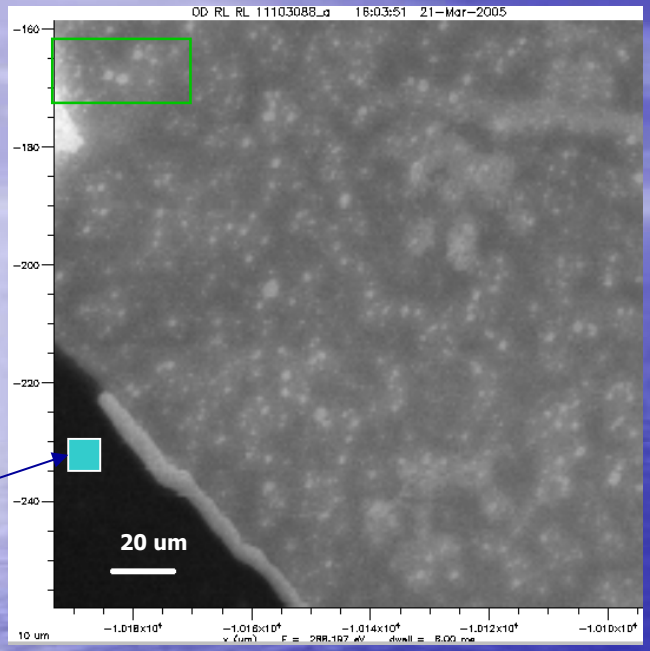
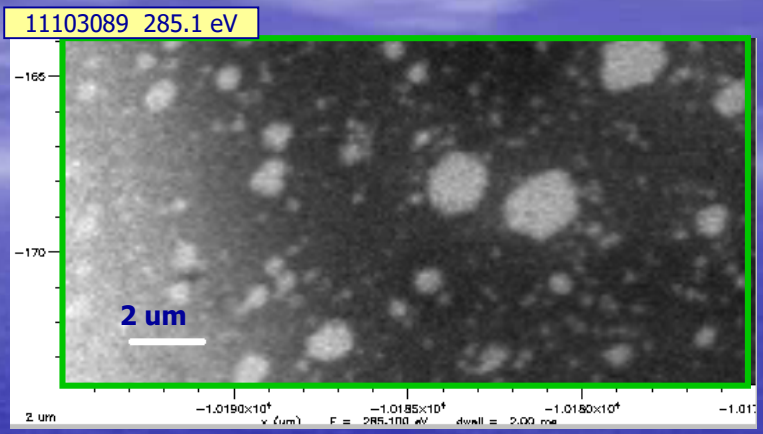
# D) Image sequence (& damage check)

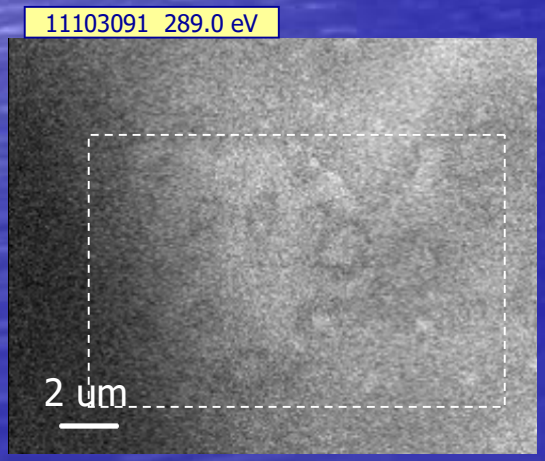



Io area

Area selected for stack measurement




the bright area to the left is known to be a protein deposit so we wanted to be able to get a clear Fg spectral signature to check the analysis in the more dilute regions

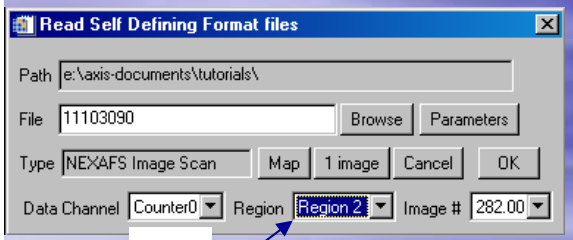



<u>DAMAGE CHECK</u>

image larger than region of stack at damage sensitive energy (289 eV $\sigma^*_{C\text{-}O}$ of ether)

