers are used worldwide for different applications incl. color analysis.**

**The instrumentation is modular and the perfect configuration can be chosen according your application.**

**The use of fiber optics allows a variety of different sample holders.**

**For color analysis normally the VIS-range (360 to 780nm) is sufficient.**



# Introduction



**The system for color analysis consists of a light source (Tungsten or Xenon) and a spectrometer from 360 to 780nm (others on demand).**



**Sample cells like reflection measuring heads or others are available and connected by fiber optics.**



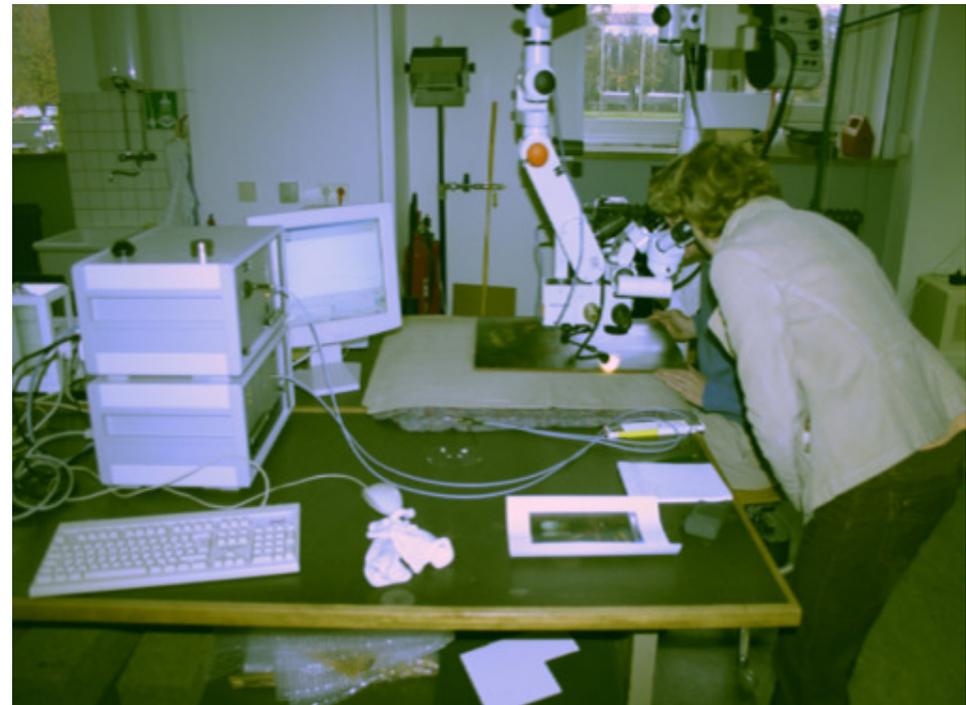
**So it is not necessary to place the sample in the instrument.**



