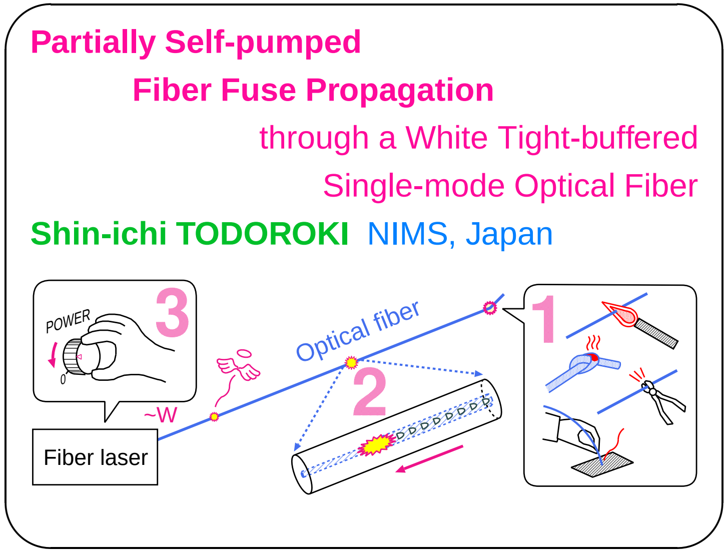


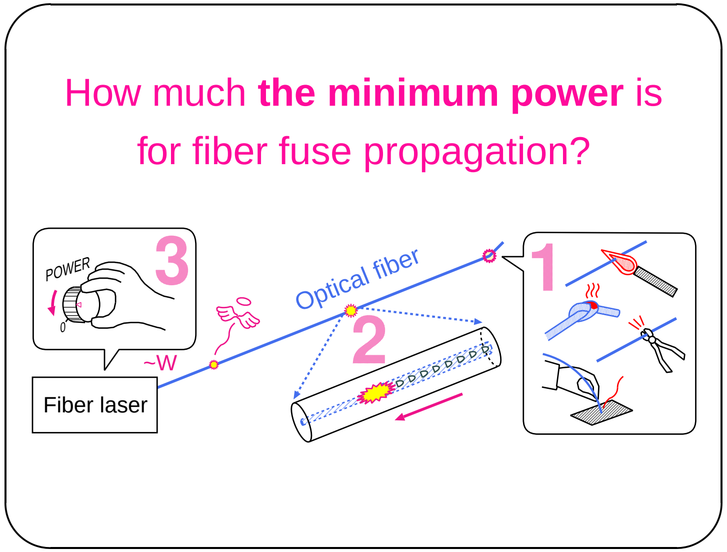
Slide 1

Date: 8 Mar. (Thu) 2012, 16:30–17:00 (PSC)

Venue: Los Angeles Convention Center (Room 503)

Abstract

The propagation threshold power through a white tight-buffered fiber was found to be 3% less than that through an acrylate-coated fiber because the pigments in the buffer backscatter the visible emission that pumps a fuse.



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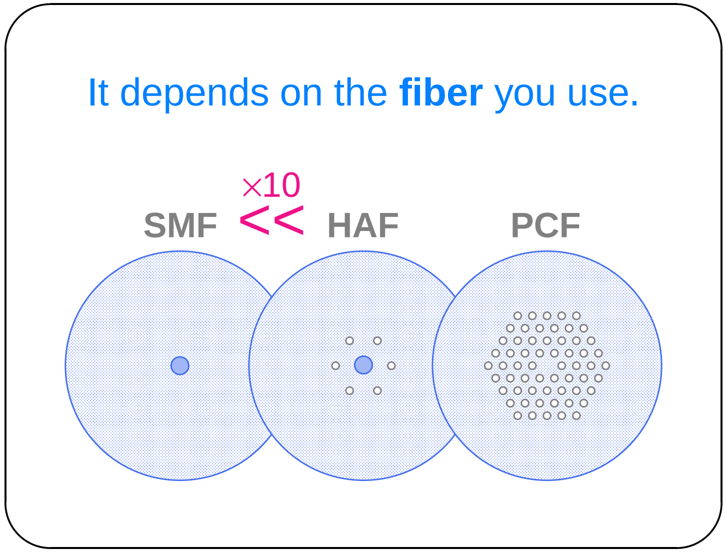
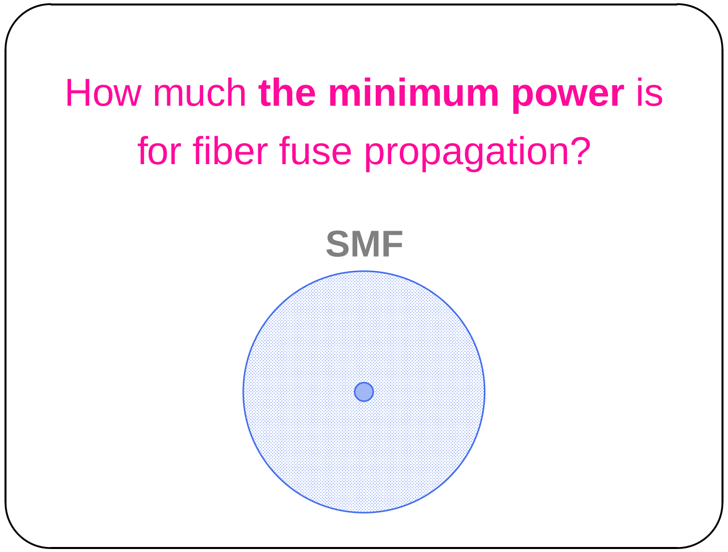


