

# Addendum



## What is Light- Induced Damage?

PRE-ABLATION REGIME OPTICAL  
AND MORPHOLOGICAL CHANGES  
IN NANOMETER THICK FILMS  
AND GRATING STRUCTURES

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This is the addendum for the following publication:

E. Abram, "What is Light-Induced Damage? - Pre-ablation regime optical and morphological changes in nanometer thick films and grating structures", [University of Amsterdam, printed version, May 2025](#), 978-94-92323-79-8.

# REVISED FIGURES AND EDITS

Figure 1.6 has been adjusted to include appropriate color scaling and colorbars.

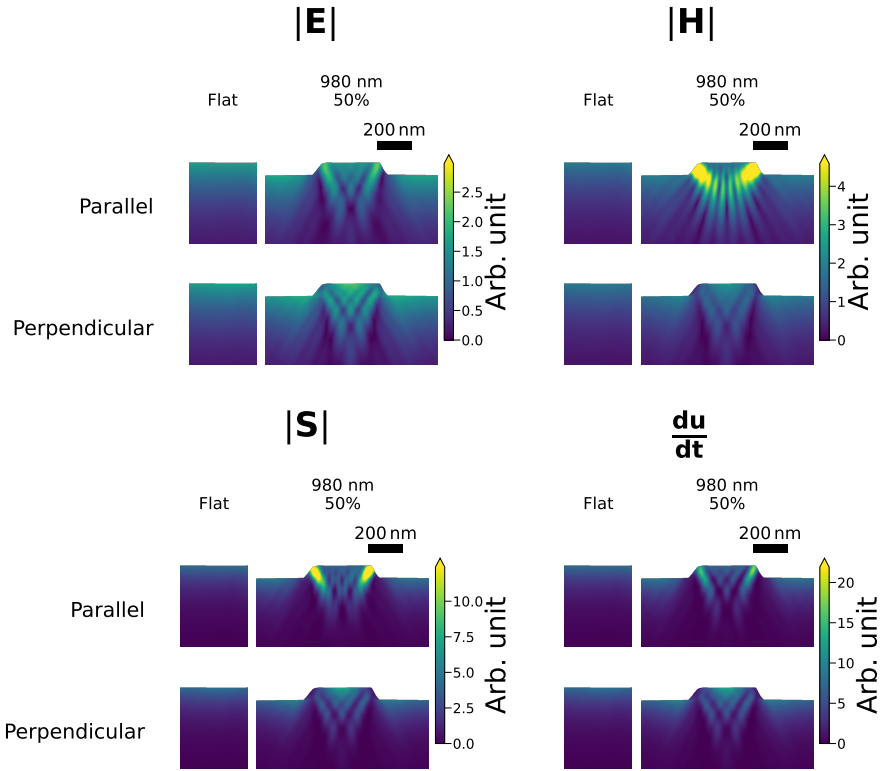


Figure 1.6:  $|E|$ ,  $|H|$ ,  $|S|$  and  $\frac{du}{dt}$  profiles in silicon, obtained by near-field RCWA calculations. These calculations are performed on flat silicon (left) and a silicon grating with 980 nm pitch and 50% duty cycle (right), illuminated by a 400 nm pump pulse at normal incidence at parallel or perpendicular polarization with respect to the direction of the grating lines. A  $\text{SiO}_2$  native oxide thickness of 2.1 nm is included.

The vertical lines that were missing in figure 3.12a have now been restored.

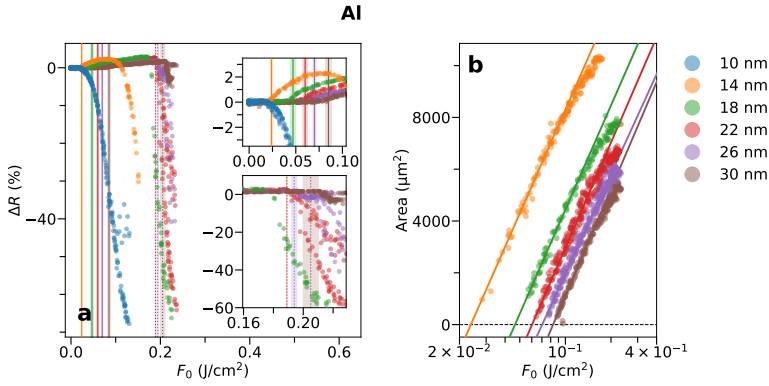


Figure 3.12: (a)  $\Delta R$  versus pump peak-fluence  $F_0$  for 10, 14, 18, 22, 26 and 30 nm aluminum on borosilicate glass. In (a), the vertical dashed lines mark the ablation fluence  $F_{abl}$  extracted from a Liu-plot of the crater area versus fluence (not shown here). The solid lines represent the spallation fluence  $F_{spal}$  obtained from (b), which shows the Liu-plot of the spallation area as a function of fluence. The values of  $F_{spal}$  are obtained from the linear regression lines shown in (b). Note that the 10 nm Al layer is omitted in (b) because this layer displayed no clear spallation and ablation edges.

Table 1 lists the typographic changes that must be made following the printed version.

Table 1: Overview of typographic changes

Old	New	What	Where
...or <i>wavelength</i> ...	..., or <i>wavelength</i> ,...	Inserted ','	Page 1
		Removed double 'Deposition' block	Figure 2, page 2
each layer[21].	each layer [21].	Added space	Page 2
In chapter 2	In chapter 2	Added indent	Page 7
70 $\mu\text{m}$ and 15 $\mu\text{m}$	$\approx 70 \mu\text{m}$ and $\approx 15 \mu\text{m}$	Added " $\approx$ "	Page 47
Just beyond the	just beyond the	Removed capital	Caption of figure 3.8, page 56
CompleteEase	CompleteEASE	Adjusted capitals	Page 61 and the caption of figure 3.14, page 63
pump energy[121] ( $F > F_{\text{FA}}$ )	pump energy [121] ( $F_0 > F_{\text{FA}}$ )	Added space	Page 64 caption of figure 4.3, page 82
...done so $\frac{1}{A_{\text{bs}}} \cdot A_{\text{bs}_{\text{flat}}}$ to coalesce with...	...done to let $\frac{1}{A_{\text{bs}}} \cdot A_{\text{bs}_{\text{flat}}}$ coalesce with...		Page 110
<a href="https://git.amolf.nl/Light-Matter-Interaction/contour.git">https://git.amolf.nl/Light-Matter-Interaction/contour.git</a>	[152]	Changed hyper-link to reference	Page 120
with $\ln(F_{\text{th}})$	with $A = \ln(F_{\text{th}})$		Page 122
the blue curve	the curve at the blue data points		Page 123
blue line	left line		Caption of figure 6.3, page 123
Delamination (orange)	Delamination	In caption of figure 6.6.3, page 126	