# Instrumentation



**Microscope spectrometer  
for small samples**



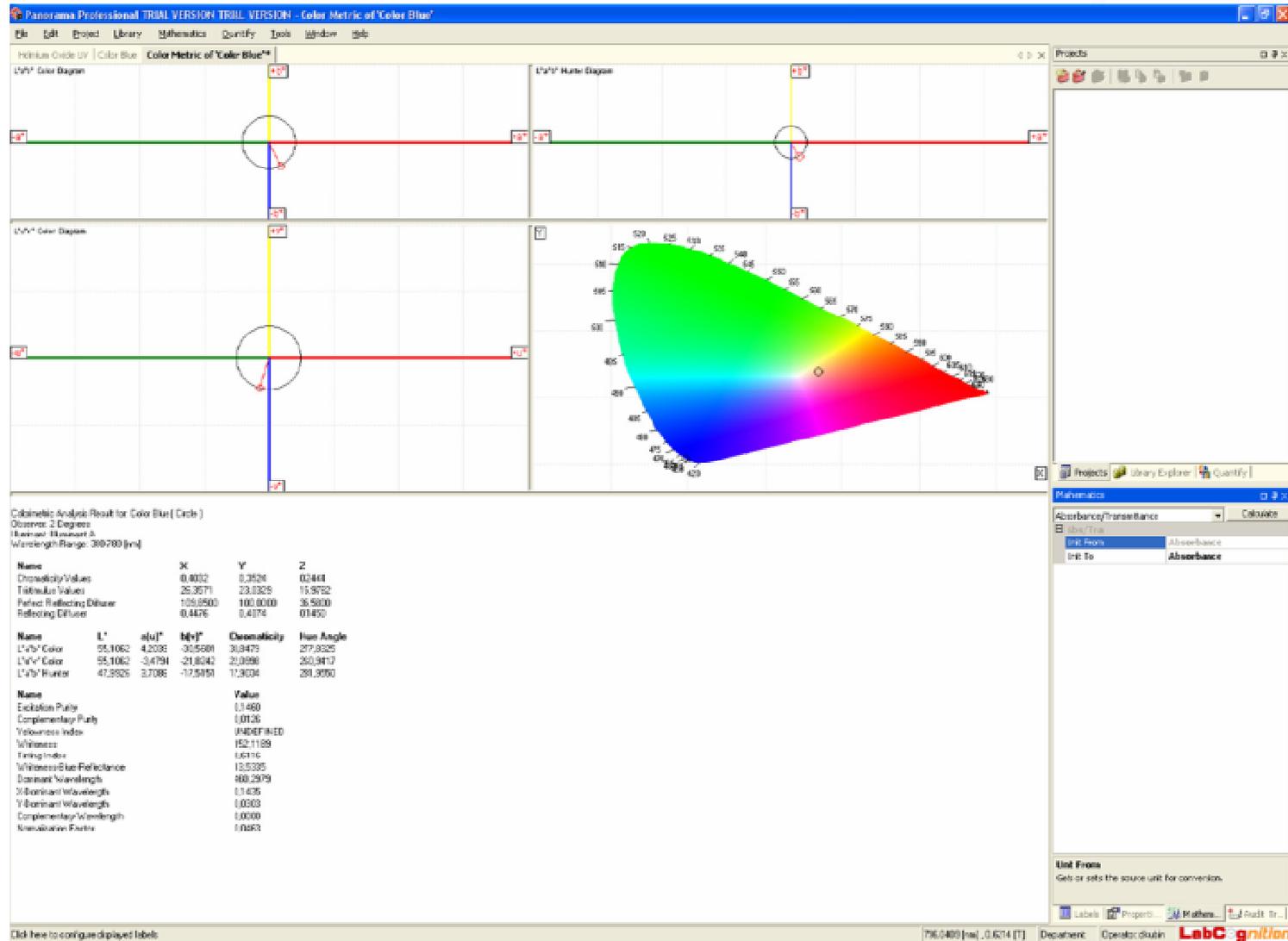
**Fluorescence setup at workshop using a  
monochromatic lightsource**