Slide 3



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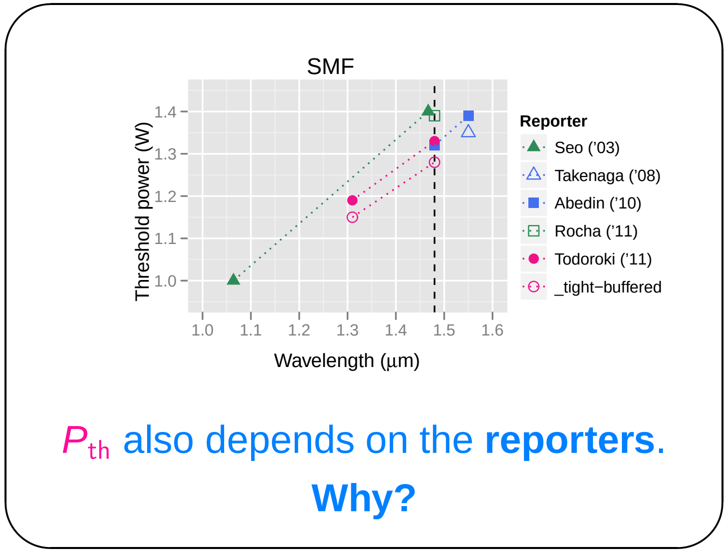

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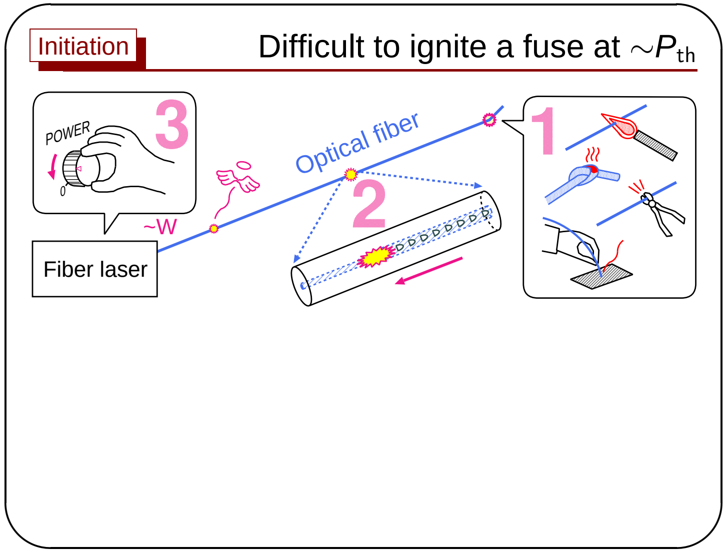

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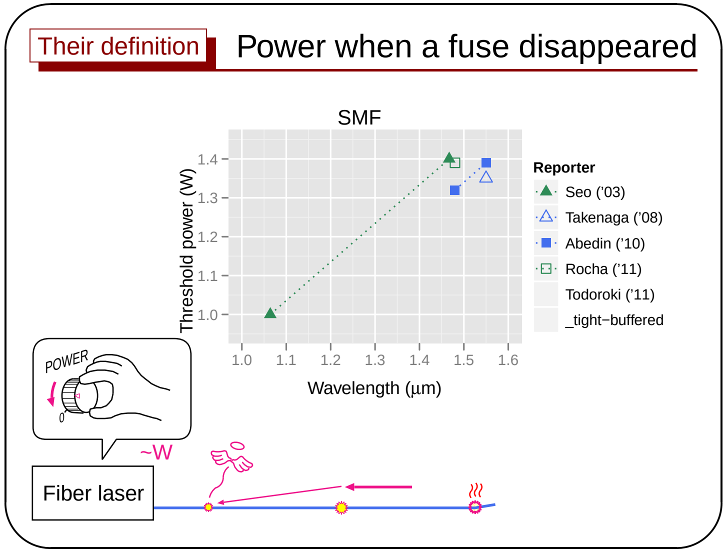

