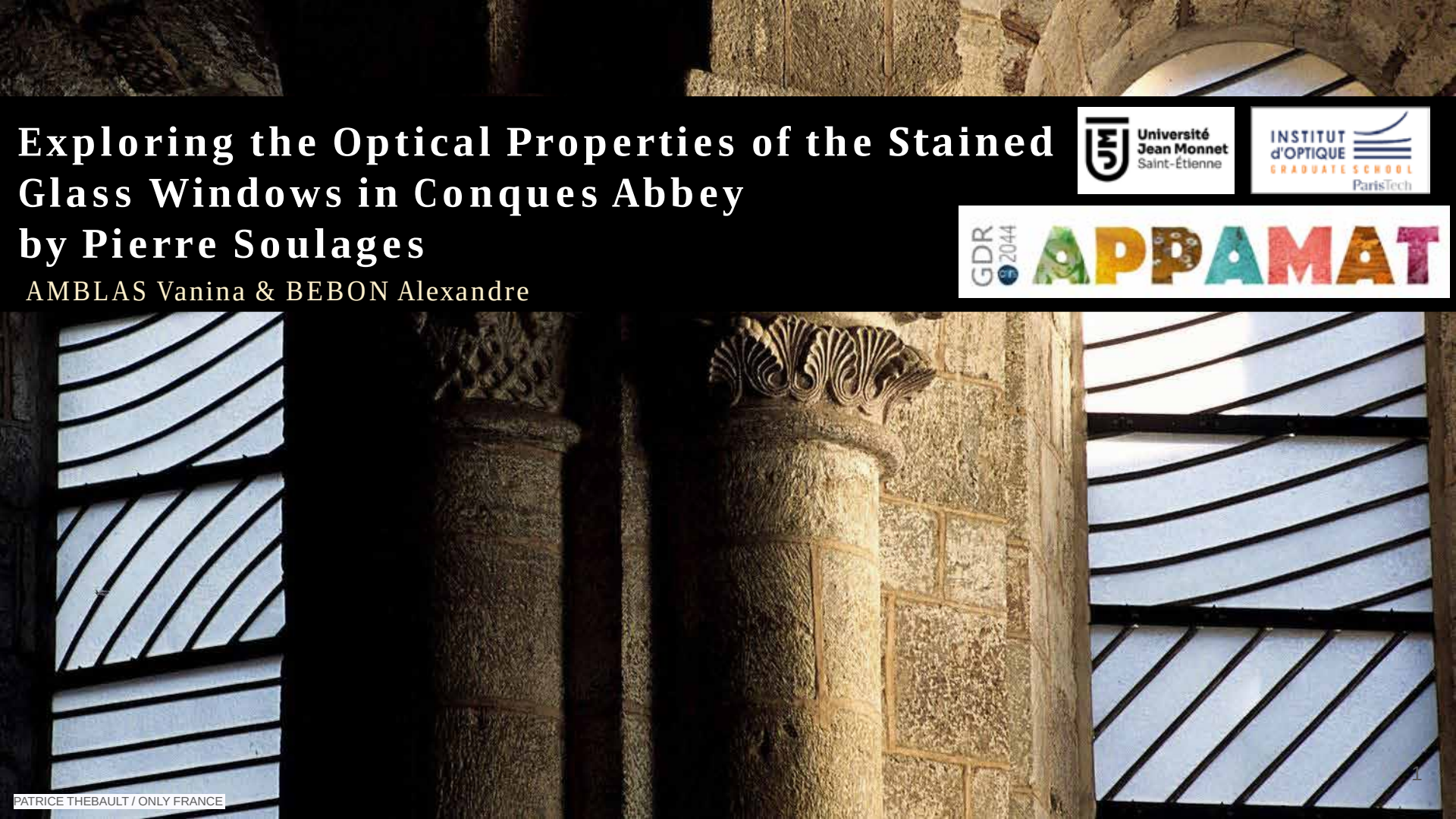
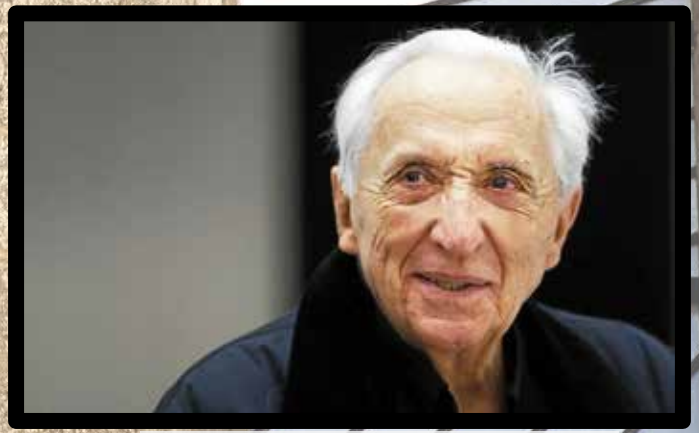
Exploring the Optical Properties of the Stained Glass Windows in Conques Abbey by Pierre Soulages

AMBLAS Vanina & BEBON Alexandre



PATRICE THEBAULT / ONLY FRANCE



Pierre Soulages (1919-2022)

"I have chosen **non-colored glass**"

"I wanted a **diffuse** transmission"

"The glass becomes a **light emitter**"

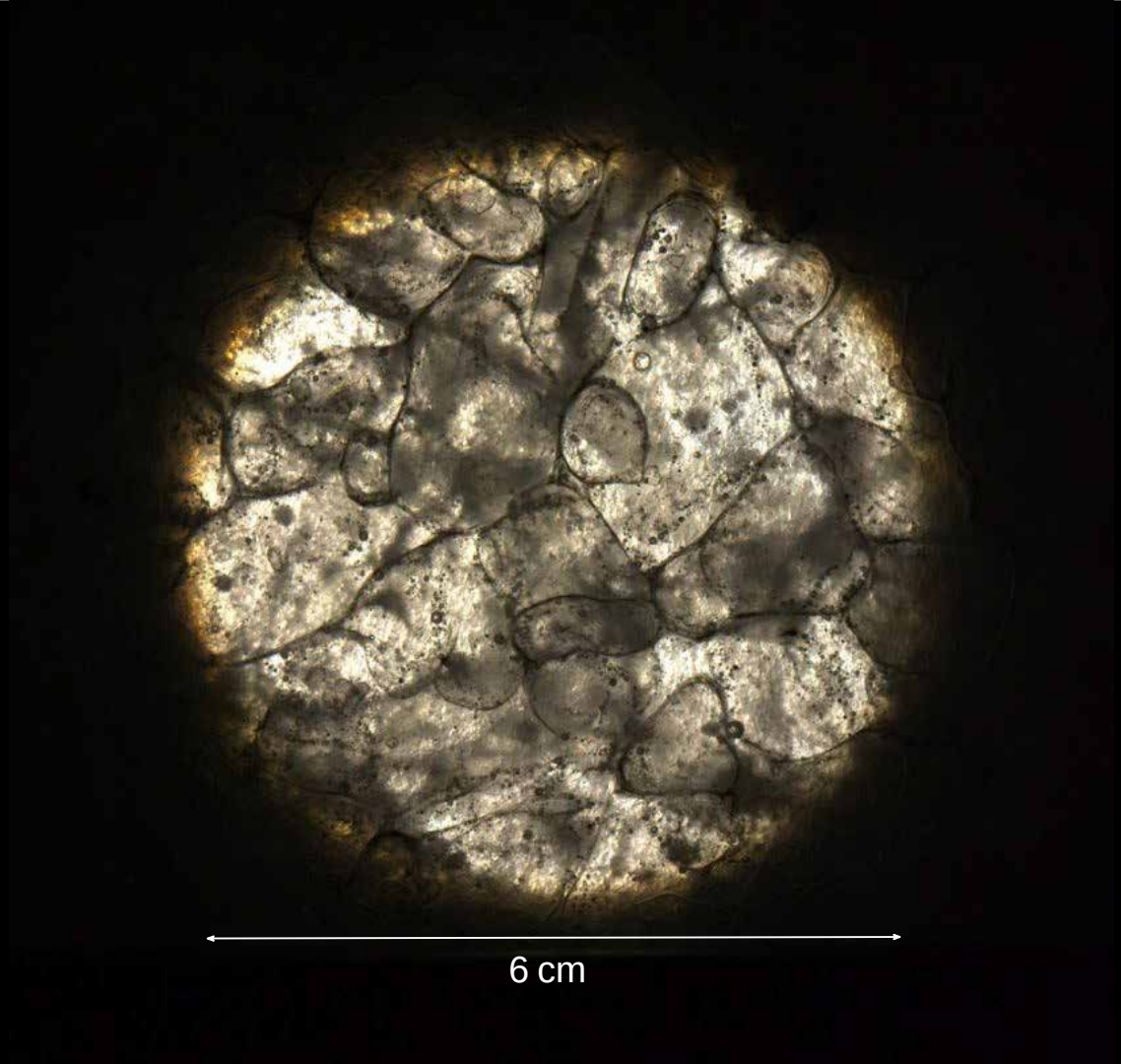
Pierre Soulages (1919-2022)