**Reflection head for surface  
measurements**

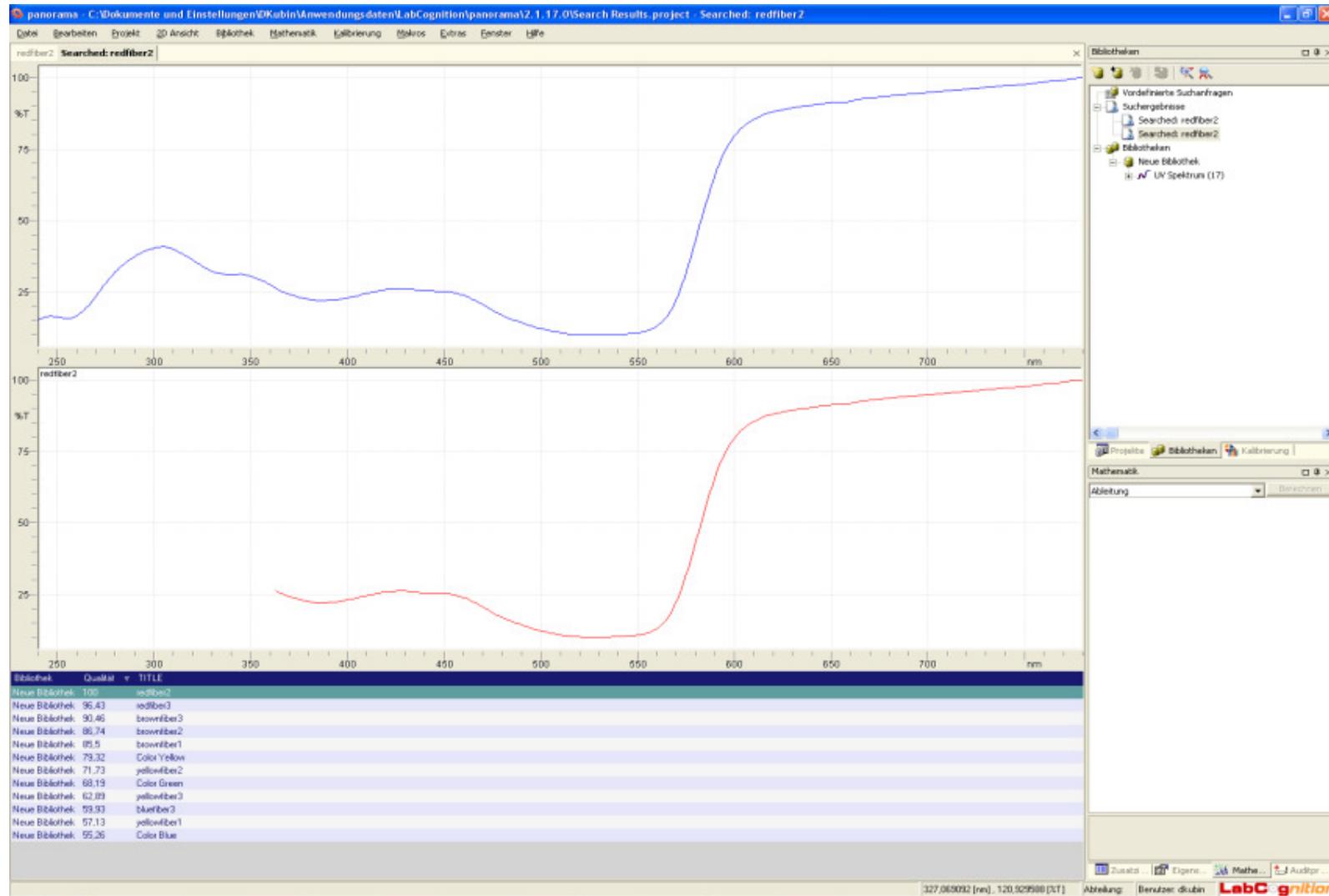


# Software for color analysis





# Software