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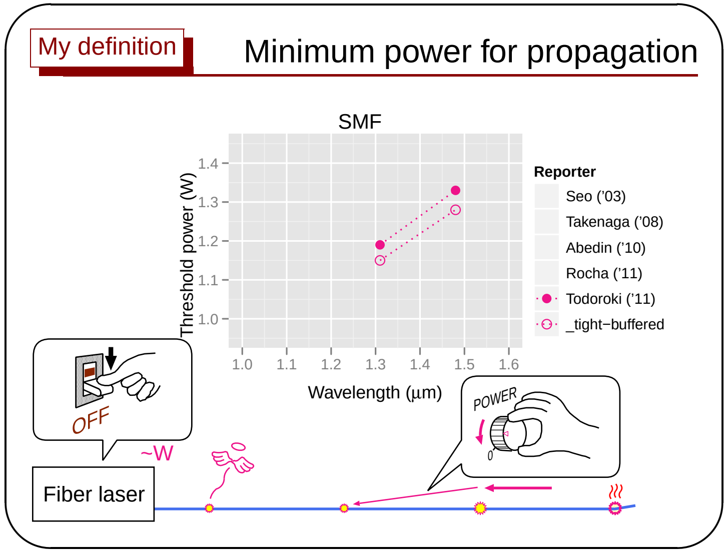

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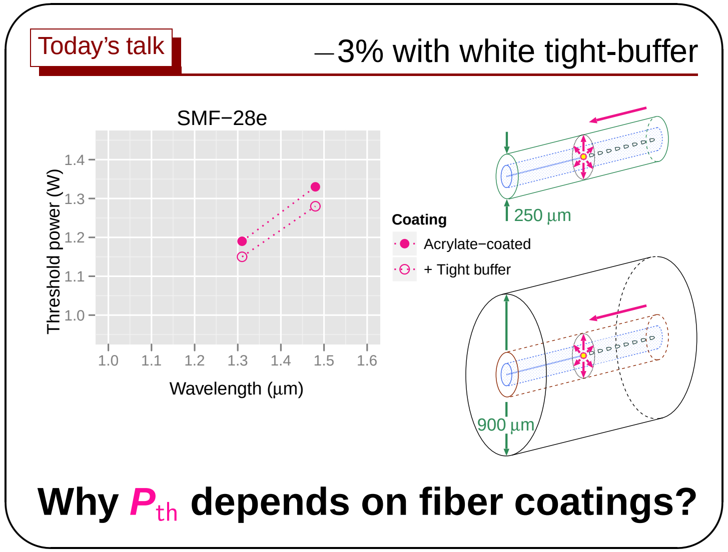

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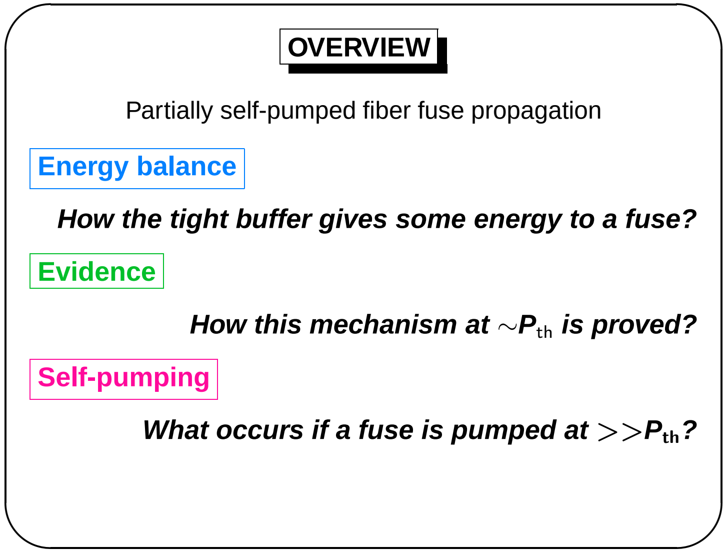

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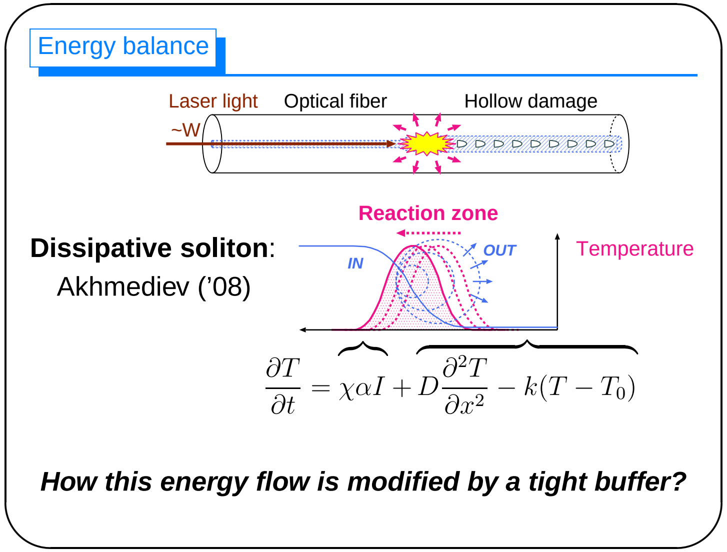
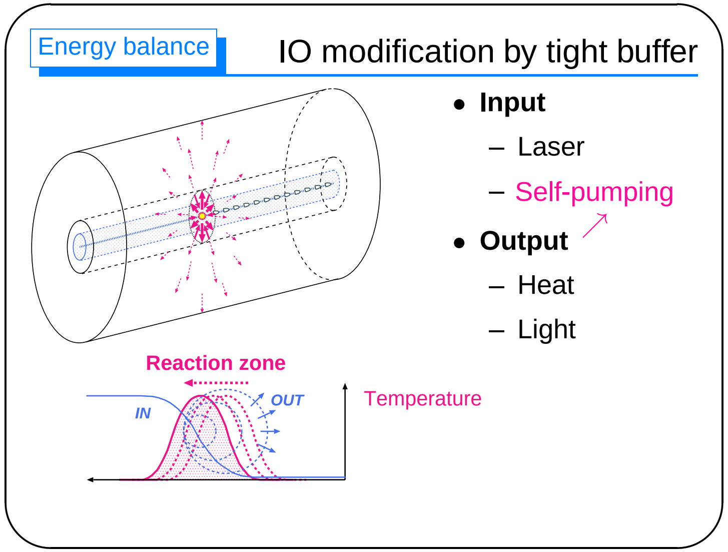


