Self-Clearing Channels

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Overview

- What is Self-Clearing?
  - Definition & Demonstration
  - Theories
- Recap
  - End-Goals
  - Last Semester's Work
- Current Progress
  - Paper Structure
  - Developments

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Definition & Demonstration

- Void components within a chip (channels, valves, etc..) will clear out given time
- Self-clearing is as effective in clearing out channels as flushing



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Theories

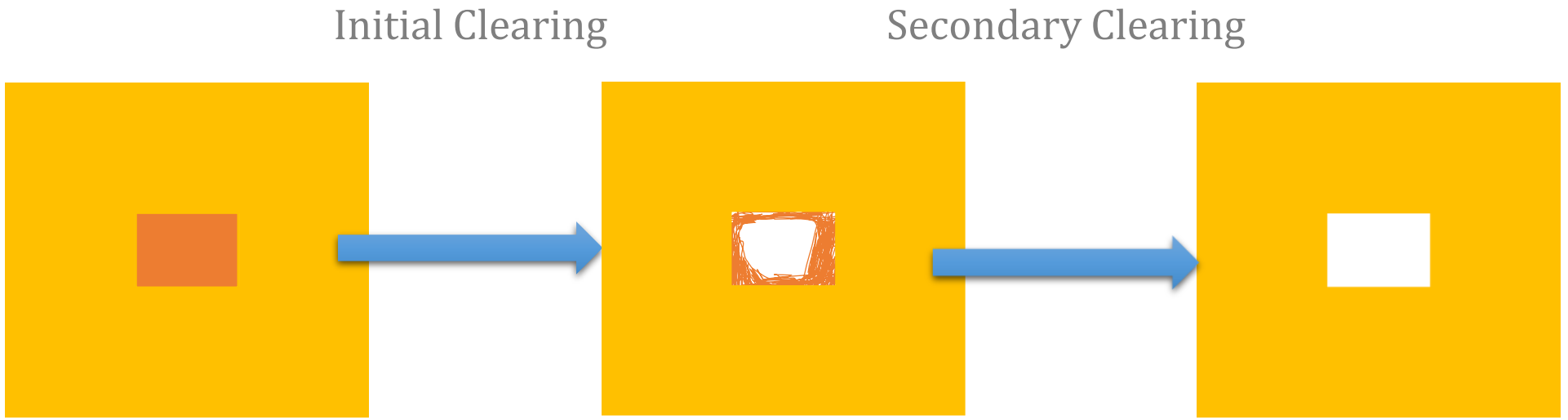
- Full Channel Clearing
- Resin Absorption

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Theories

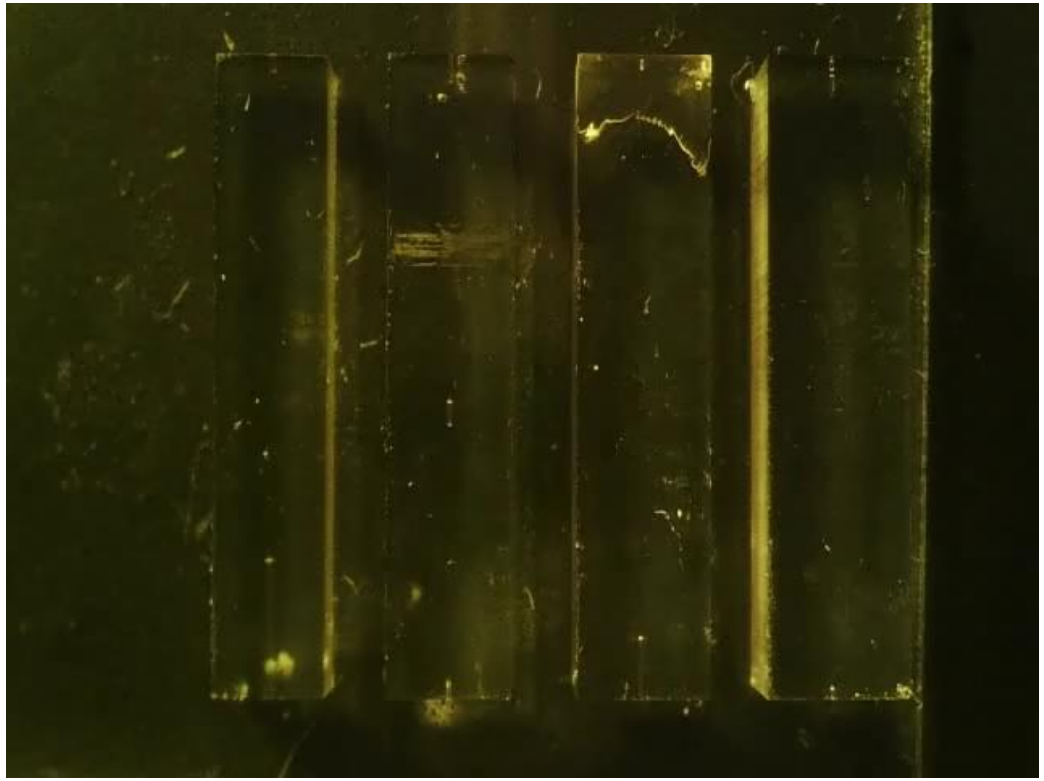
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Full Channel Clearing