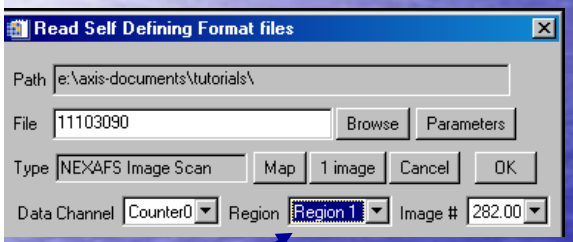
little sign of damage (usually polyether matrix bleaches due to mass loss)

# C1s stack - read-in and convert to OD



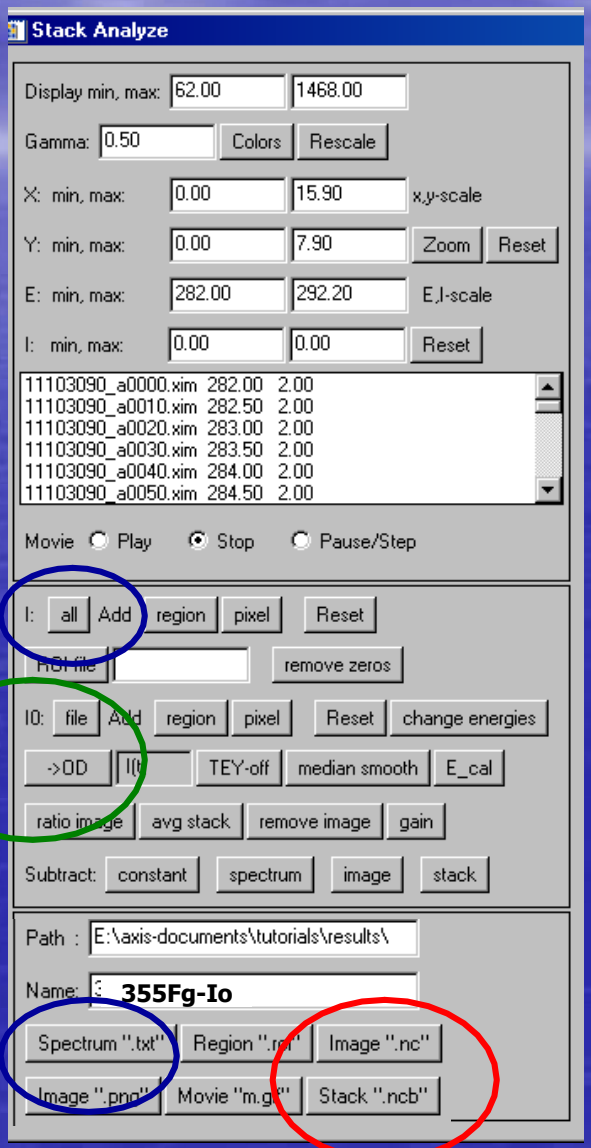

Io

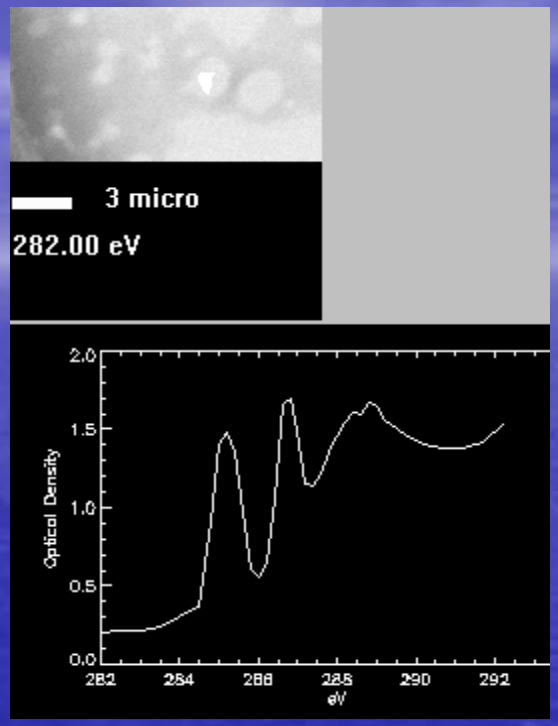
in stack_analyze
1) I: all
2) save Io spectrum