Slide 11



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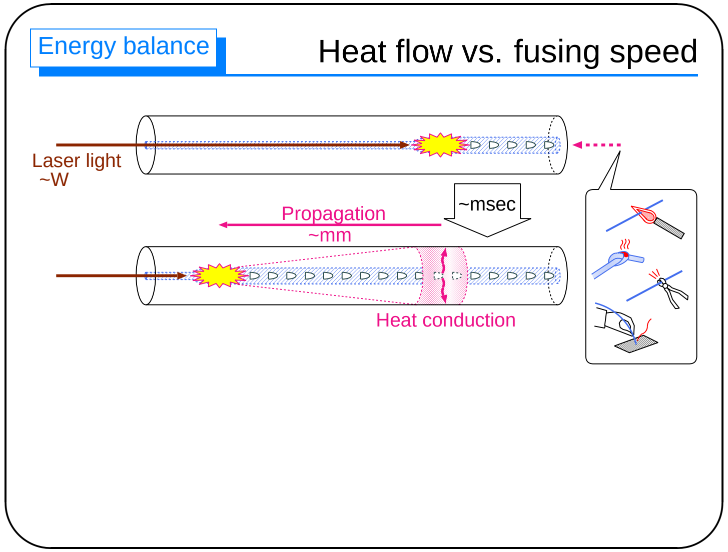

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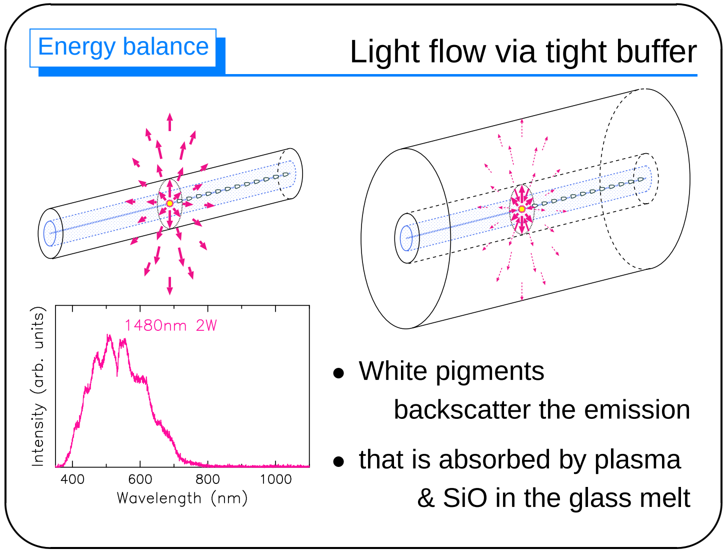

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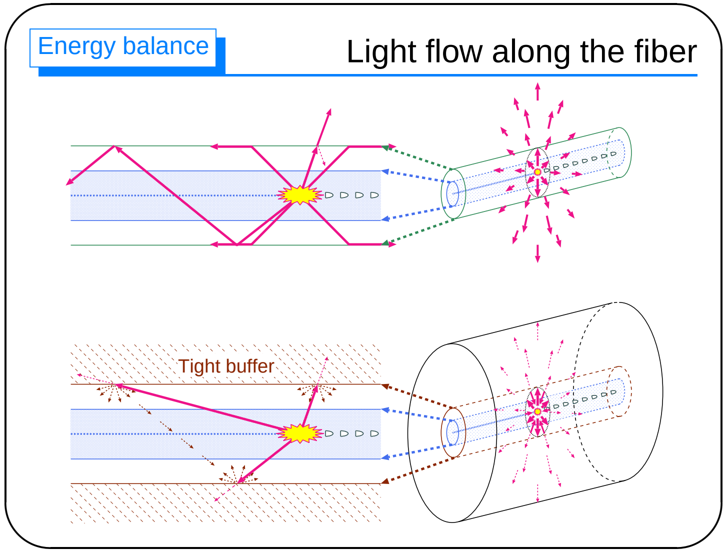


Slide 15

OVERVIEW

Partially self-pumped fiber fuse propagation

Energy balance

Back-scattered visible emission possibly pumps a fuse.