for library search





# Samples



## **Purpose of measurements of historic samples:**

**Characterisation of the colors used, comparison with spectra libraries**

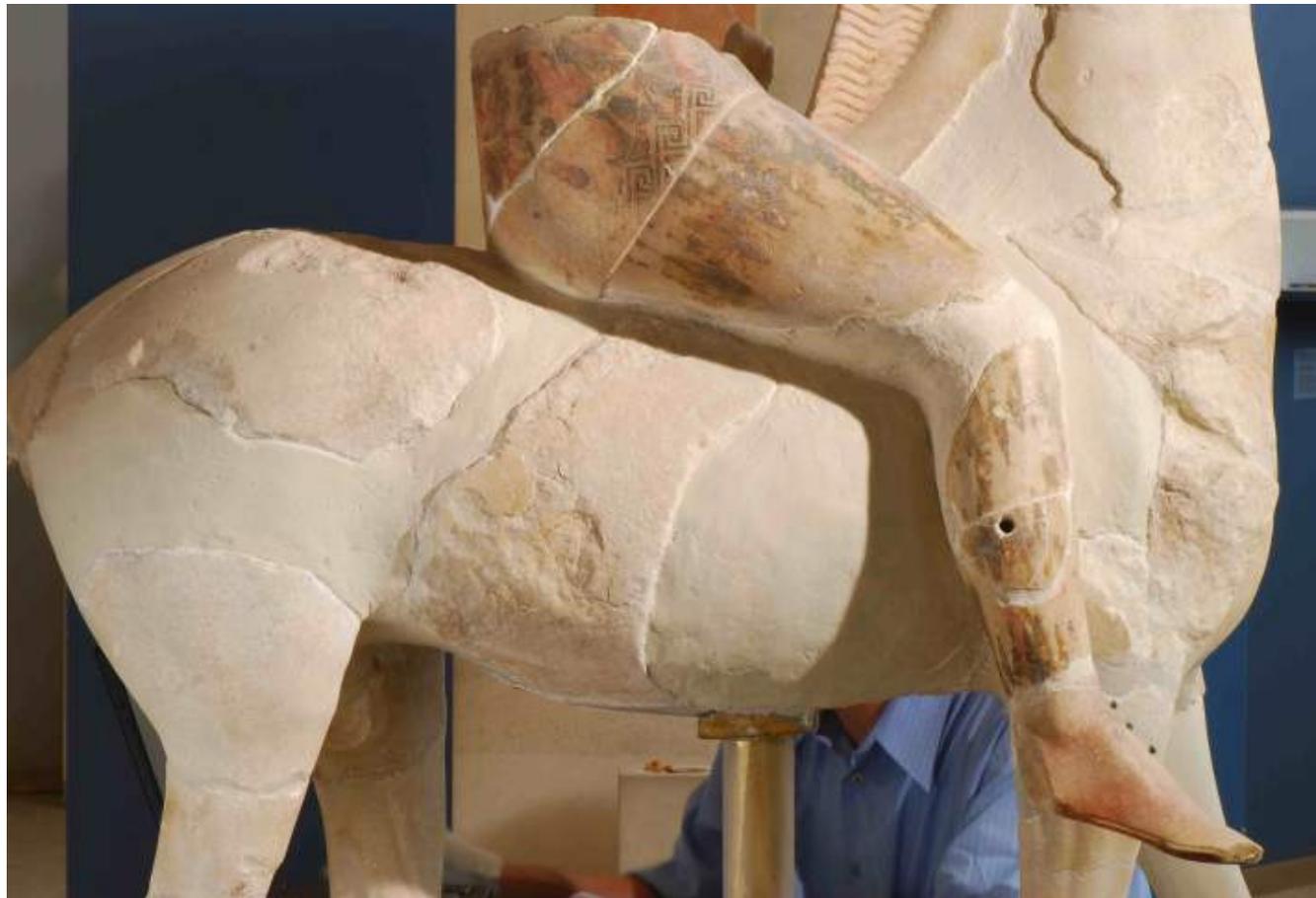
**Restoration of damaged parts.**



# Samples

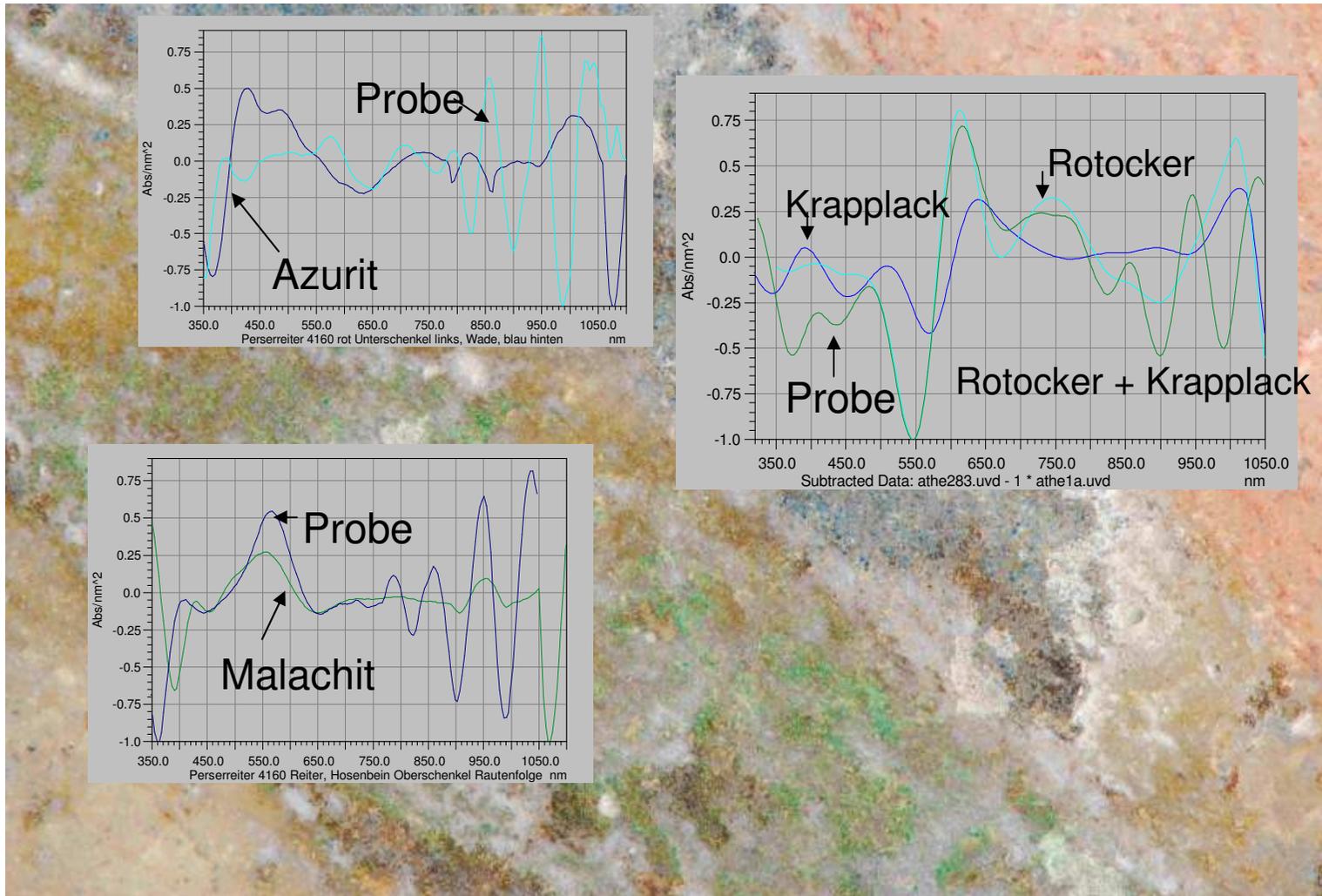


