

**KIT** **Near-field optics**

3. Near-field optics

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3.3 Photon scanning tunneling microscopy

3.4 Scanning near-field optical microscopy : Methodology

3.4.1 Probe concepts and fabrication

3.4.2 Surface distance control

3.4.3 Optical characterization

3.4.4 Artifacts

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**KIT** „Photon-Tunneling“-Microscopy

PSTM = *Photon Scanning Tunneling Microscopy*  
 STOM = *Scanning Tunneling Optical Microscopy*

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B. Hecht, Nanooptics

**KIT** **Transmission Setups**

illumination mode	collection mode	
(a) illumination	(b) detection	(c) detection
(d) detection / illumination		

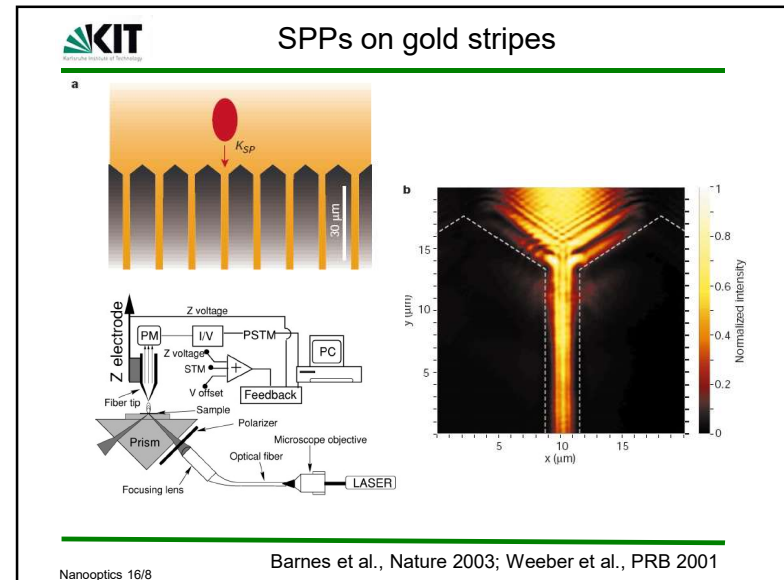
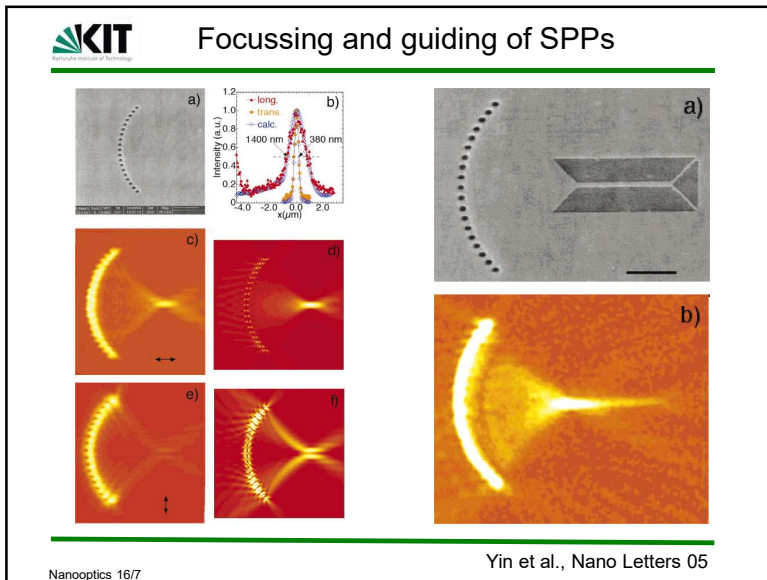
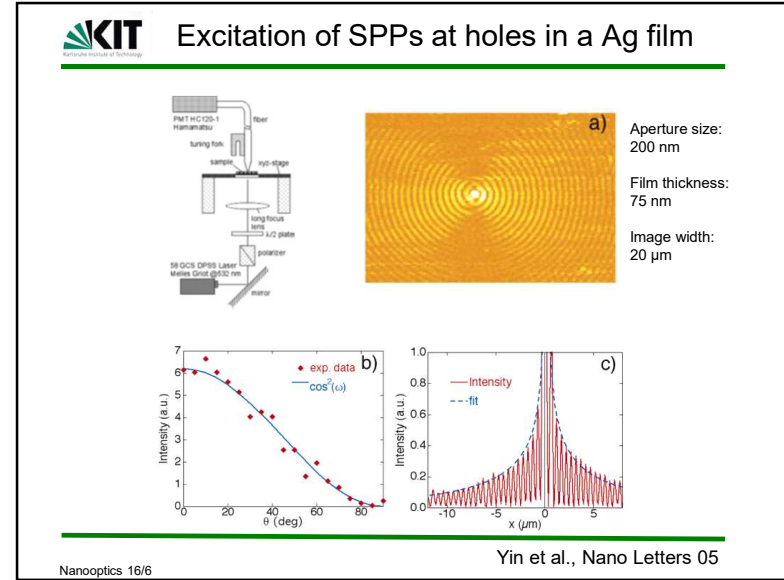
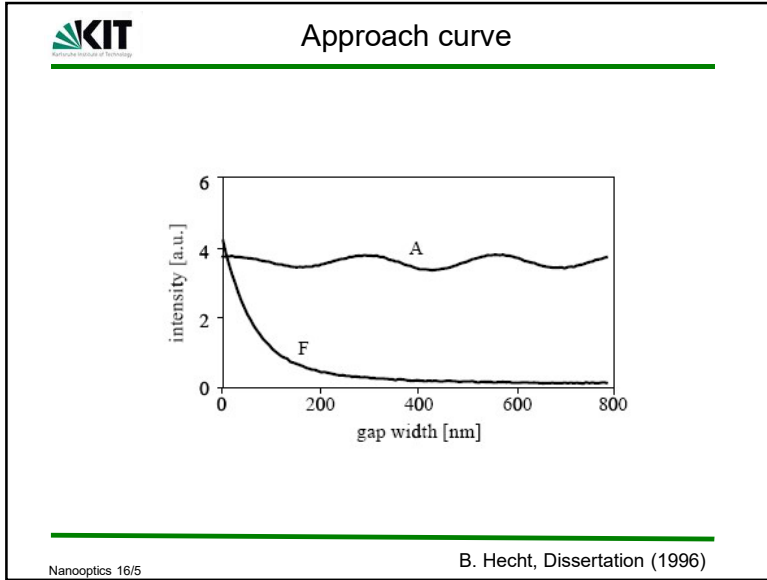
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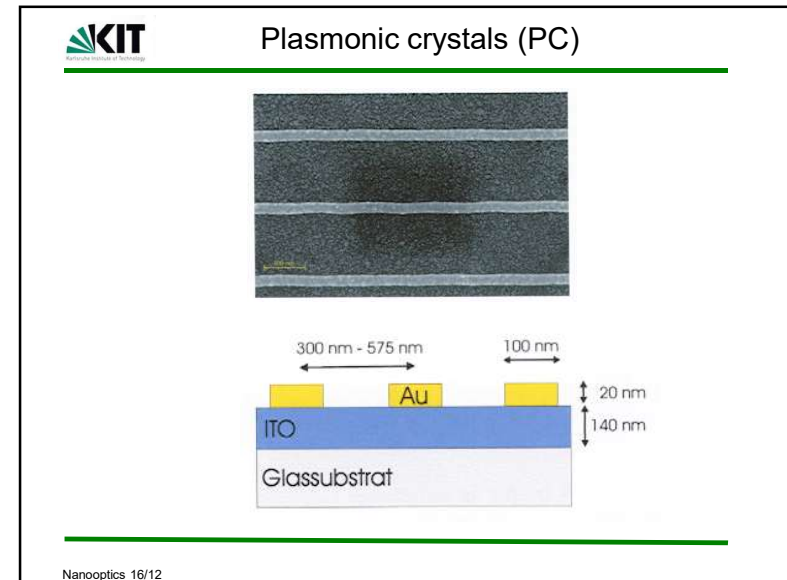
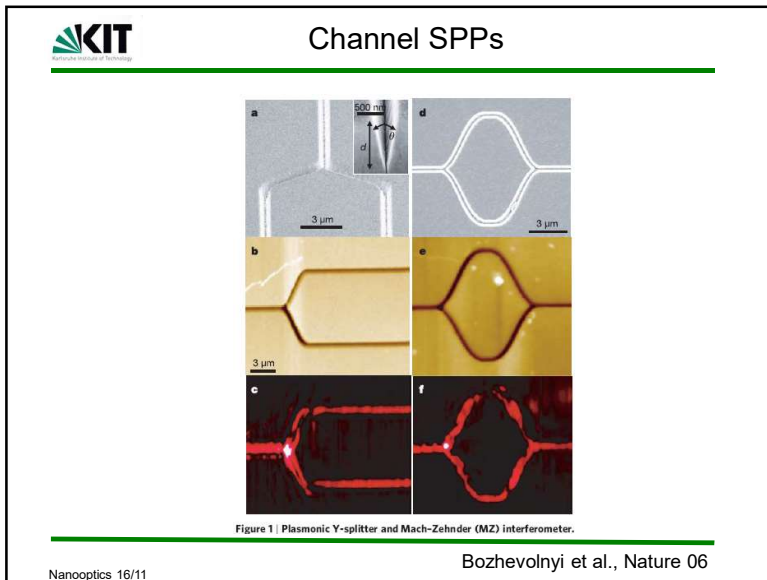
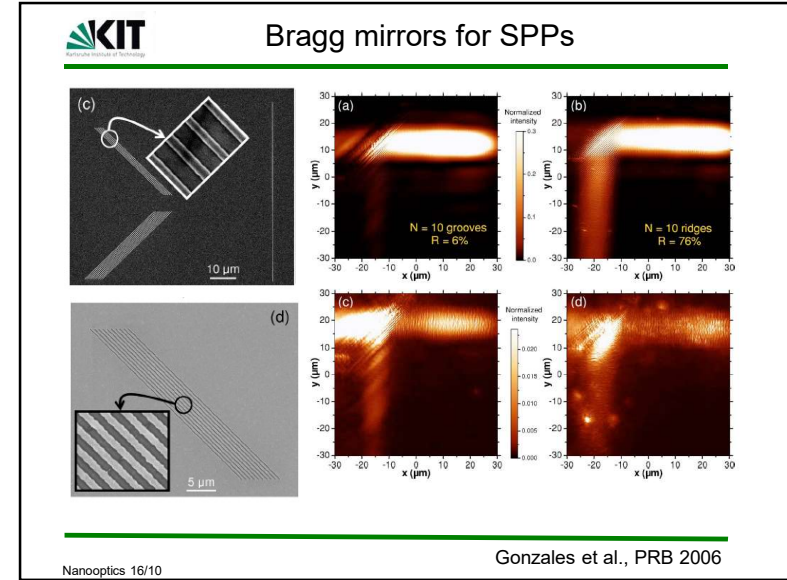
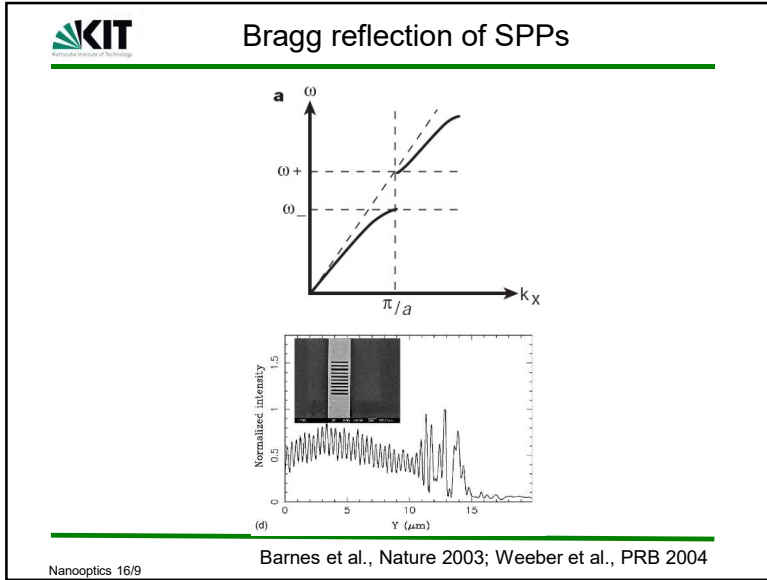
B. Hecht, Dissertation (1996)