High diffusion vs high Transmission

	Glass	Paper
Transmitted light	✓	✗
Diffuse light	✗	✓

High diffusion vs high Transmission

	Glass	Paper	Soulages' Stained glass
Transmitted light			
Diffuse light			


6 cm

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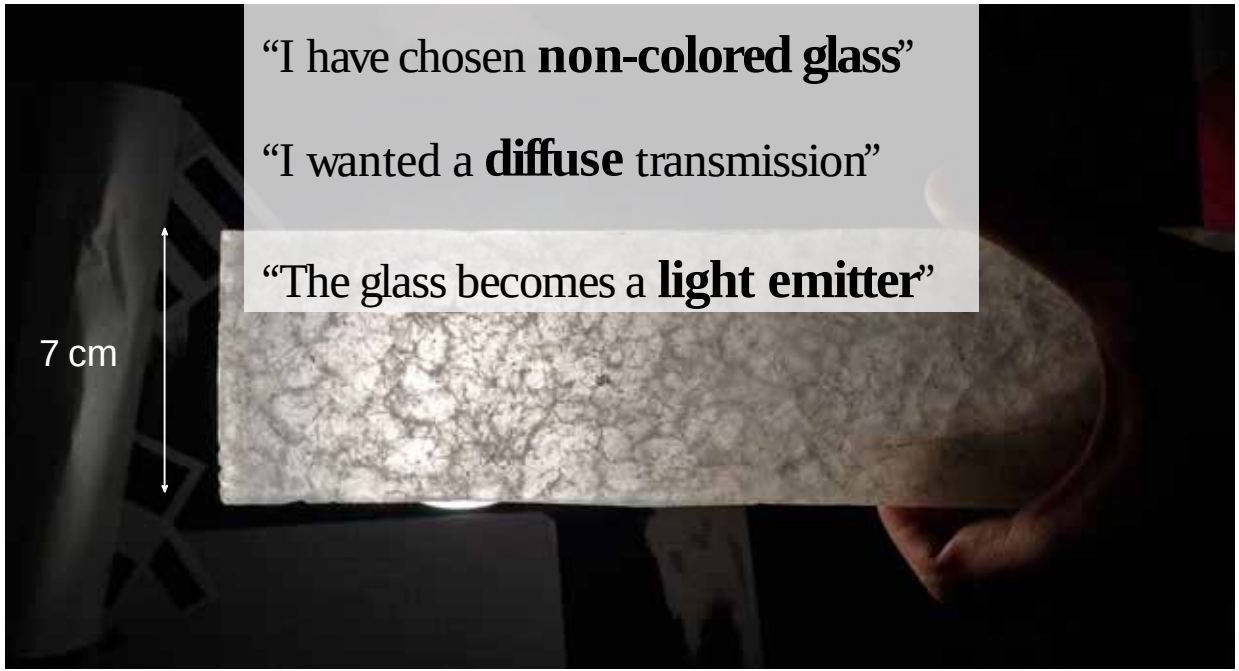
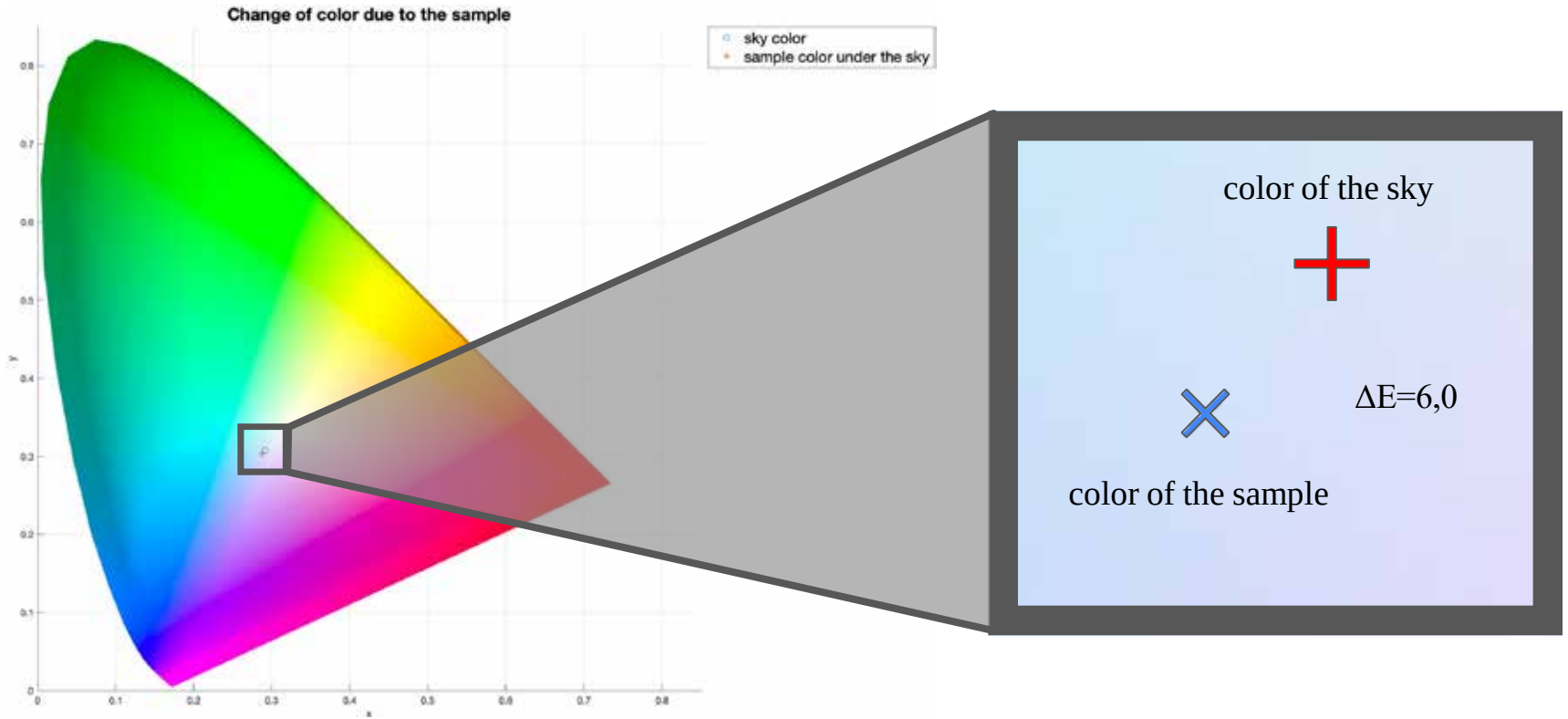


“Non-colored glass”

How does it change the color of the light ?