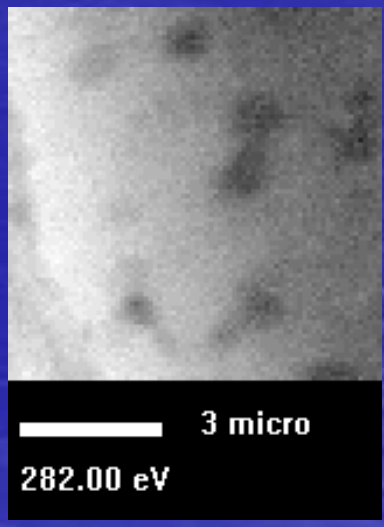



I

in stack_analyze
1) define Io as file from region 2
2) convert to OD
3) type file name
4) save converted stack



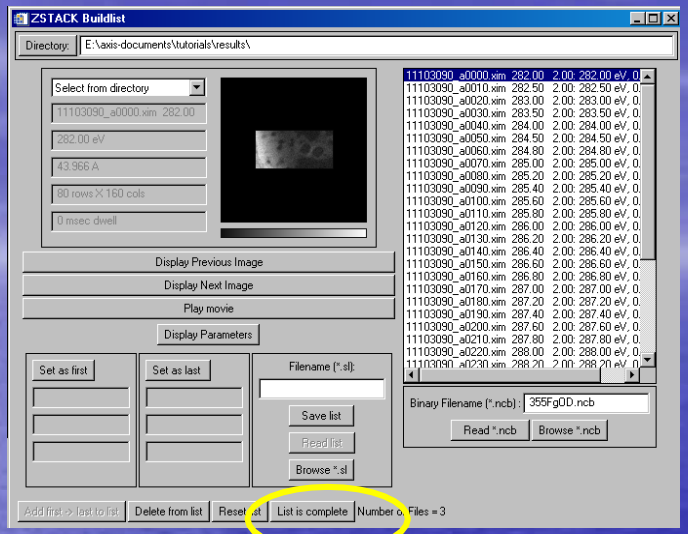



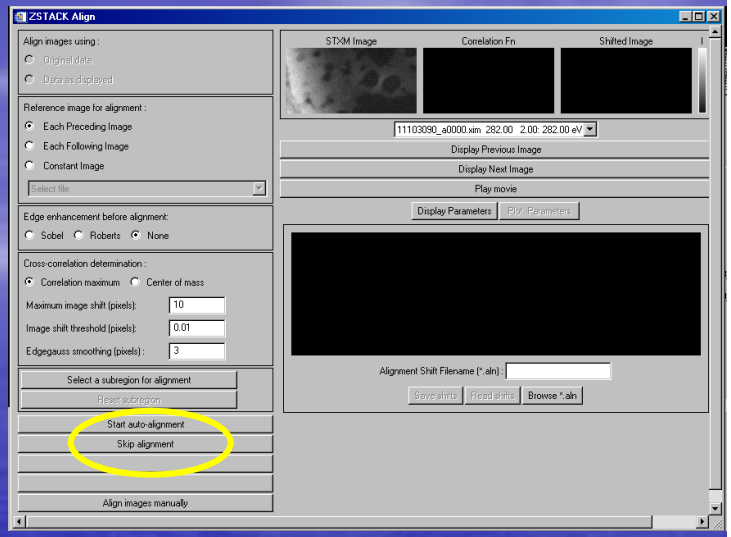



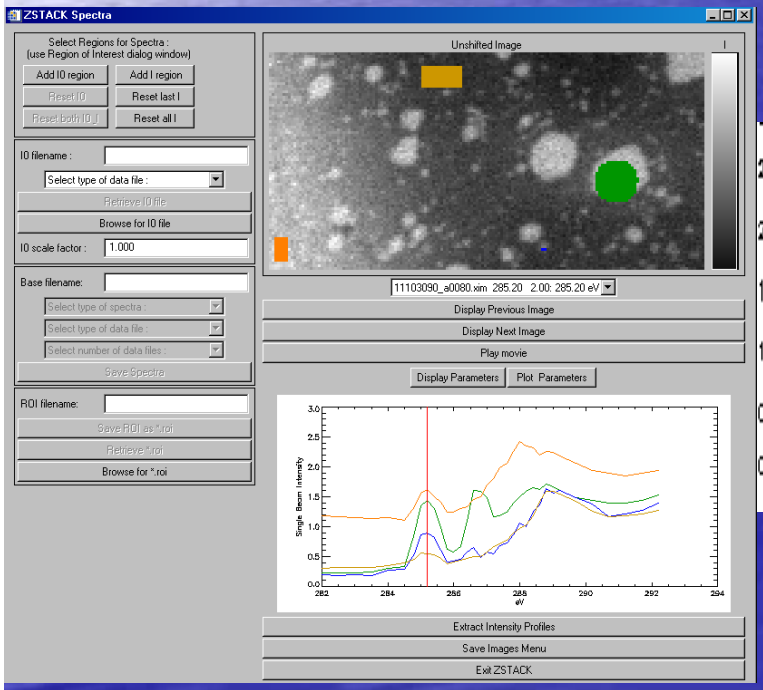
# C1s stack - viewing specta of regions

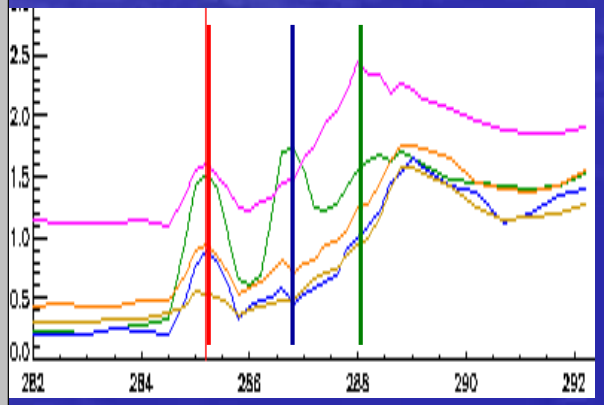