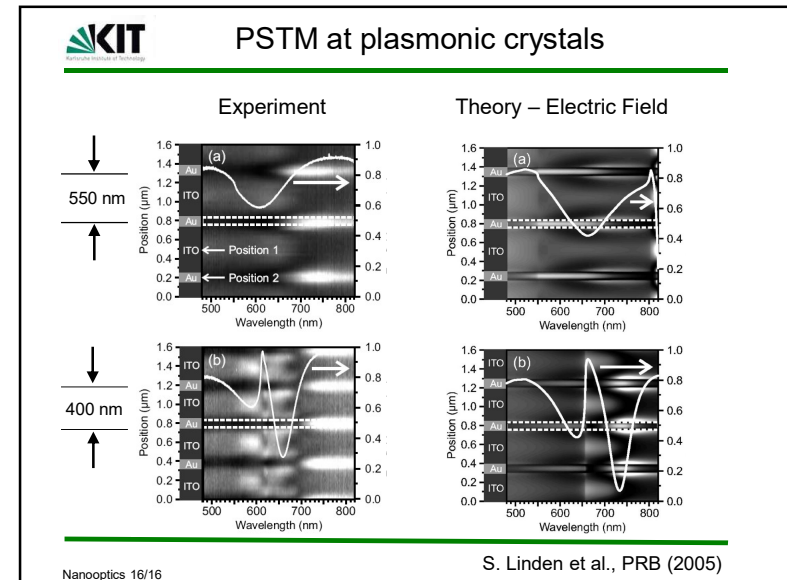
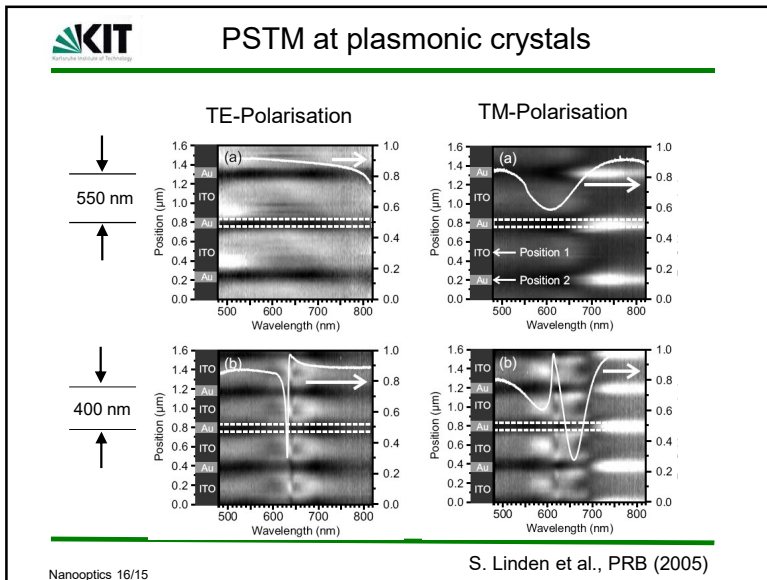
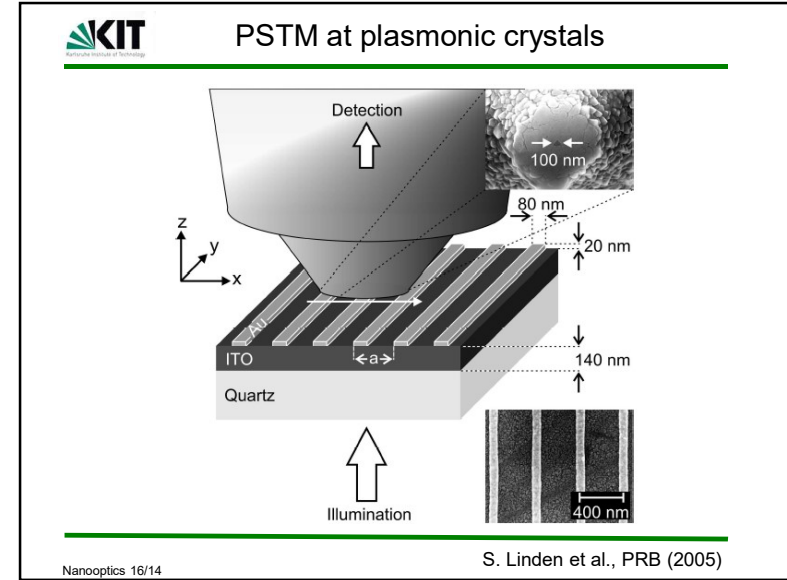
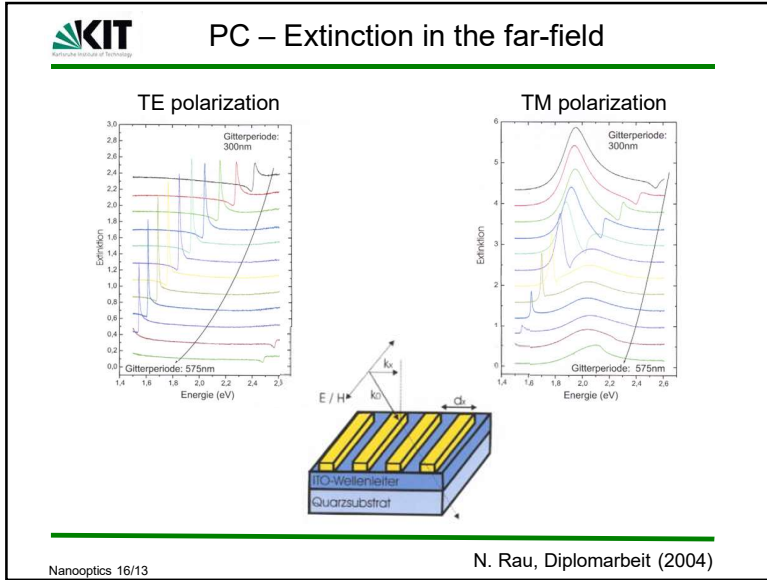
**KIT** **PSTM**