"Diffuse transmission"

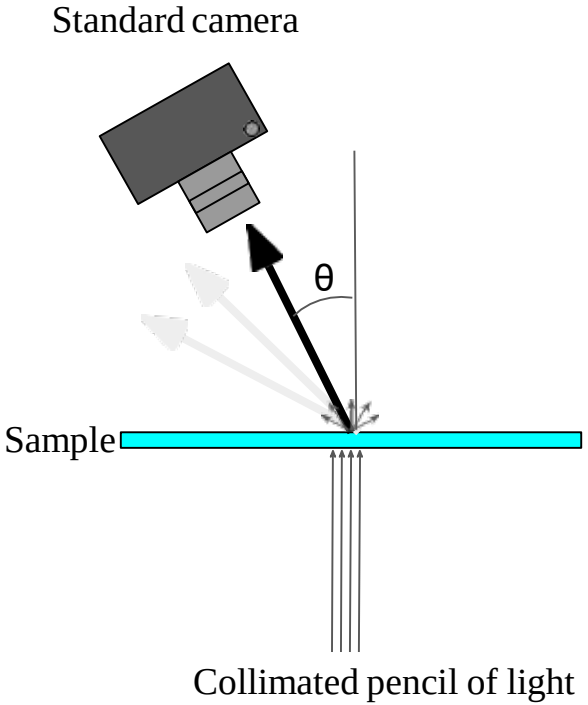
Is it a good diffuser ?

Test pattern

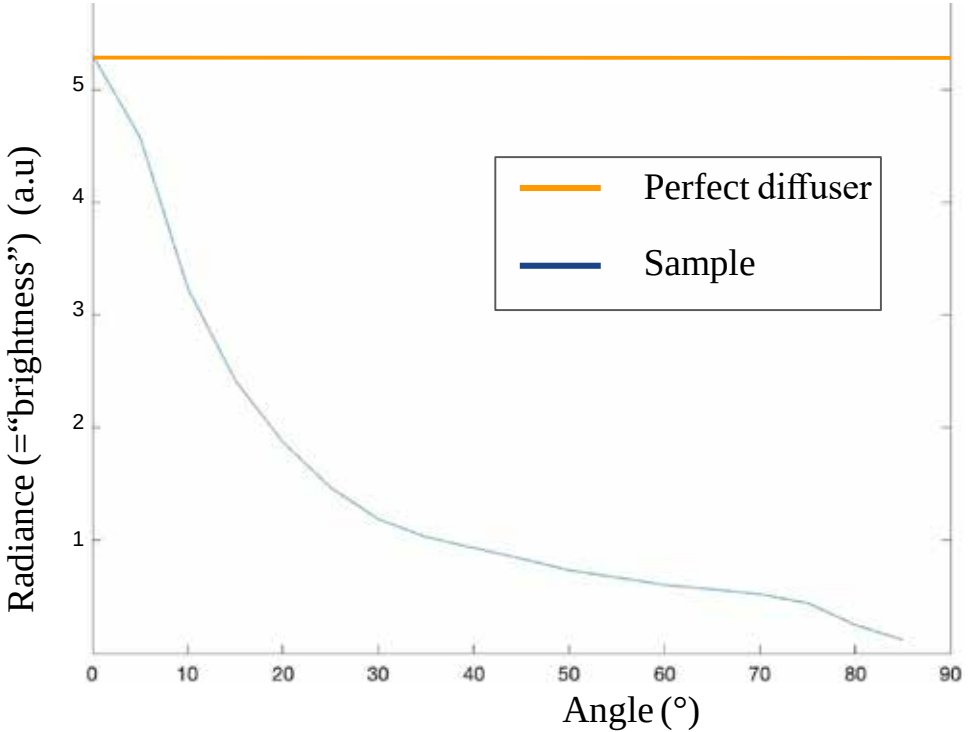
Test pattern behind the stained glass

“Diffuse transmission”

How does it spread the light ?

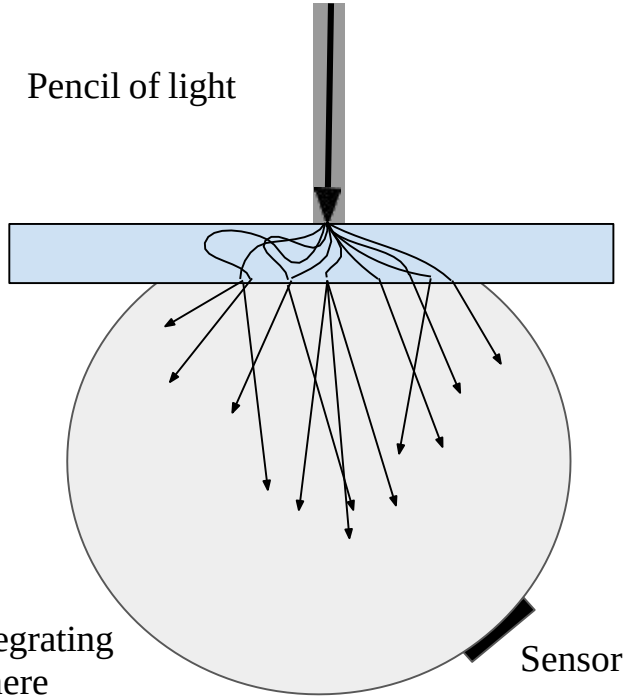


Angular distribution of radiance(=”brightness”)



“Becomes a light emitter”

How much light does it transmit ?