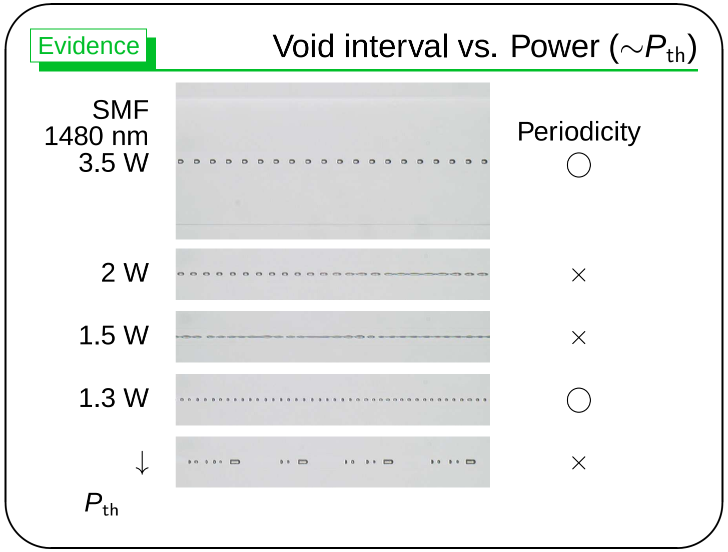
Evidence

How this mechanism at ∼P_{th} is proved?

Self-pumping

What occurs if a fuse is pumped at >>P_{th}?

Slide 16



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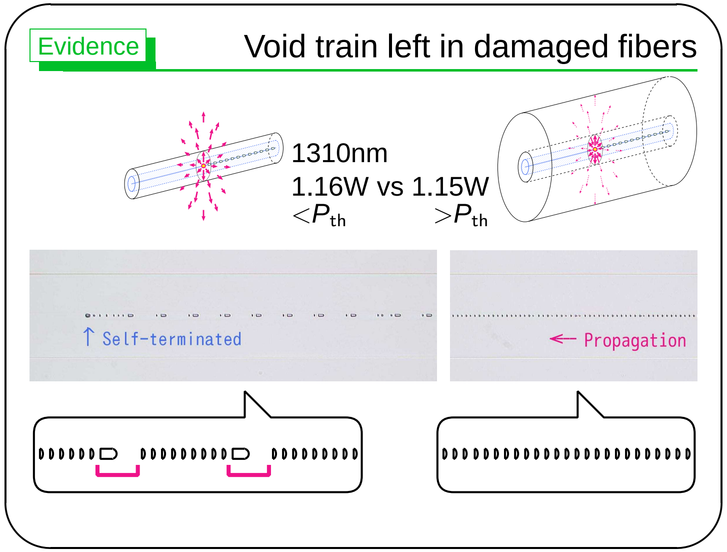

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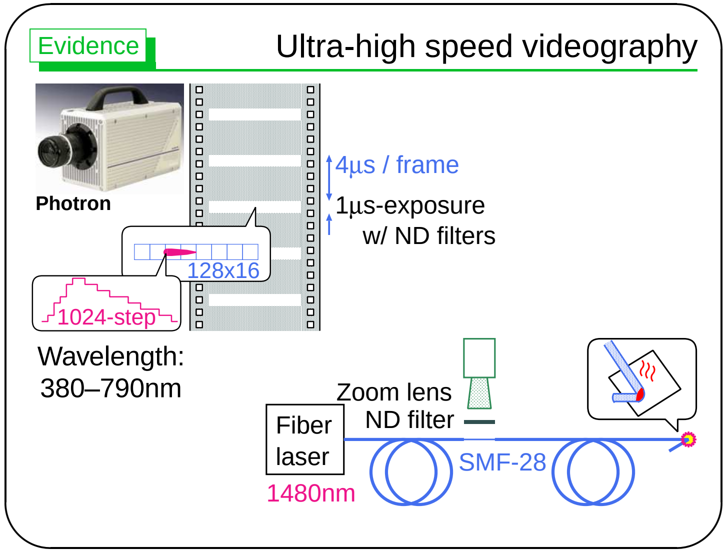

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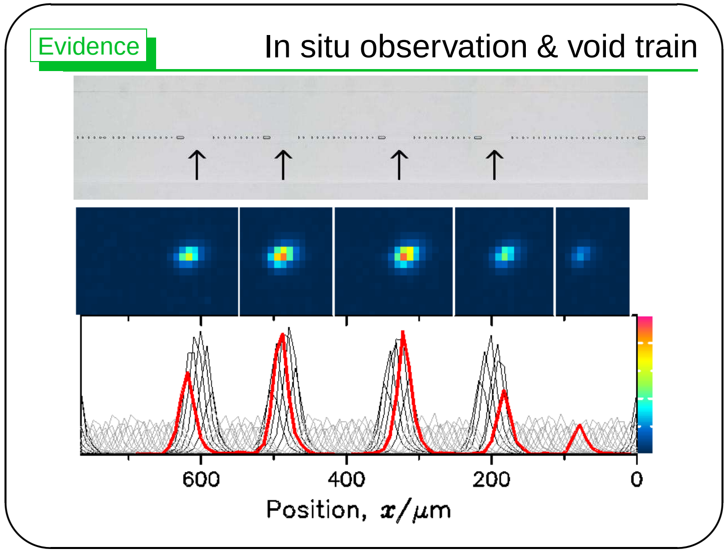