**Zstack**
sub menu

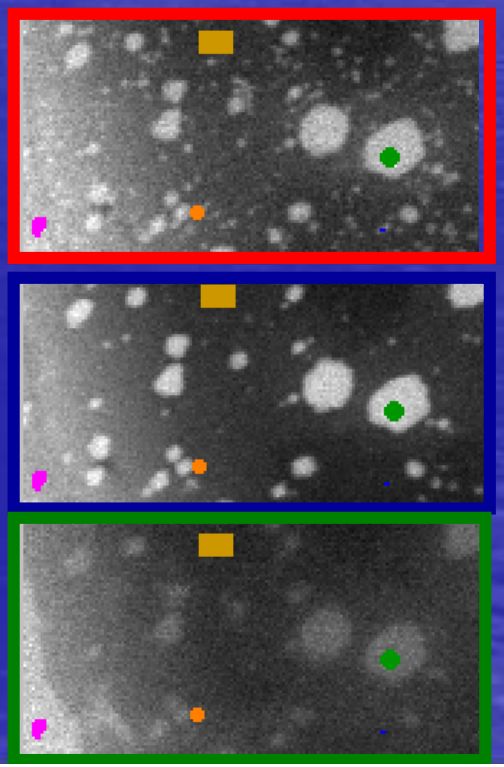
*written by Carl Zimba*



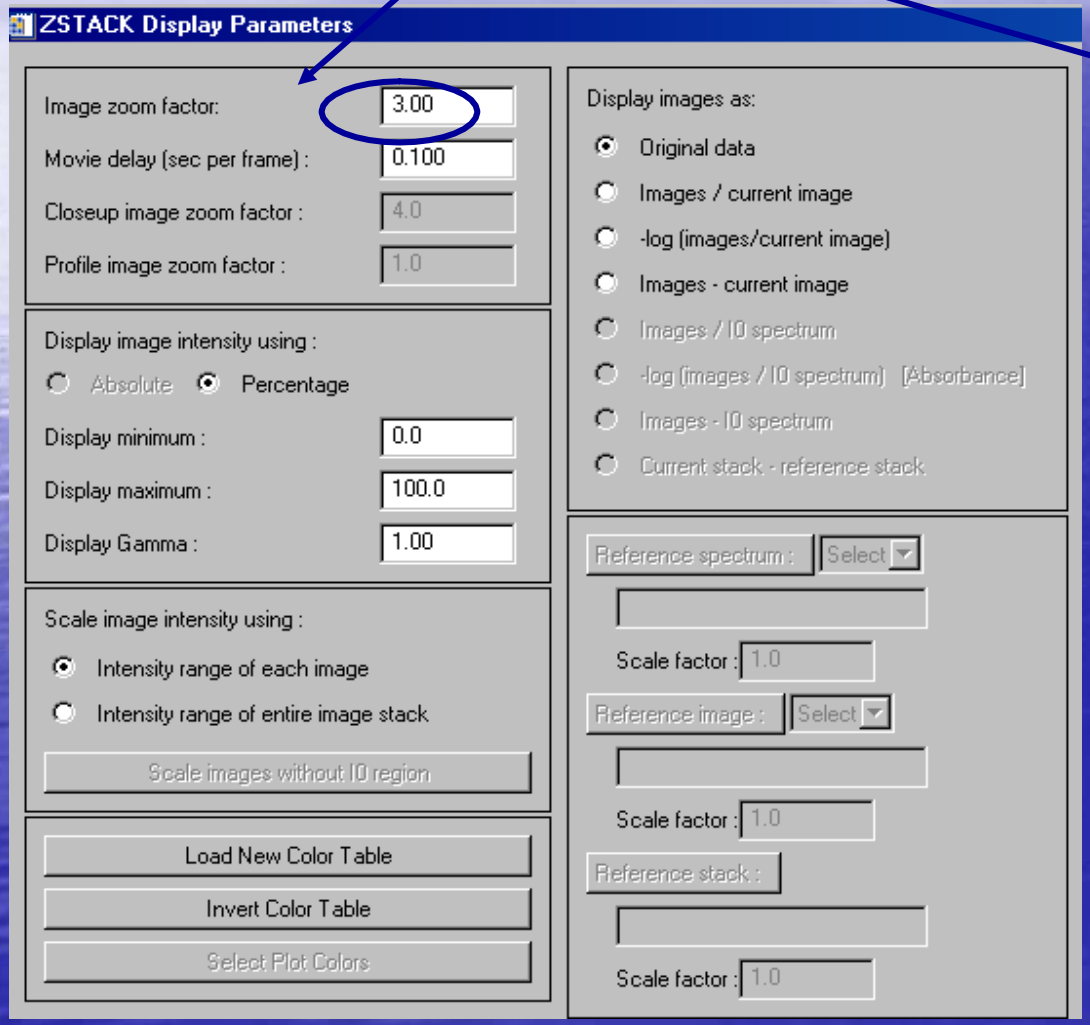



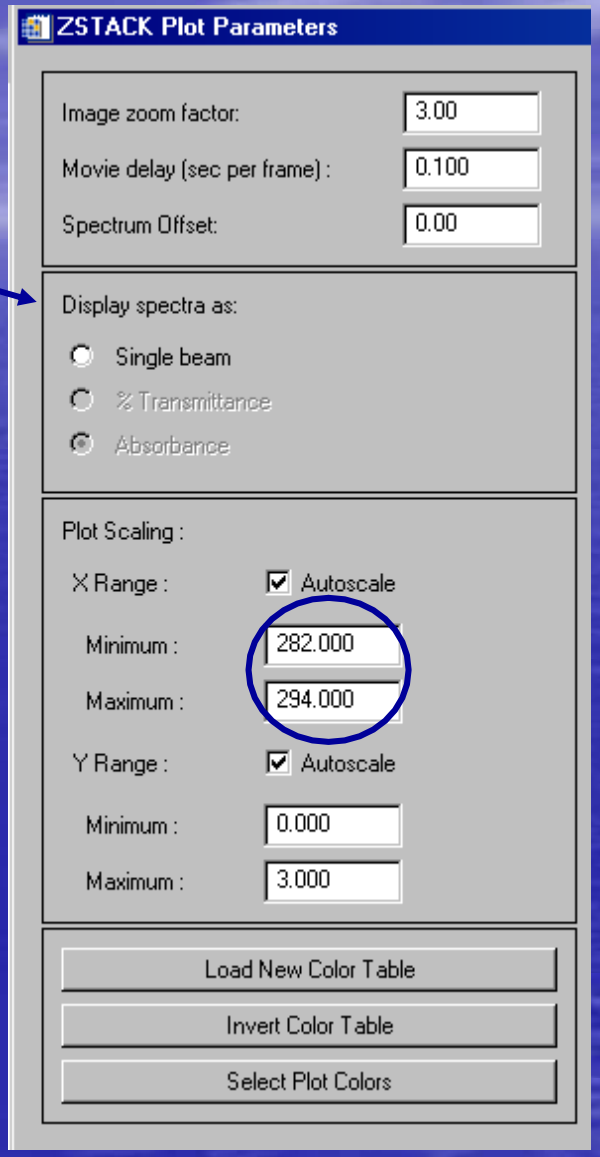



# Useful subsidiary Zstack features

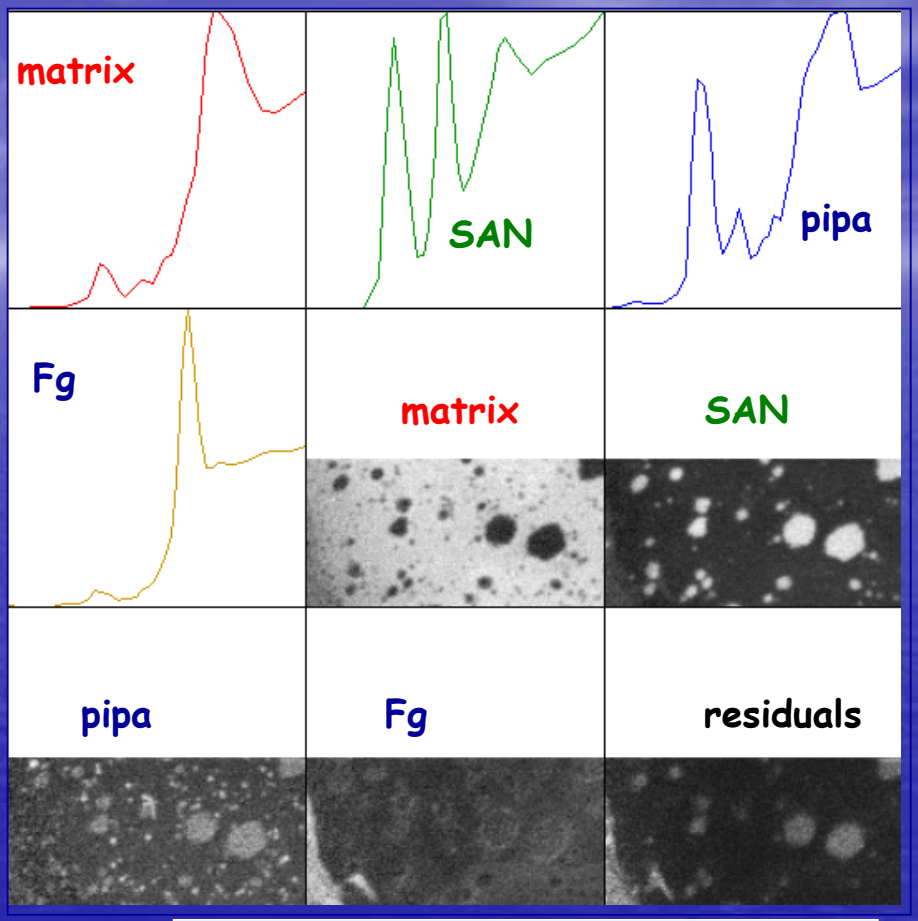



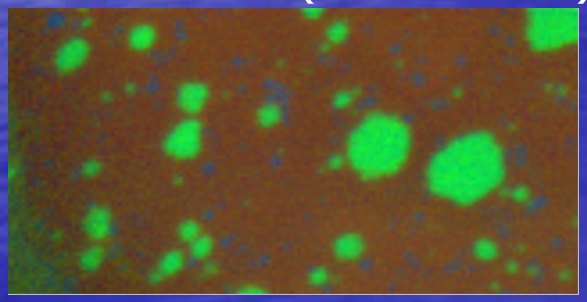
# C 1s stack: chemical maps

**CONCEPT**:

* a stack is a set of $10^4$-$10^5$ spectra (one at each pixel)
