



System spectrum conversion from white light interferogram

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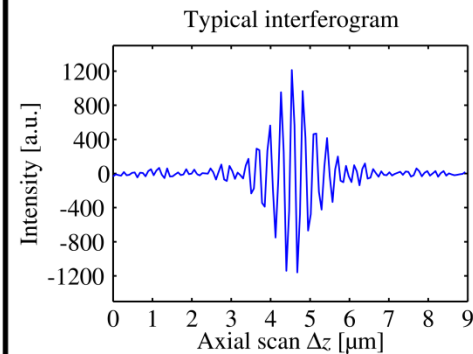
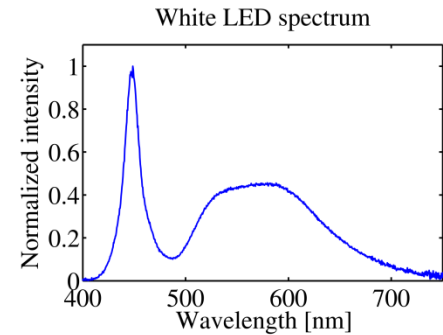
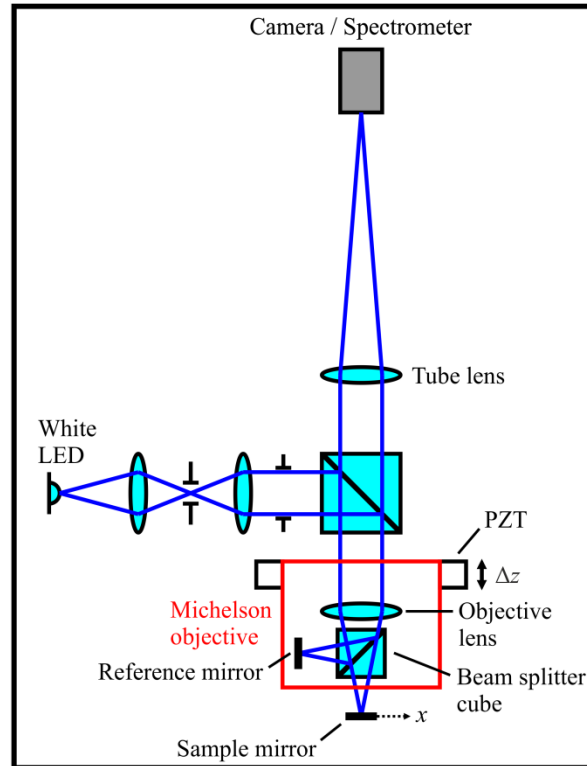
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System spectrum conversion from white light interferogram

- Accuracy of scanning white light interferometry (SWLI) topographic imaging depends on interference mean wavelength.
- Interference mean wavelength cannot be directly simulated from light source spectrum due to unknown system transfer function.
- We compare Fourier transformed effective system spectrum and spectrometer measured system spectrum.





System spectrum conversion from white light interferogram

- **Scattering correction for the effective system spectrum**

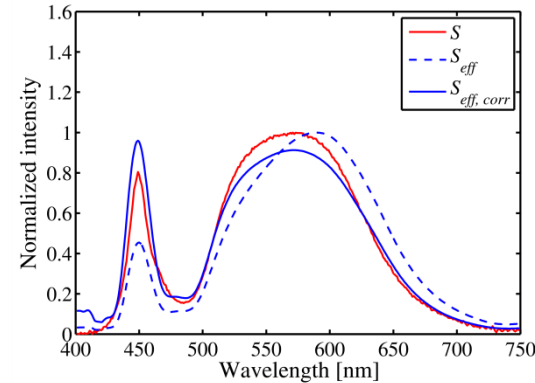
Kirchhoff approximation based spatial coherence dampening factor

$$\exp\left[-\left(\frac{2\pi}{\lambda}\right)^2 \delta_{\text{eff}}^2\right]$$

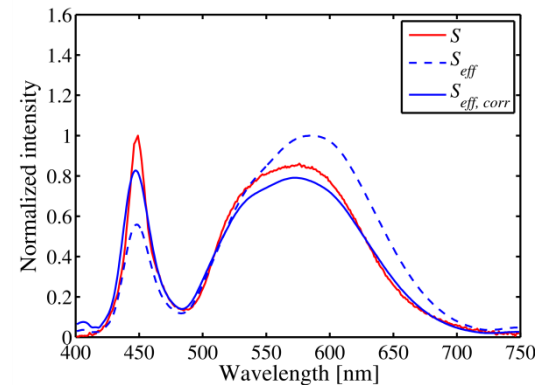
where λ is wavelength of light and δ_{eff} is an effective roughness of the system.

- Scattering model can provide an estimate of interference mean wavelength as a function of sample roughness.

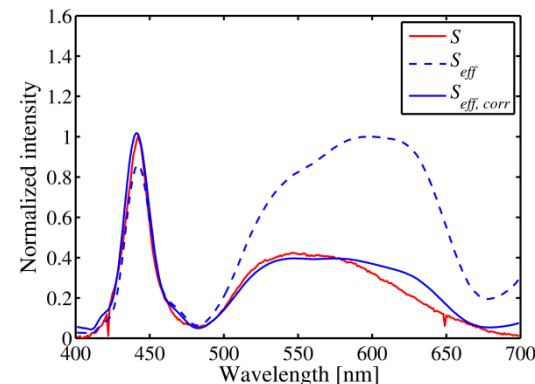
- **Submitted to Optics Express**



5x Michelson objective



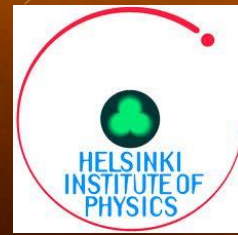
10x Mirau objective



Custom made 5x Michelson objective



Internal alignment characterization of accelerating structures of Compact Linear Collider



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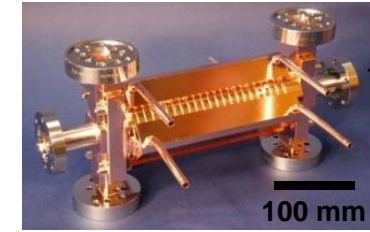
5 mm





Fiber-optic Fourier domain short coherence interferometry setup

CLIC accelerating structure



Fiber-optic probe