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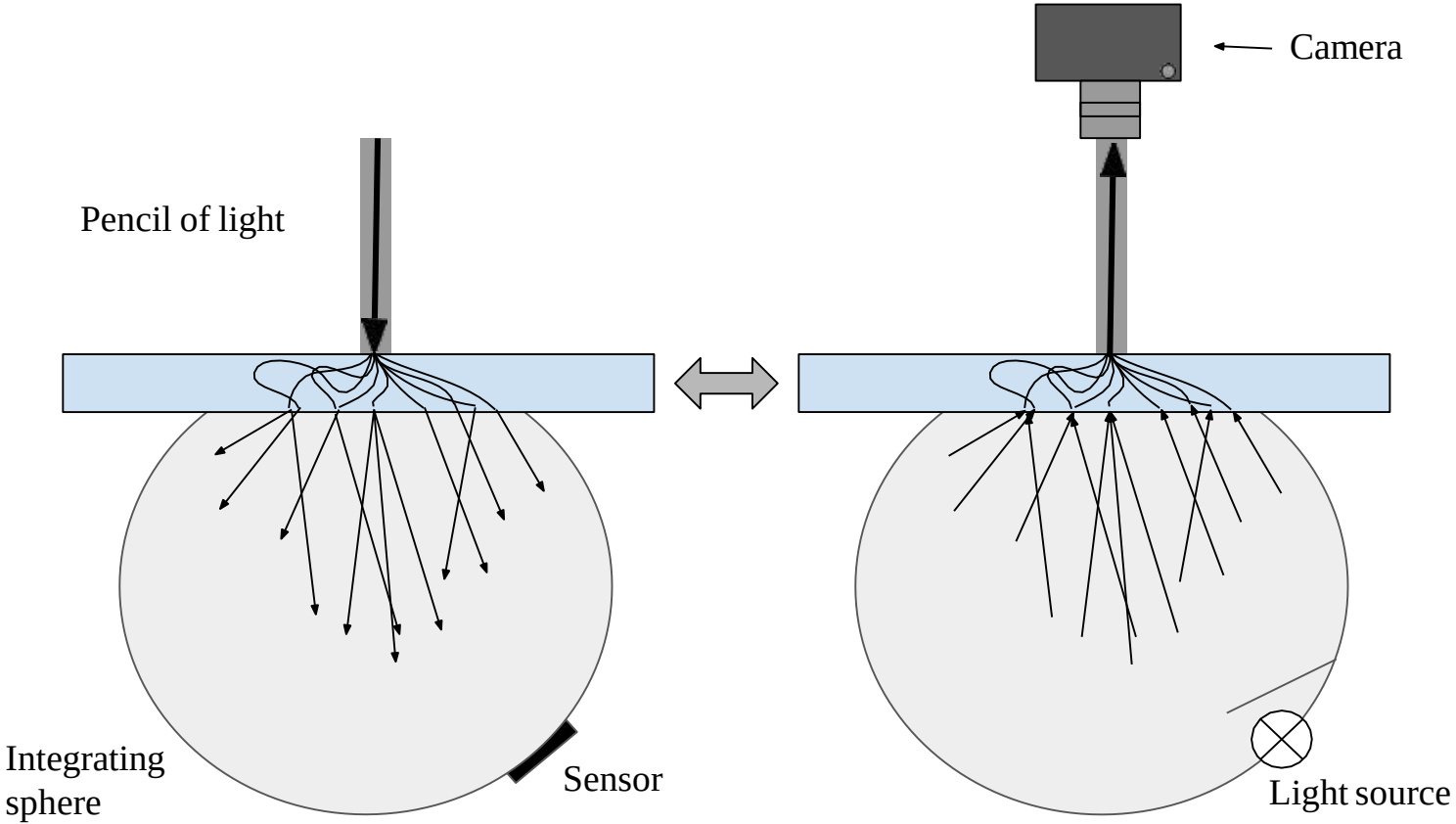

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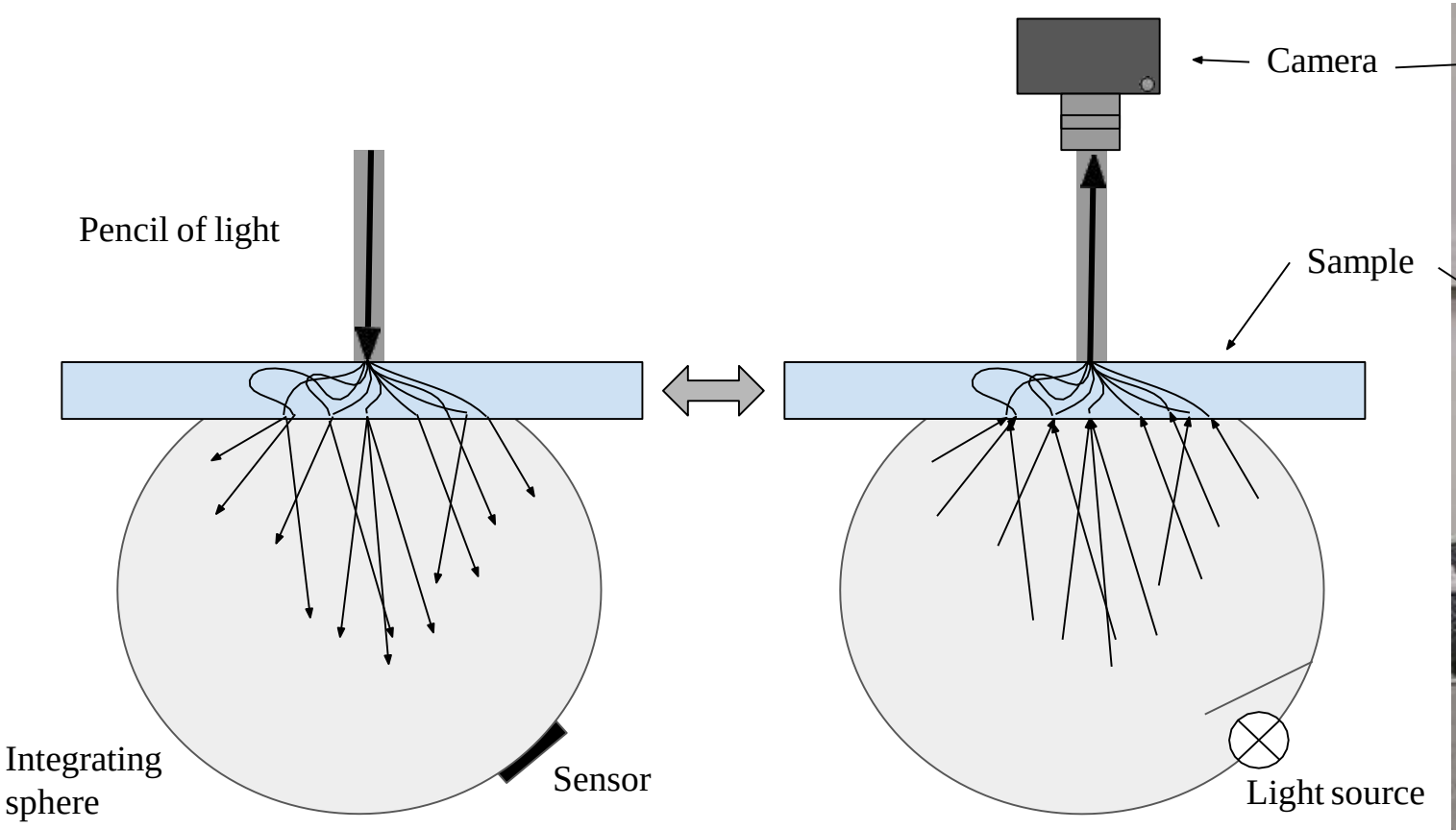