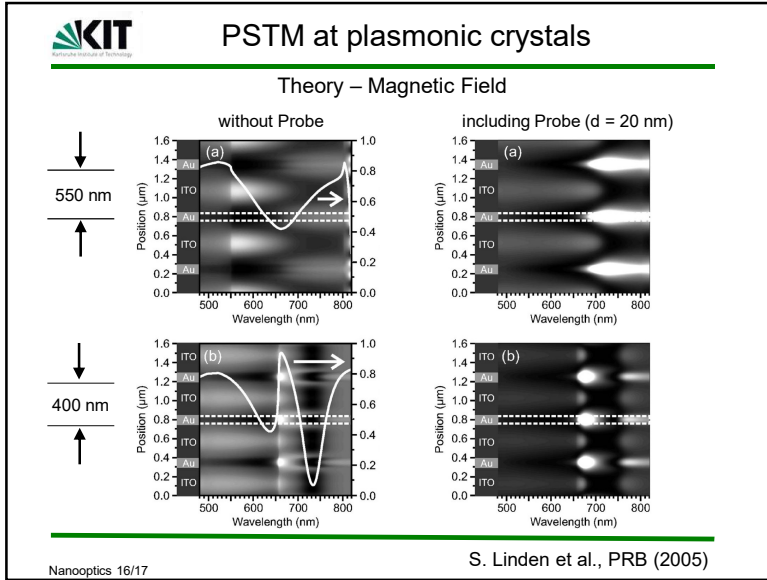
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B. Hecht, Dissertation (1996)