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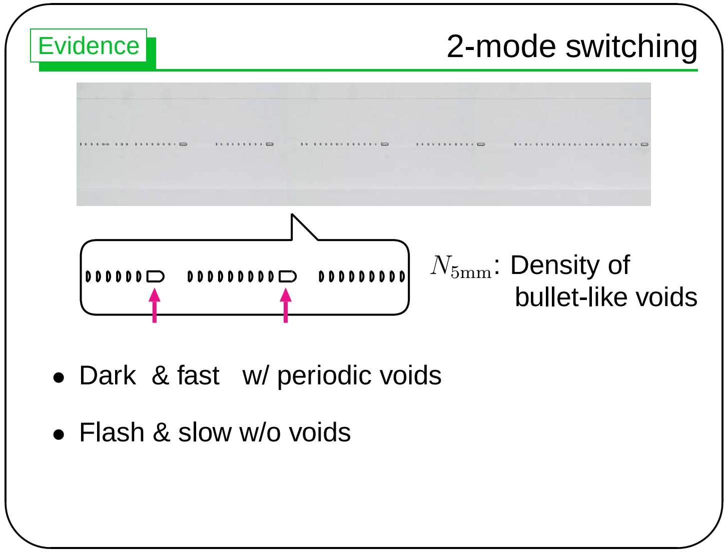

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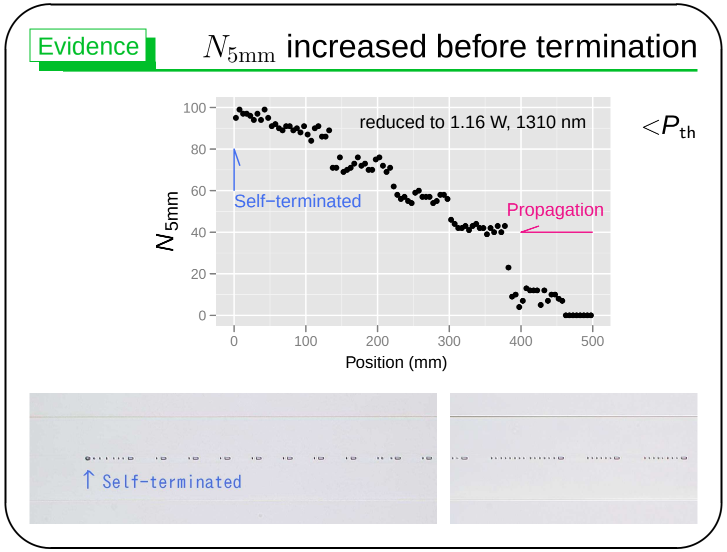
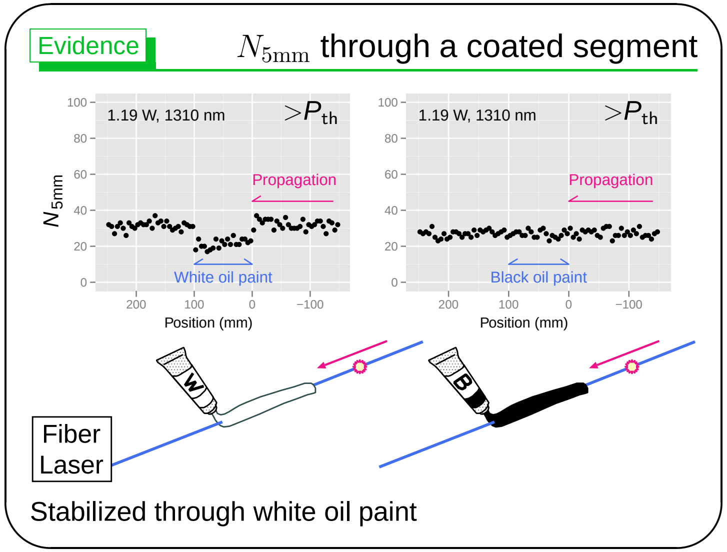
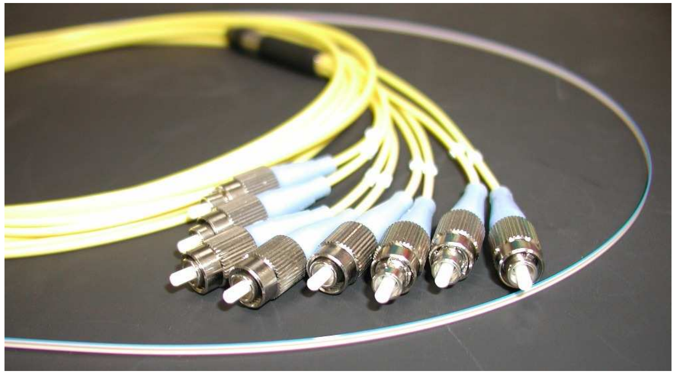


Slide 22



Slide 23

Evidence White protective layers everywhere



Ribbon cables, Ceramic (ZrO_2) ferrules, etc.