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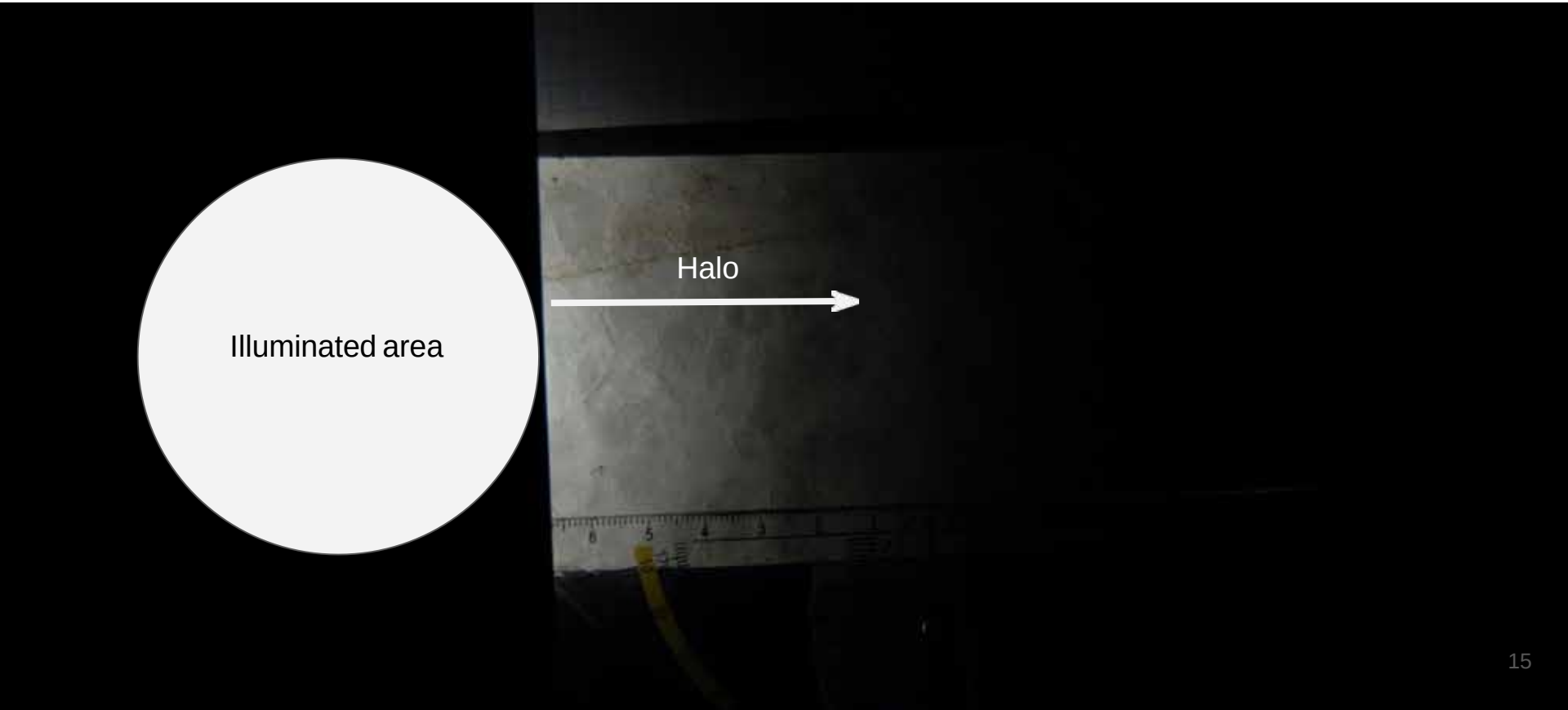

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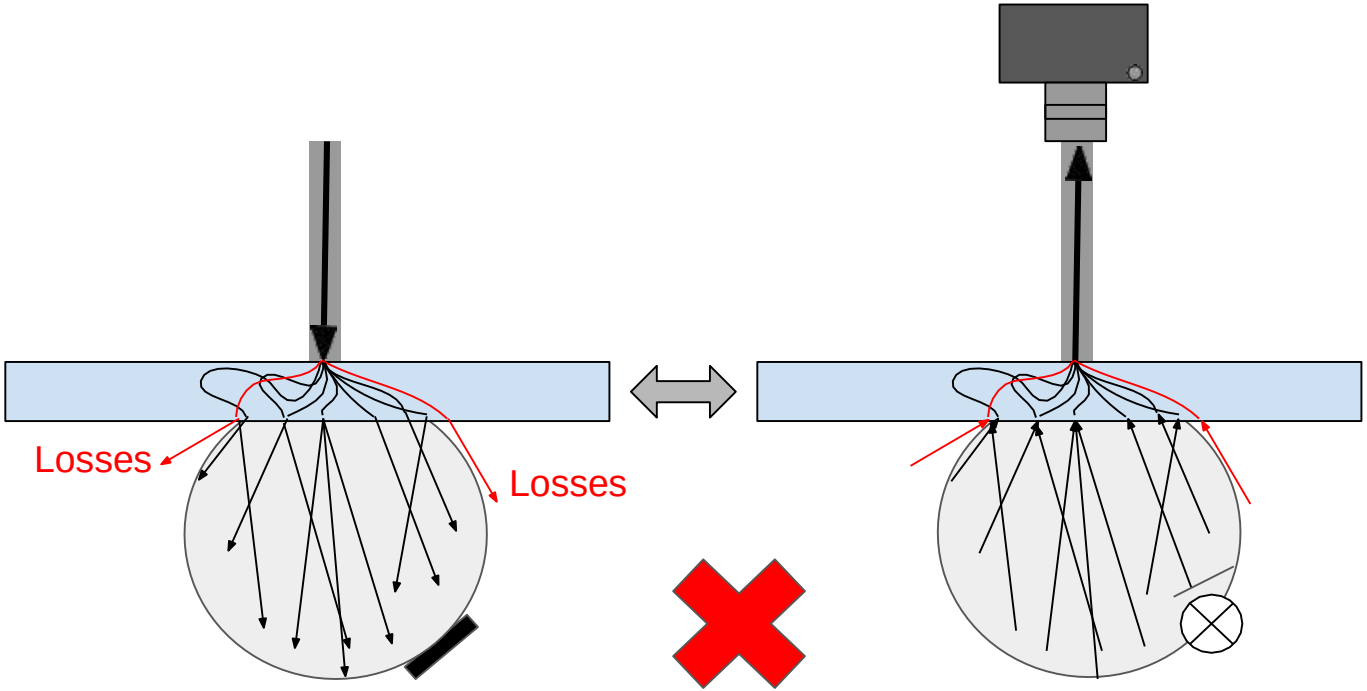