**Perserreiter um 490 v. Chr. Athen Akropolis-Museum No. 606**





# Samples





# Samples

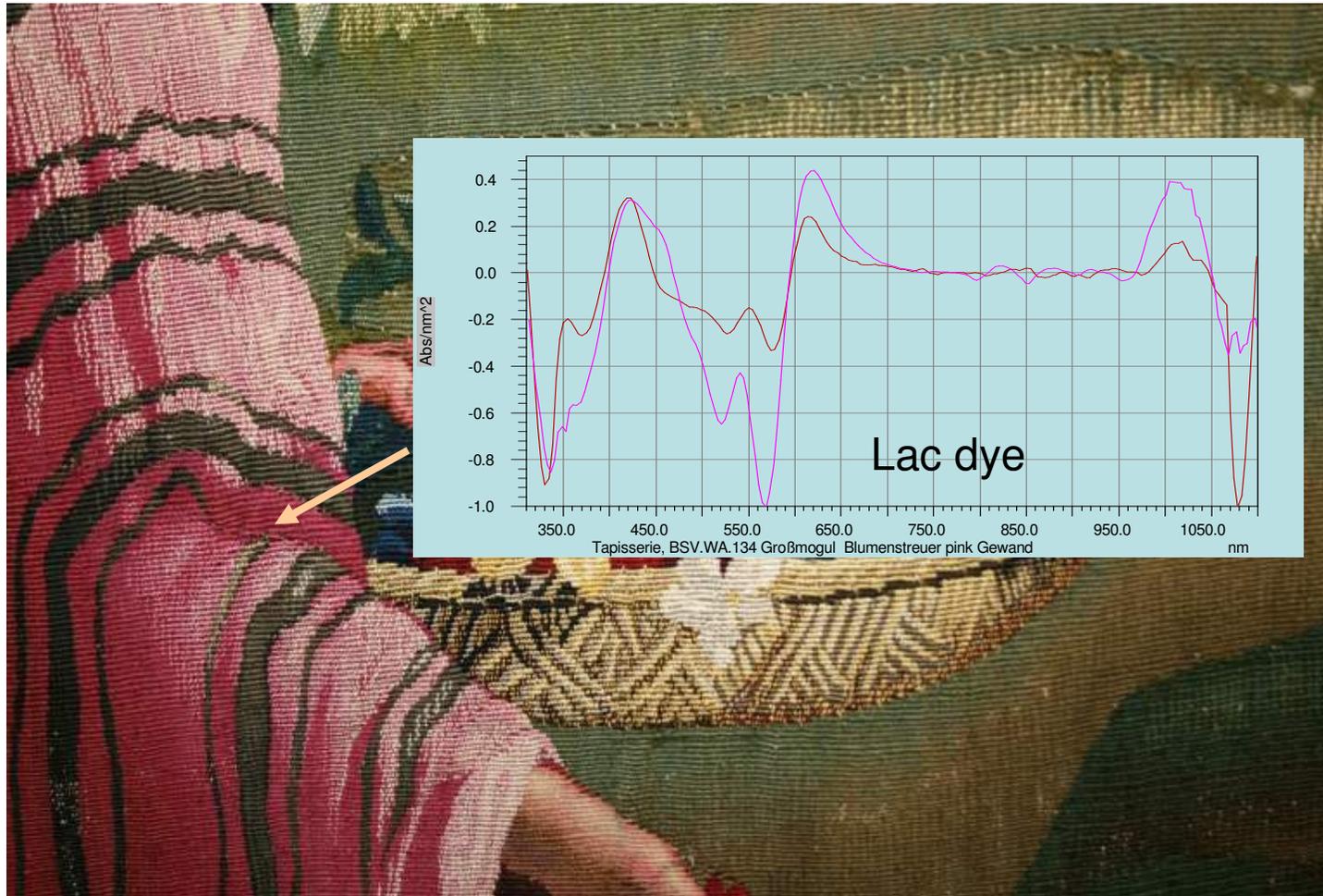


