

Dec 13, 2017

Wednesday, December 13, 2017 3:13 PM

Goal for the day: See surface plasmon resonance

My notes say the led works better with water on top w/ the metal while the HeNe gives better results for air. I'll try water on the thicker gold.

Also, since the paper from yesterday mentioned only 1% transmission w/ 50nm of silver, I wonder if my gold layers are not thick enough.

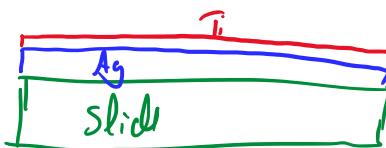
- Create thicker gold layer (maybe 2' - 3 min?)

No luck with the gold so I'm going to try the silver coated slide w/ air.

The slide says it has $Ti\text{-}50\text{nm}/Ag\text{-}500\text{nm}$.
Is that two separate layers and if so, which is on top?

Is the titanium a protective layer?

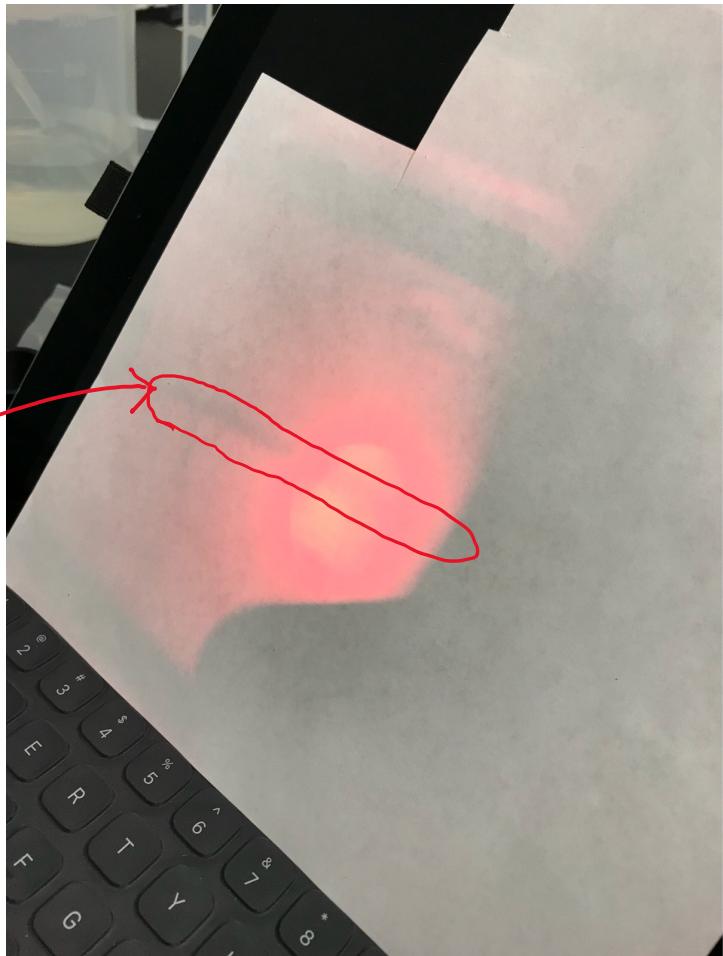
e.g.



No, titanium substrate
is between
glass & Silver
or adhesive

Check substrasolutions website

plasma
resonance
local



D



Insert video above us well

Plasma Resonance Local Effect



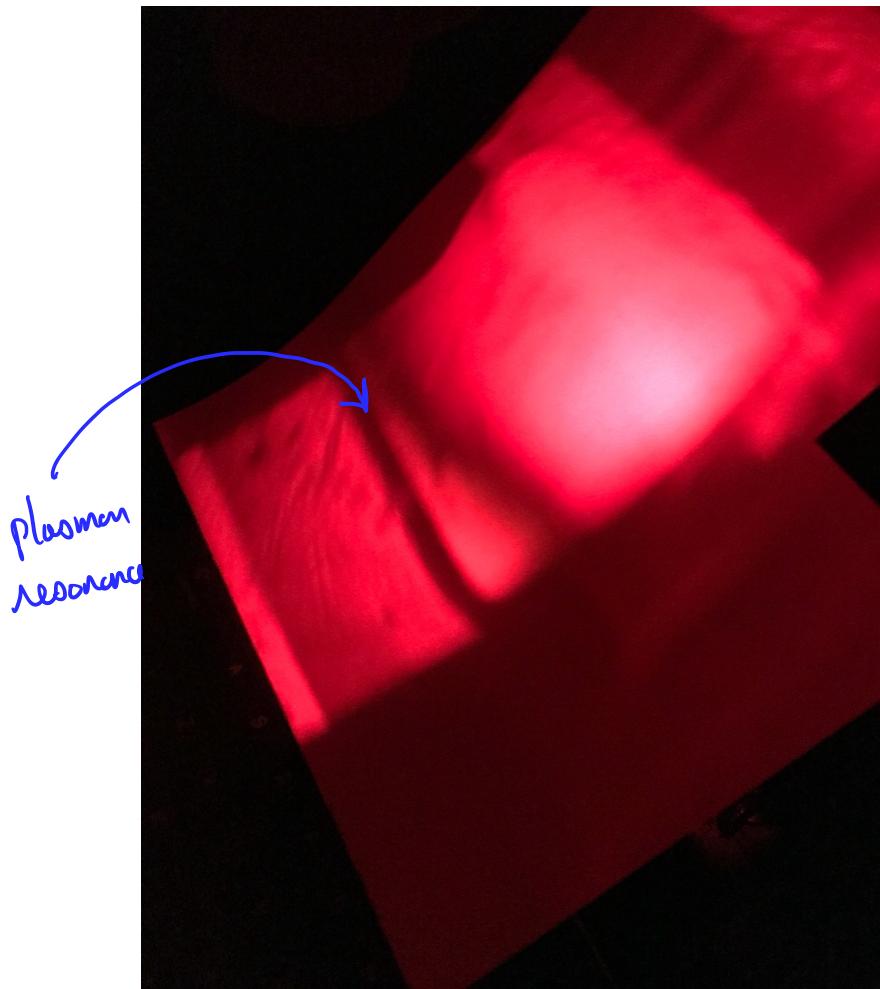
Plasmon

Mooncurve

plasmon zone appears as a fairly constant angle
but does move a little as the angle of the
light changes. I think that has to do with
the prism cut that I wouldn't see any
variation in angle with a cylindrical prism

How does incident angle relate to angle it hits
the metal layer? Do the calculation! See
if the output light truly stays put.

I went back to the thicker gold and now
I can see the bow. It doesn't look as sharp
as what I saw at Bethel but I think
that has to do with using the led vs. using
a laser.



Note: Make sure there is no image of the led, try
for more diffuse light.