Slide 24

OVERVIEW

Partially self-pumped fiber fuse propagation

Energy balance

Back-scattered visible emission possibly pumps a fuse.

Evidence

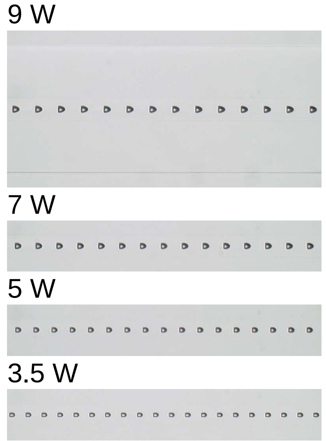
A self-pumped fuse leaves a stabilized void pattern.

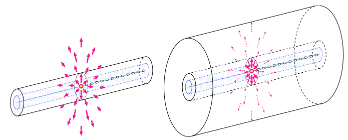
Self-pumping

What occurs if a fuse is pumped at $>>P_{th}$?

Slide 25

Self-pumping Void interval vs. Power ($>>P_{th}$)

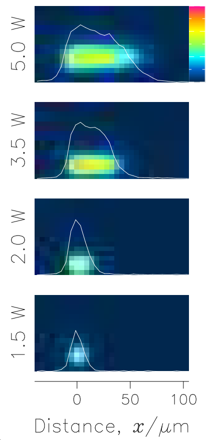


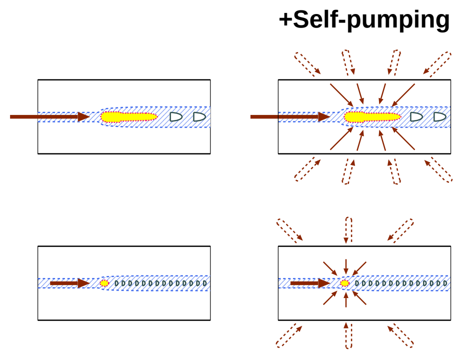


No apparent difference

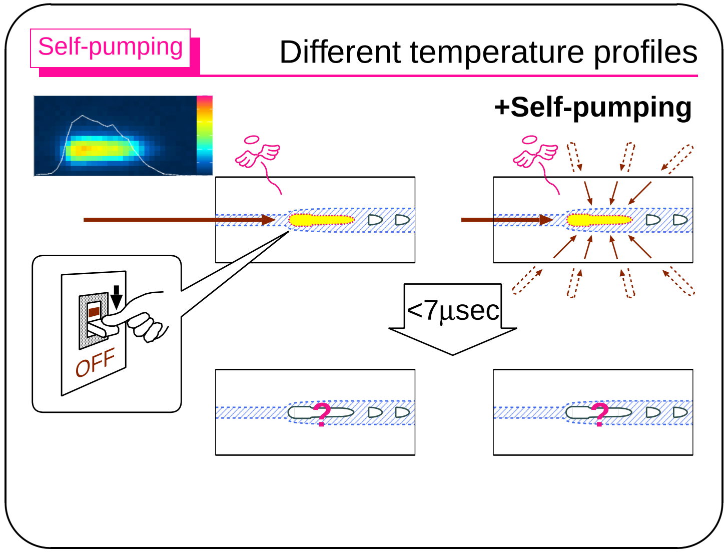
Slide 26

Self-pumping Plasma shape vs. Power ($>>P_{th}$)

