

WHEN WE DISCUSSED THE STUDY OF PAINTINGS, WE TALKED ABOUT OF THE RECONSTRUCTION OF THE PALETTE OF THE ARTIST BY THE USE OF XRay FLUORESCENCE AND SPECTROMETRY ...

WHAT DOES SPECTROMETRY REPRESENT?

SPECTROMETRY IS A VERY GENERAL TERM TO DESIGN THE RECORDING OF A SPECTRUM CHARACTERISTIC OF COMPOUNDS (MINERAL, MOLECULE, ...)

WE USE TWO KIND IN ADDITION TO FLUORESCENCE X ...

TWO KIND? WHICH ONES? HOW DO THEY WORK?

THE TECHNIQUE IS NAMED AFTER THE TYPE OF BEAM USED FOR THE REACTION

IT'S QUITE "EASY", IN A SPECTROMETER, THE MATERIAL REACTS WITH AN INCIDENT LIGHT BEAM. WE RECORD THESE "REACTIONS" UNDER THE FORM OF SPECTRUMS WHICH ALLOW US, USING A DATABASE, TO IDENTIFY THE DIFFERENT COMPONENTS CONTAINED IN THE MATERIAL ...

WE USE **FOURIER TRANSFORM INFRARED SPECTROMETRY OR FTIR** WHICH STUDIES MATERIAL'S MOLECULAR VIBRATIONS INDUCED BY INFRARED BEAM ...

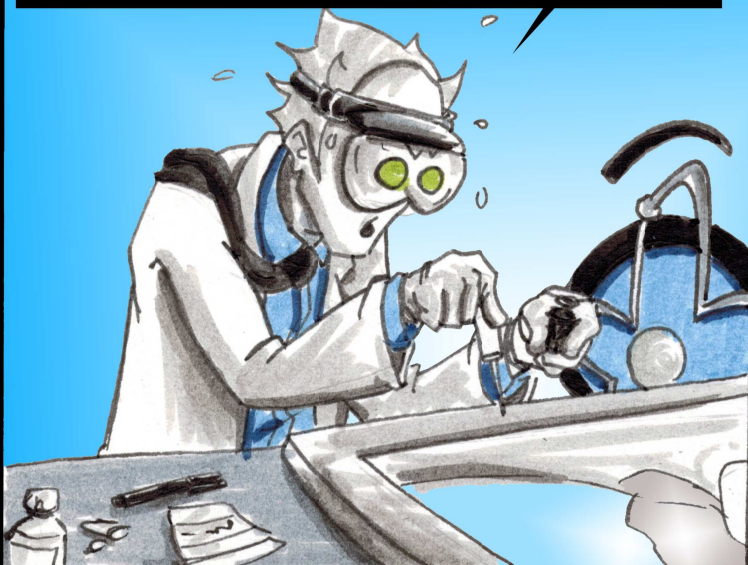
... AND **RAMAN SPECTROMETRY** WHICH ANALYZE VIBRATIONS INDUCED BY SCATTERED LIGHT WHICH IS GENERALLY A GREEN LASER ...

WHY USE TWO DIFFERENT TECHNIQUES BASED ON EQUIVALENT PROPERTIES?

BECAUSE, IF THESE TECHNIQUES COMPLEMENT EACH OTHER AND BOTH CAN IDENTIFY THE MINERAL PHASES AND ORGANIC MATERIAL ...

... SOME COMPOUNDS REACT BETTER WITH ONE OR THE OTHER TECHNIQUE AND THUS WILL BE MORE EASILY IDENTIFIED BY THE CHOSEN METHOD ...

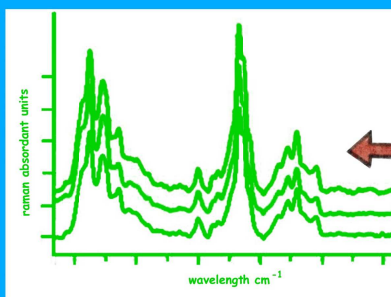
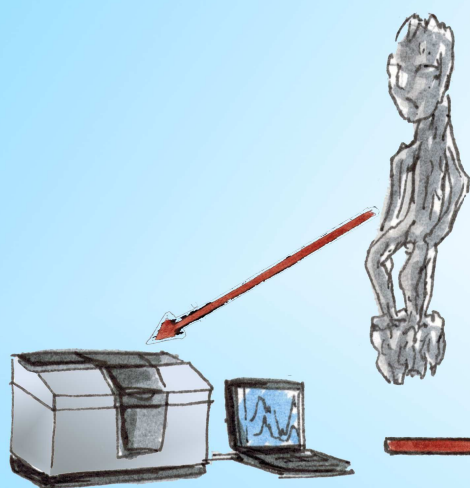
FOR EXAMPLE IN THE CASE OF PAINTINGS, WE WILL PREFERENTIALLY USE FTIR TO IDENTIFY ORGANIC PHASES OF THE PAINTING



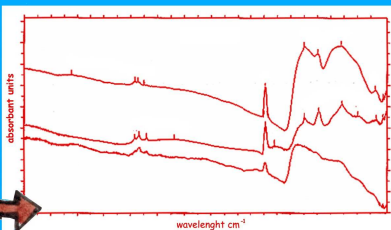
... WHILE THE RAMAN IS PREFERRED FOR PIGMENTS WHICH ARE OFTEN COMPOSED OF MINERAL PHASES



FURTHERMORE, IN MORE SPECIFIC CASES, FTIR CAN ALSO ANALYZE ORGANIC MOLECULES FROM OTHER MATERIALS SUCH AS WOOD? BEING ABLE TO RECOGNIZE HYDRATED MOLECULES...



... THE RAMAN CAN RECOGNIZE PROCESSED MINERALS TO SIMULATE "OLD" ASPECT, SUCH AS FIRING...



THESE TECHNIQUES ALLOW THE IDENTIFICATION OF MOLECULES AND THEN COMPLETE XRAY FLUORESCENCE WHICH CAN ONLY GIVE THE ELEMENTAL COMPOSITION OF MATERIALS ...



FURTHERMORE, THEY BRING INNOVATIVE INFORMATION TO STUDY PROBLEMATICS REGARDING THE ANTIQUITY OF MATERIALS!