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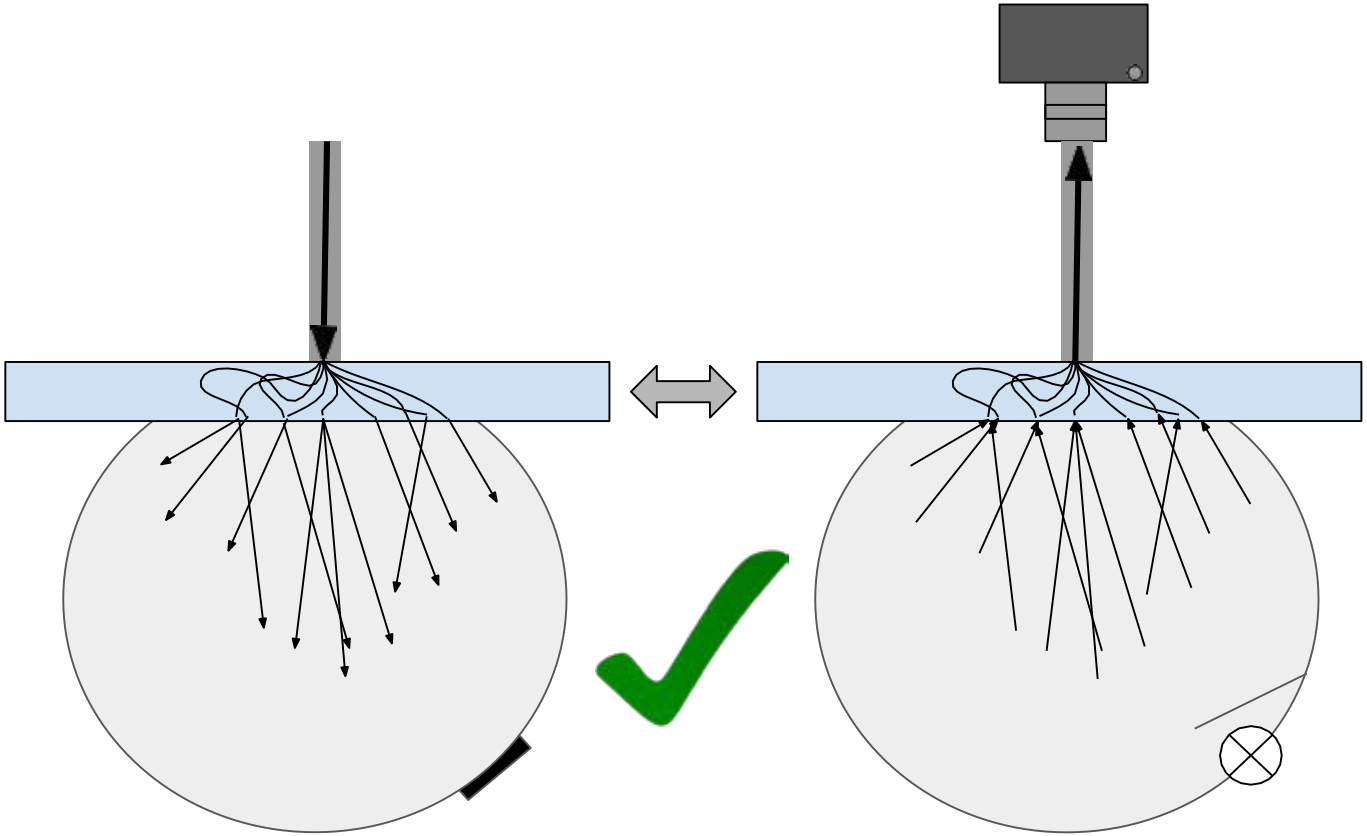
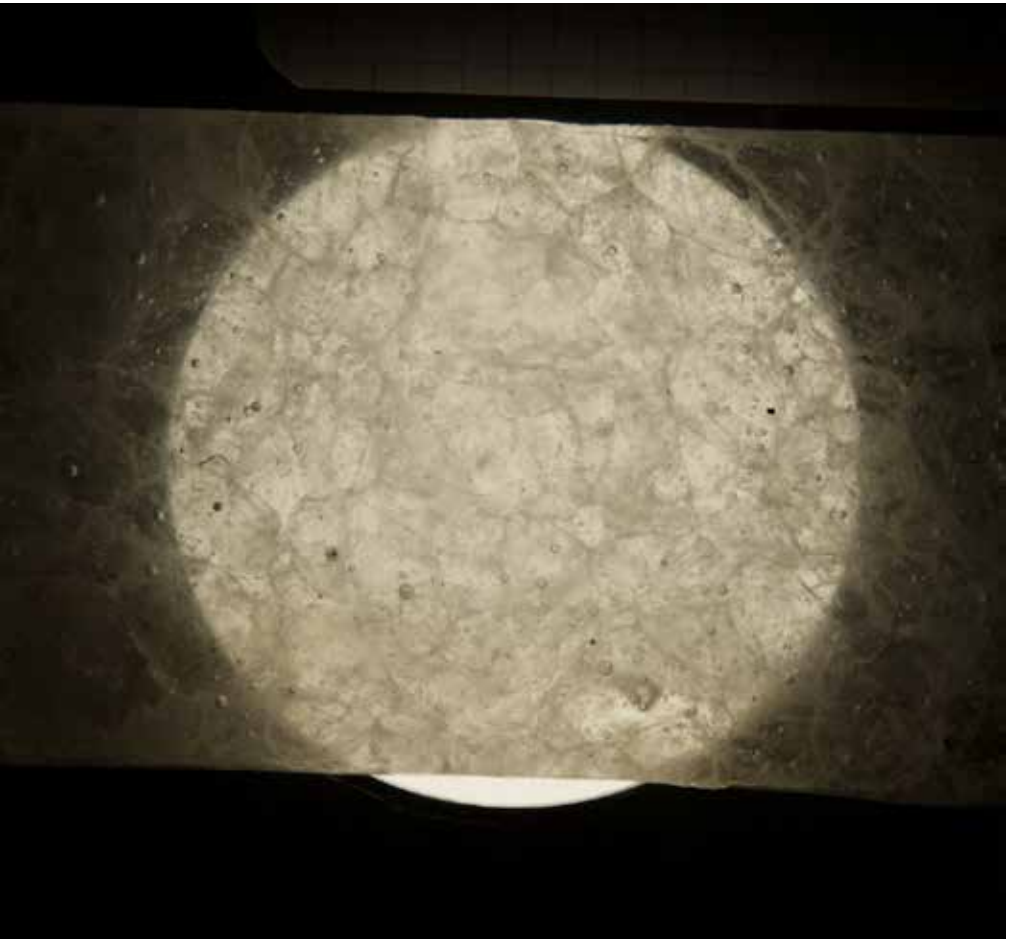
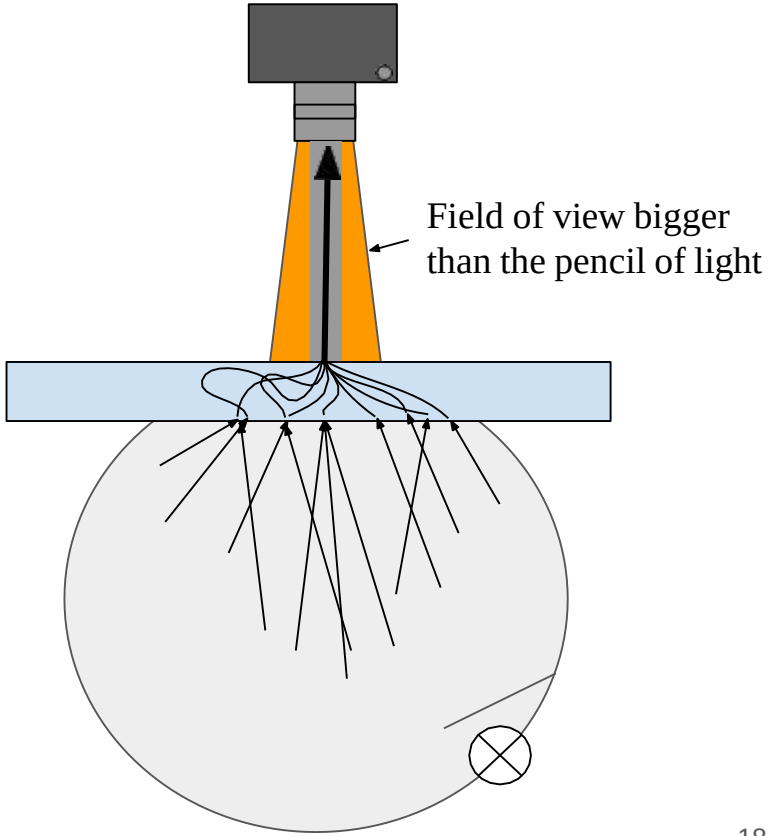