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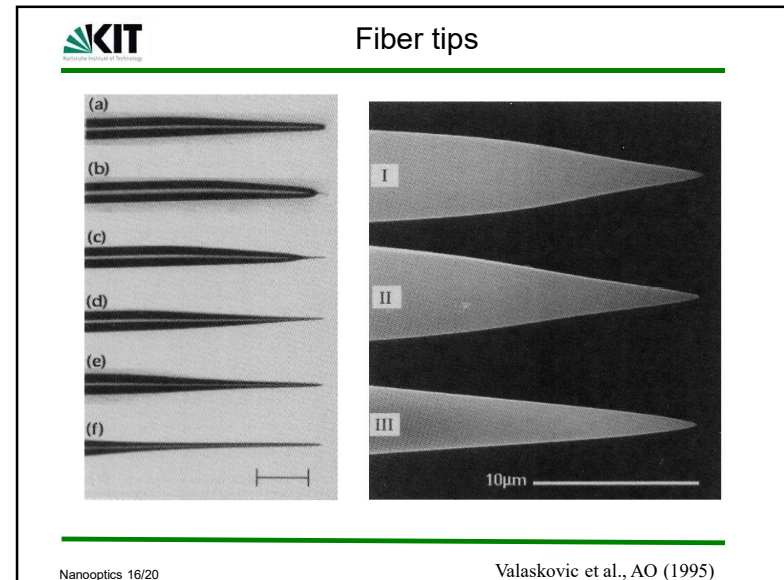
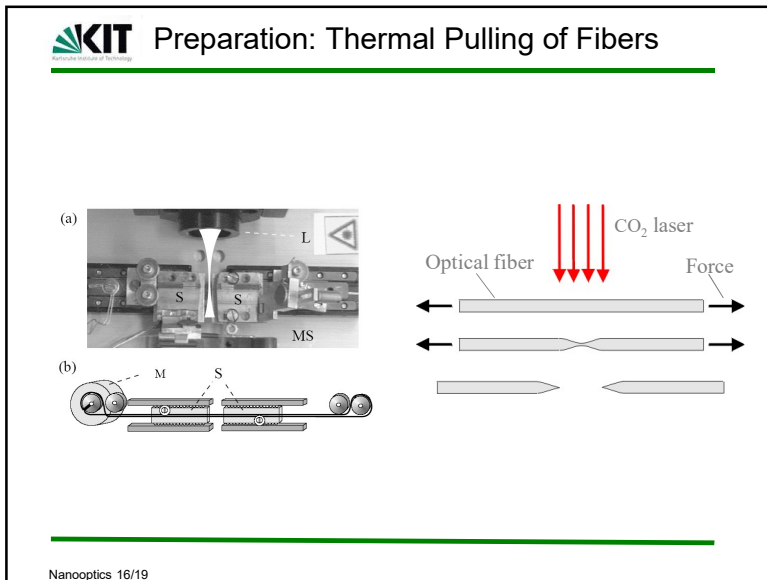
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## Coating