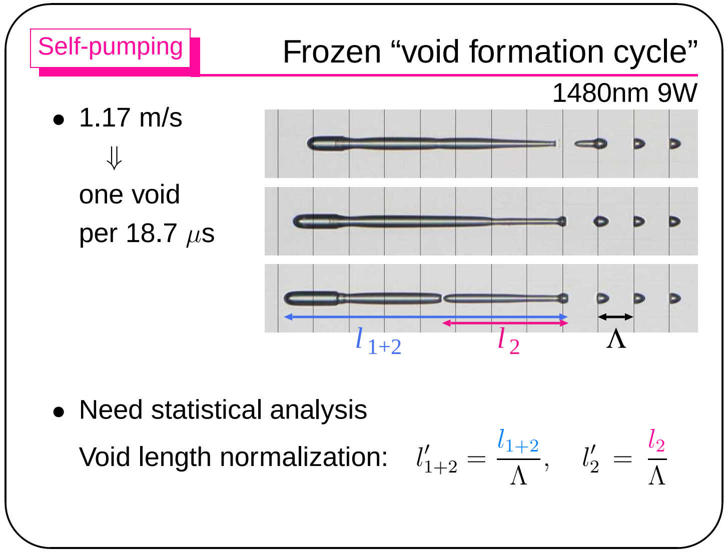




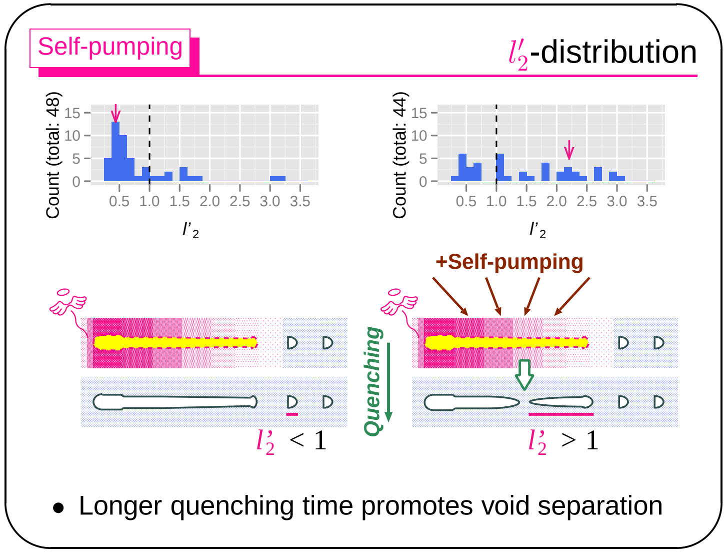
Slide 27



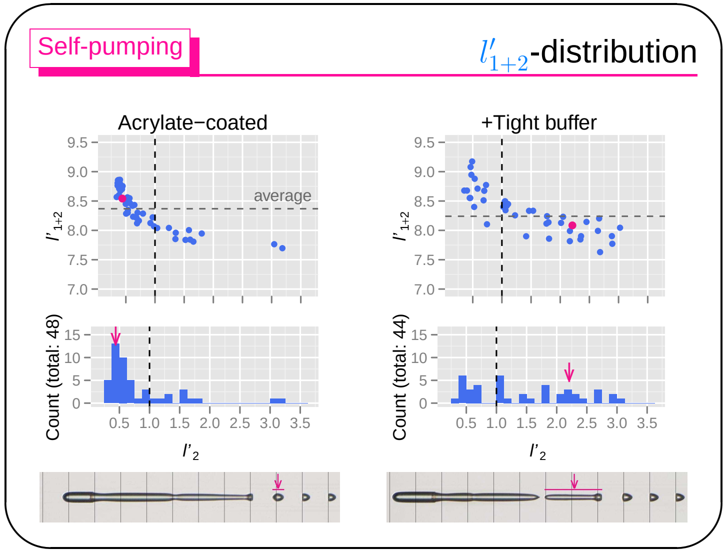
Slide 28



Slide 29



Slide 30



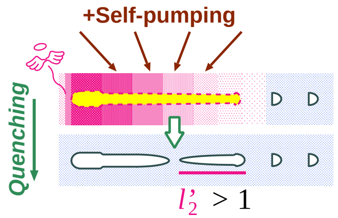
Slide 31

Self-pumping makes quenching time longer ...

- and promotes void separation

||

bridge formation



- A bridge appears only after the quench starts.

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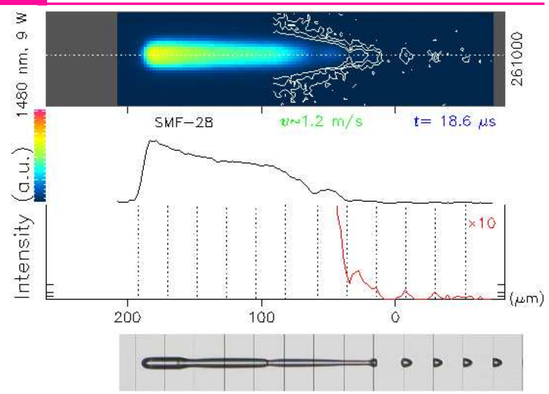
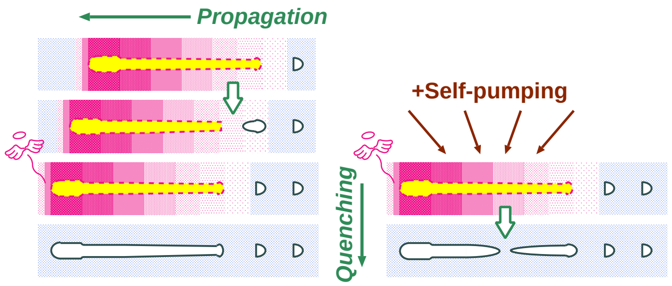
Self-pumping No bridge in "in situ image"



- Quenching promotes bridge formation.

Slide 33

Self-pumping Quenching during propagation



- Bridge formation

$\Longleftarrow$ Melt incl. a cavity being quenched

Slide 34

SUMMARY

Partially self-pumped fiber fuse propagation

Energy balance

Back-scattered visible emission possibly pumps a fuse.

Evidence

A self-pumped fuse leaves a stabilized void pattern.

Self-pumping

Longer quenching time promotes void separation.

Fiber coatings promote self-pumping: P_{th} ↘

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