Computation of the transmittance





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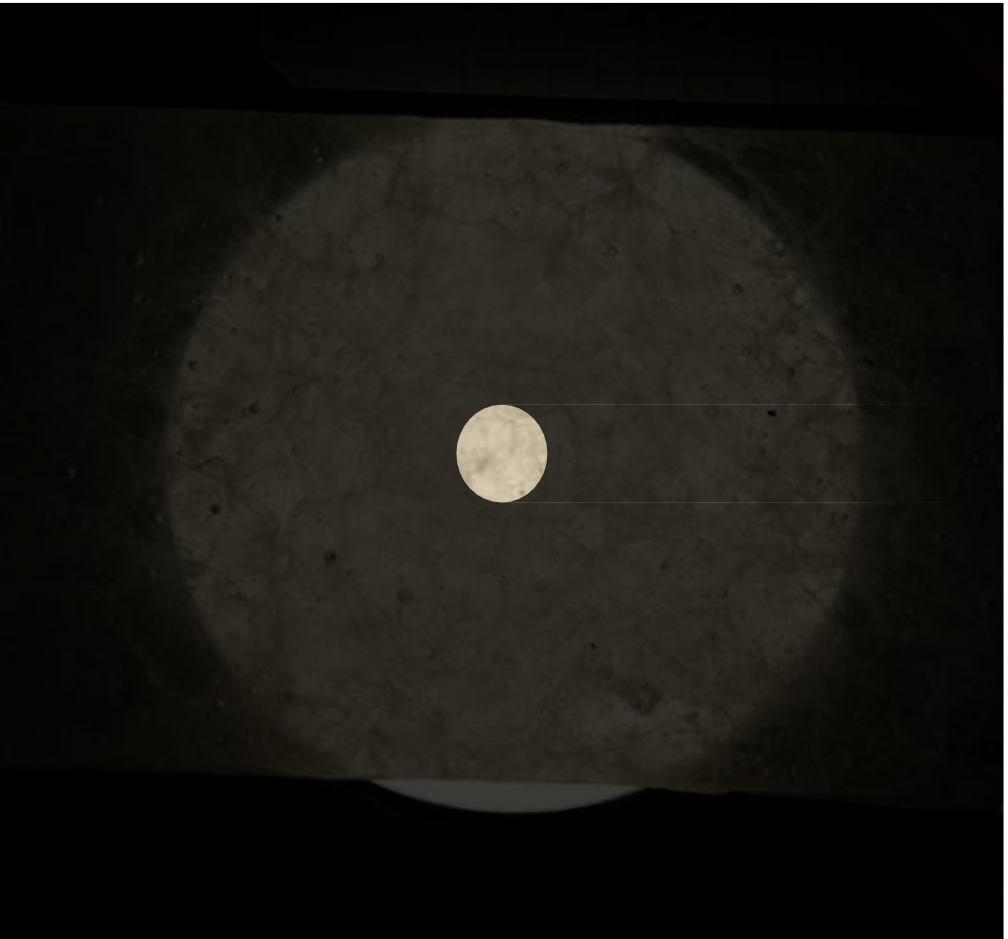

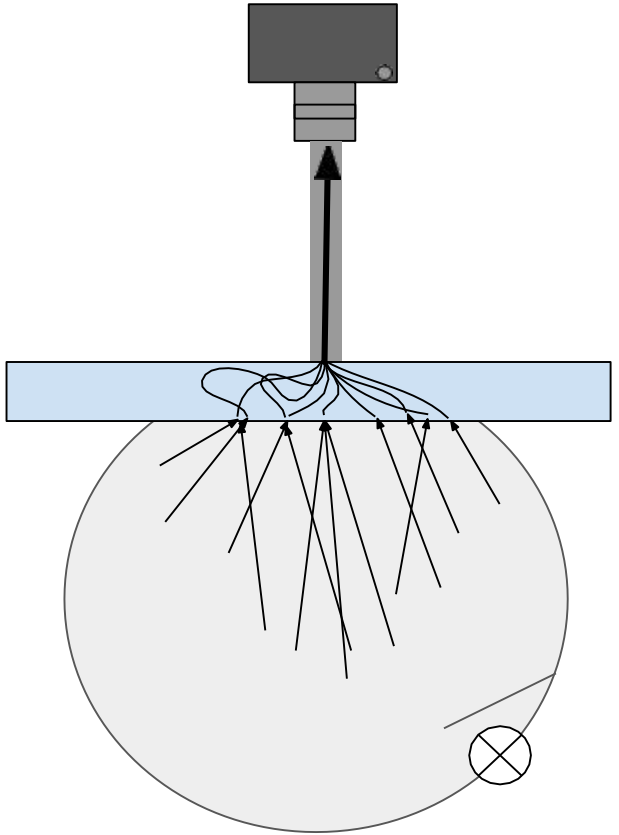

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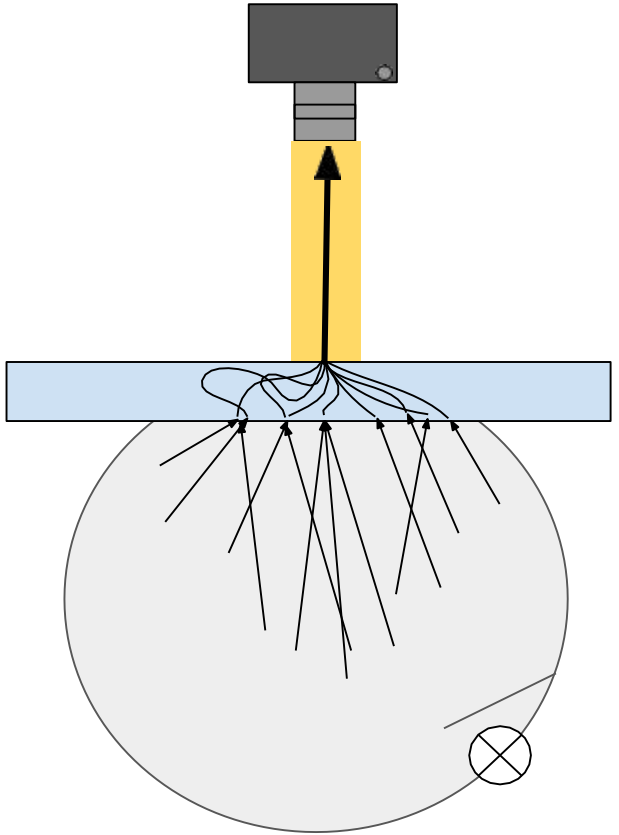

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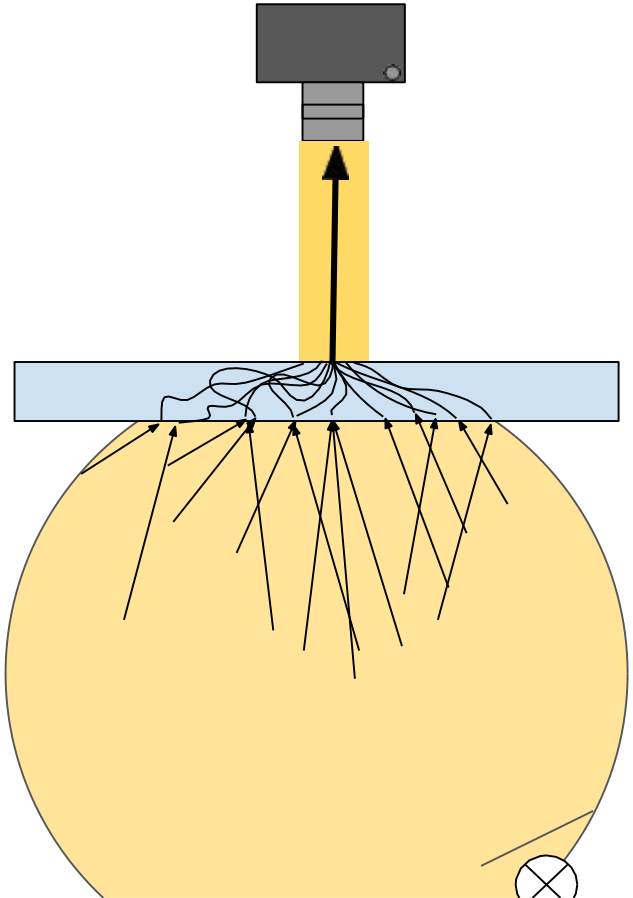
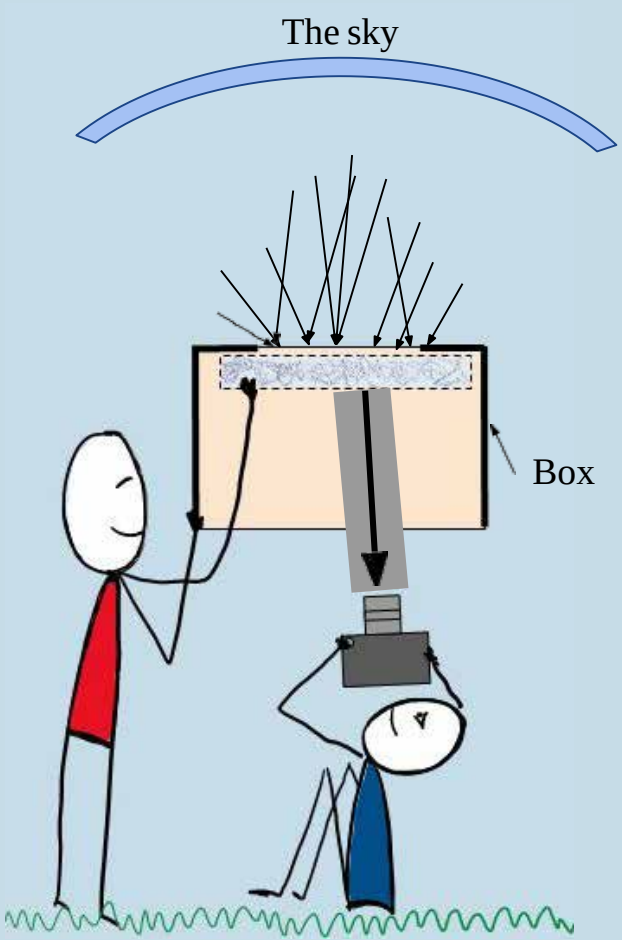