## Am Hofe des Großmogul 1720



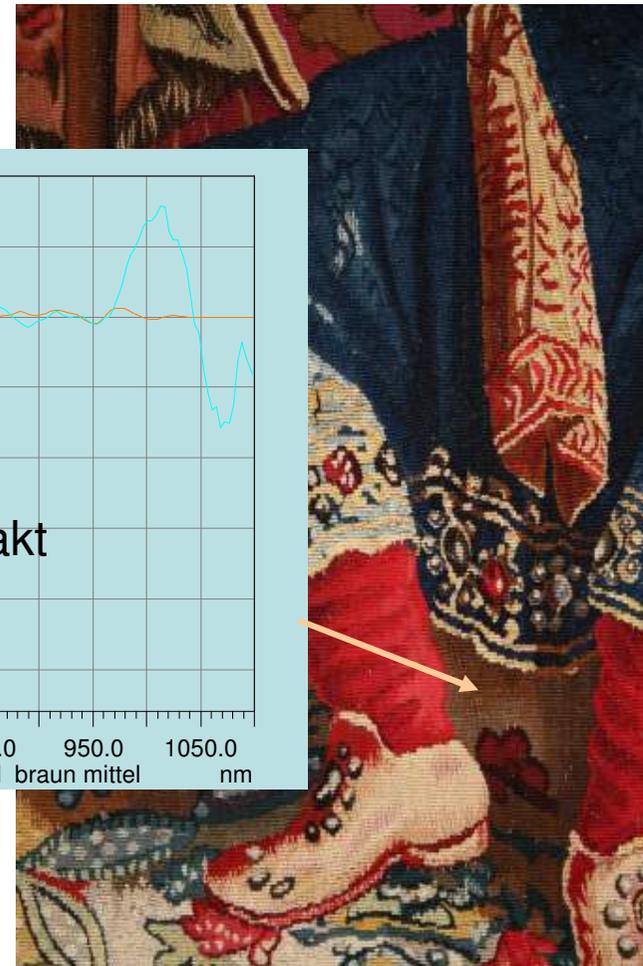
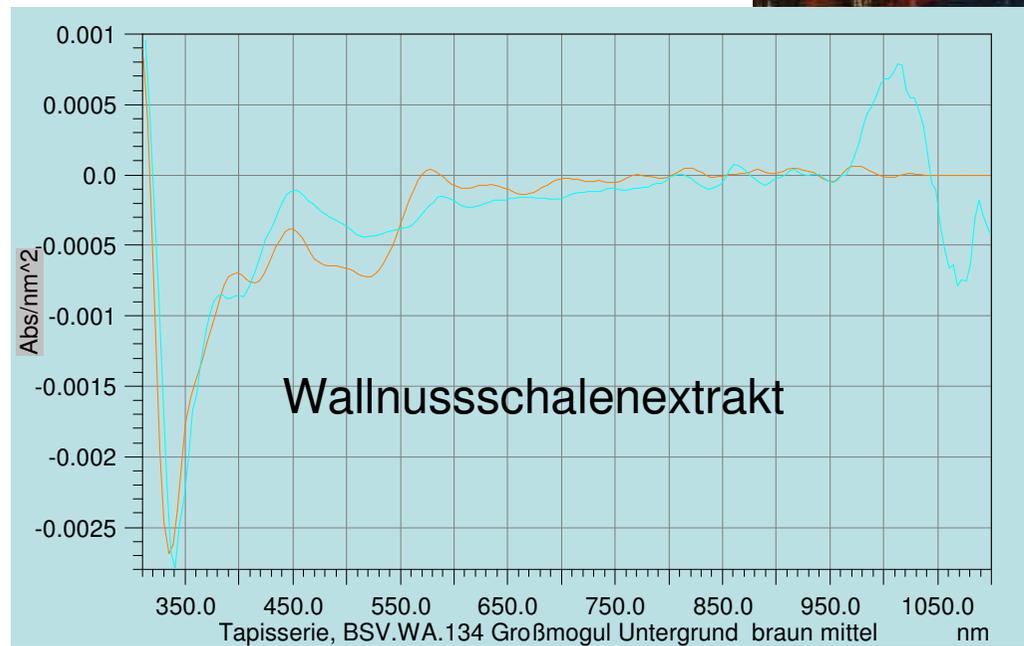