* we FIT the spectrum at each pixel to reference spectra of known constituents
* the fit coefficients at each pixel form a **COMPONENT MAP**
* if the reference spectra are on an absolute intensity scale (OD1 = response of 1 nm of pure material) then the grey scale of each map is a quantitative measure of the thickness distribution of that component
* we can display the spatial correlation of the components using an RGB color **COMPOSITE MAP**

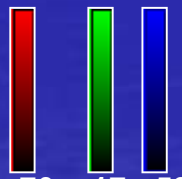



not rescaled (absolute nm)



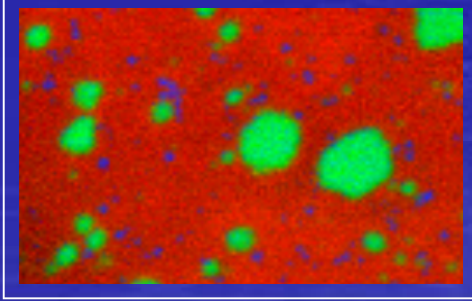

un-clipped data

126 298 114

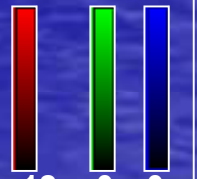


-70 -17 -59

clipped, rescaled (RELATIVE)



126 283 114



-12 0 0