The sky


The sky
Box

Computation of the Transmittance

Soulages' glass

T=47%

Comparison with paper

Box

Paper

T=18%

Box

Soulages' glass

T=47%

Comparison with paper

Box

Box

Paper

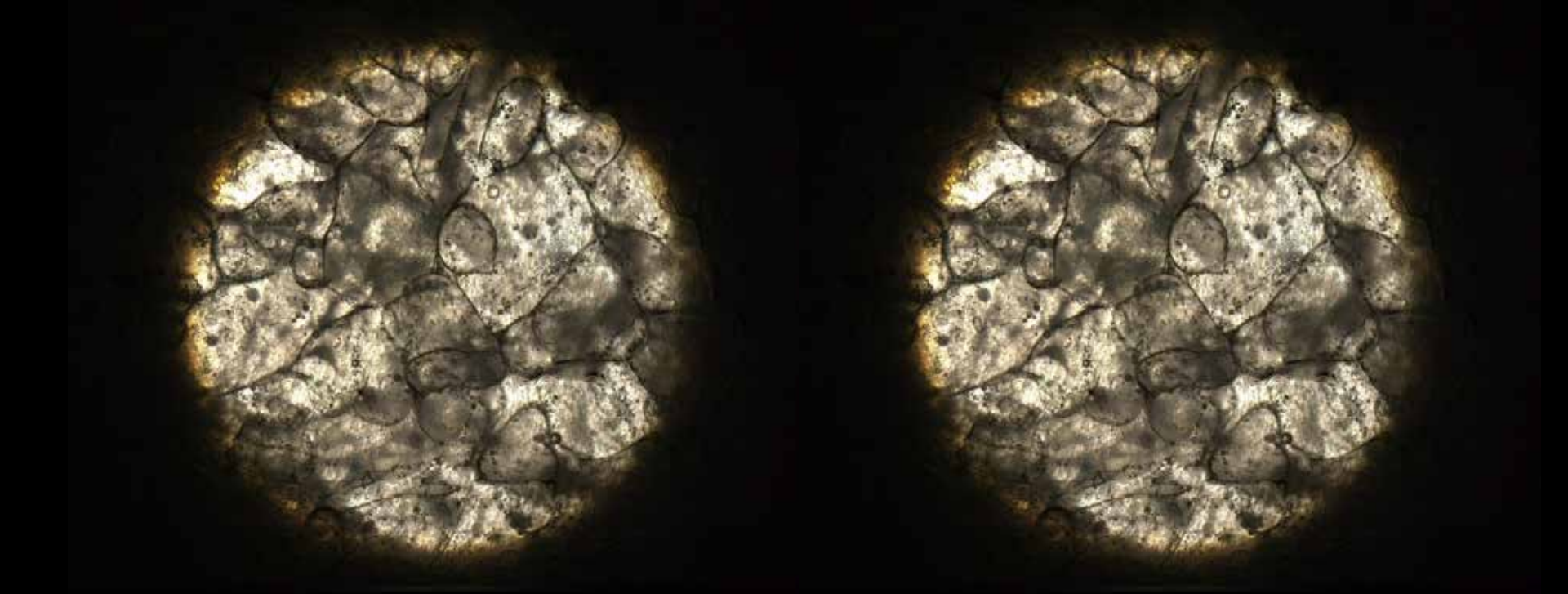
T=18%

Soulages' glass

T=47%

With a calibrated instrument

T=20%



Thank you for your attention !

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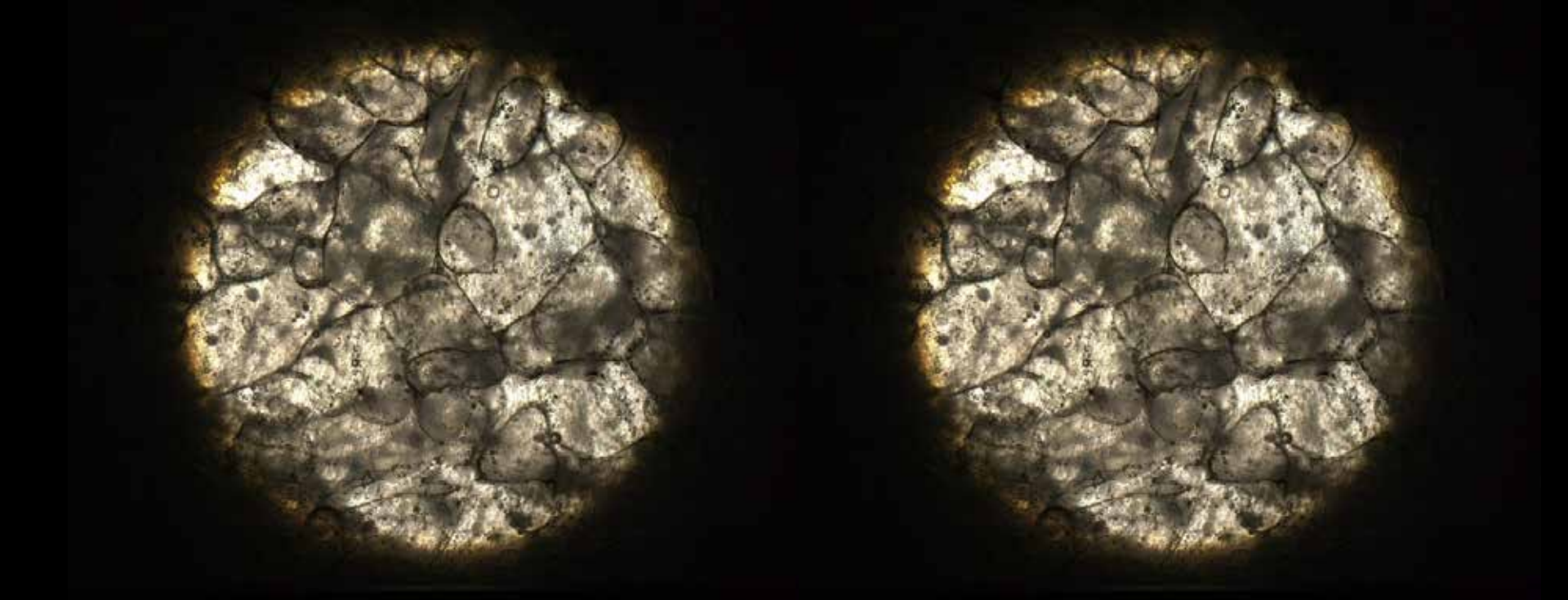

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