# Samples



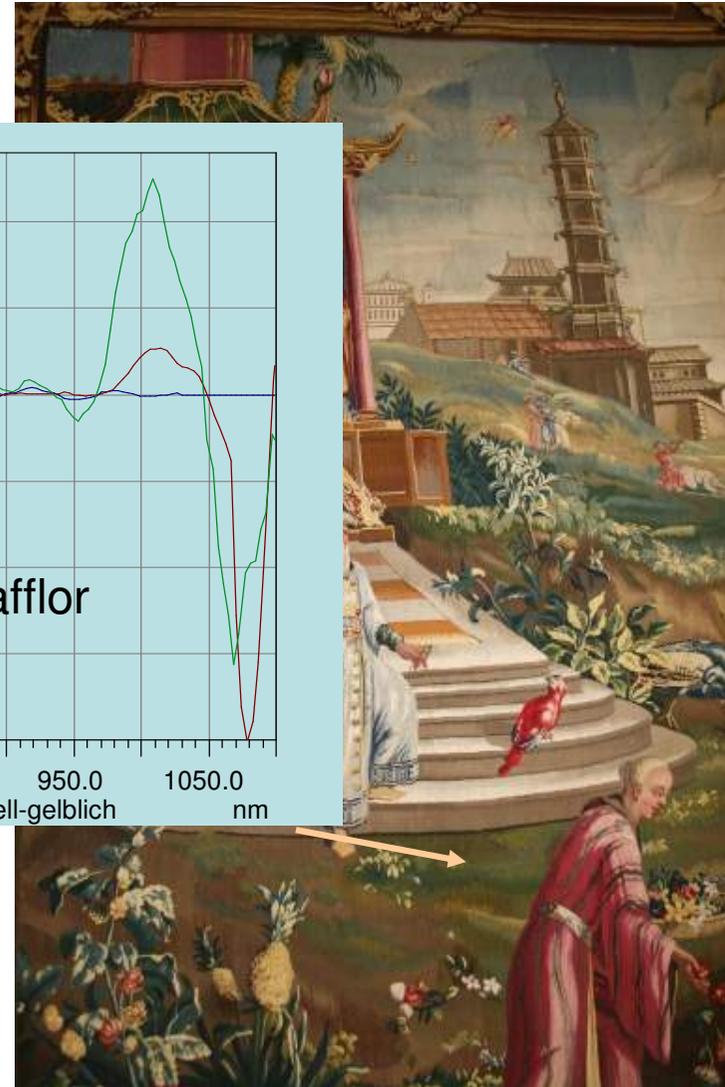
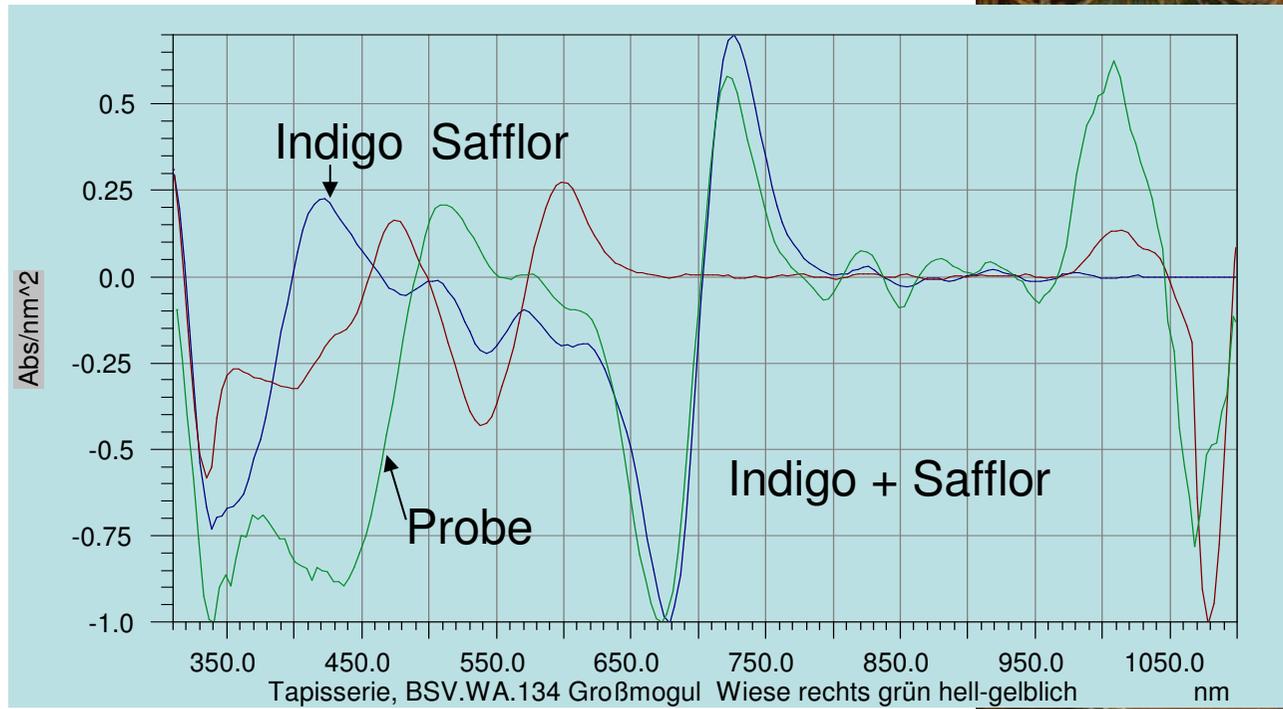


# Samples





# Samples





## Color evaluation of picture

- **Rot**
  - - Dunkel Krapp
  - - Intensiv Rotholz
  - - Rosa, dk Rocella
  - - Rosa, hell Cochenille
  - - Pink Lac dye
- **Gelb**
  - - Hell Fustik, old
  - - Dunkel Kreuzdornbeere
- **Orange** Safflor + ?
- **Blau**
  - Mittel Indigo
  - Dunkel Indigo + Blauholz
- **Grau** Gerbsäure + Eisen
- **Grün**
  - Mittel Indigo + Safflor
- **Braun** Wallnußschale



## Other samples





## Other samples





## Other samples





## Bayerische Verwaltung der staatlichen Schlösser, Gärten und Seen

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