aluminum  
glass  
aluminum vapor

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Betzig et al. (1991); Hecht et al. (2000)

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## Evaporation facility

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D. Molenda, Diplomarbeit (2001)

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## Rotational Evaporation

plate (adjustable in height)  
rotating fiber holder  
mount with spring for clamping the fiber  
glass fiber  
evaporation angle  
30 mm  
adjustable source

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D. Molenda, Diplomarbeit (2001)

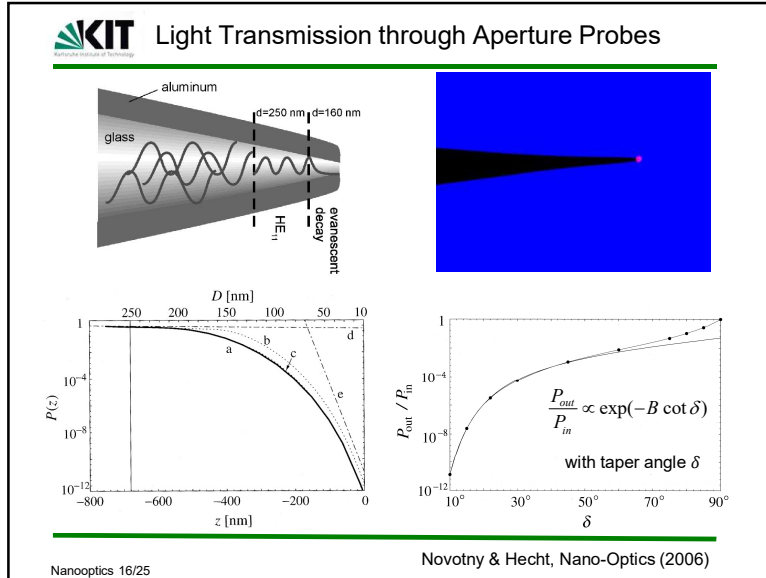
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## Aperture Probes: Examples

(a) (b) (c)  
300 nm  
(d) (e) (f)  
500 nm

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Hecht, Dissertation (1996)



Merry Christmas  
&  
a Happy New Year