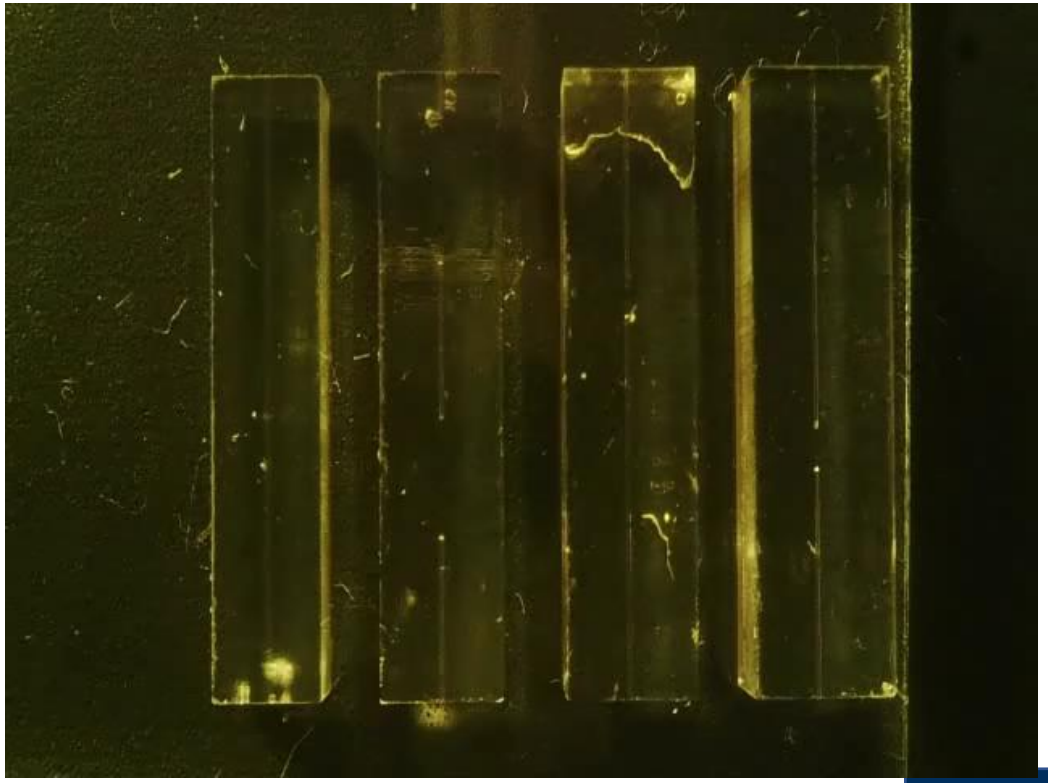


Full Channel Clearing

Initial Clearing



Secondary Clearing



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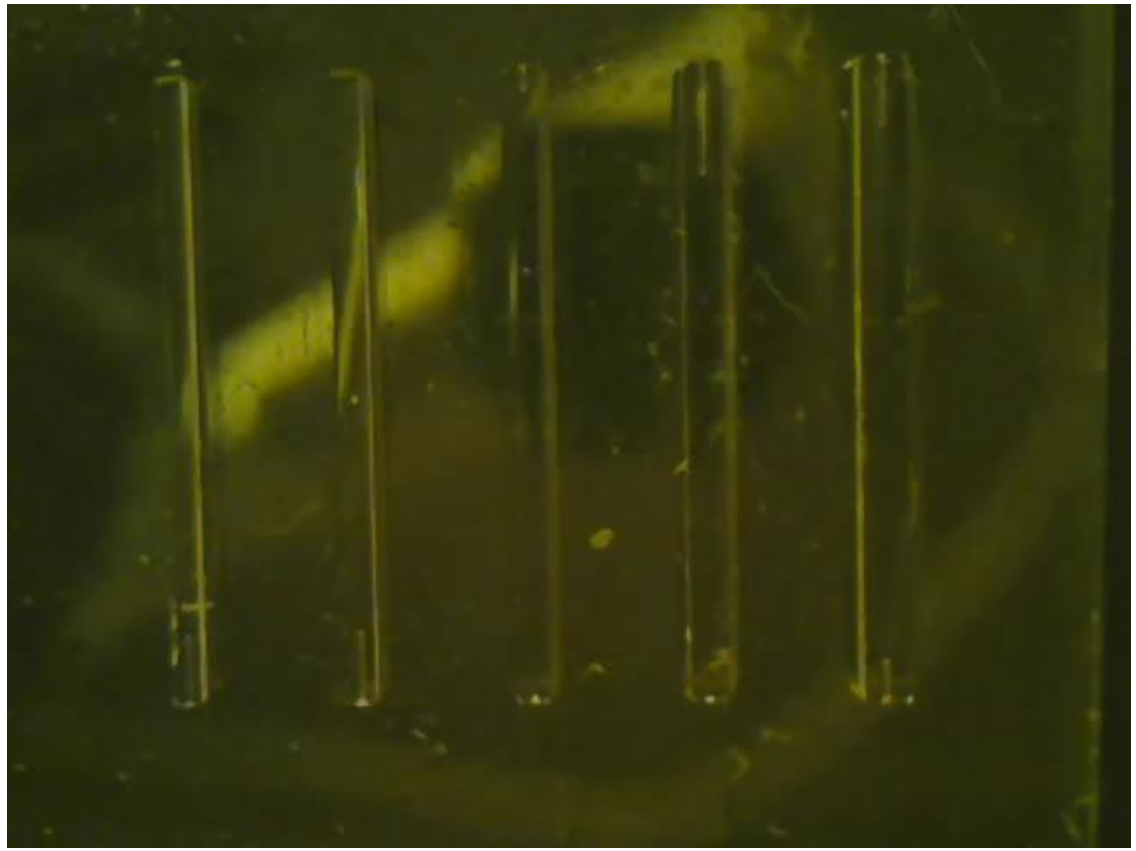
Theories

- Full Channel Clearing
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Resin Absorption

- Unpolymerized resin inside channels (voids) is absorbed by diffusion or other methods into the bulk of the chip



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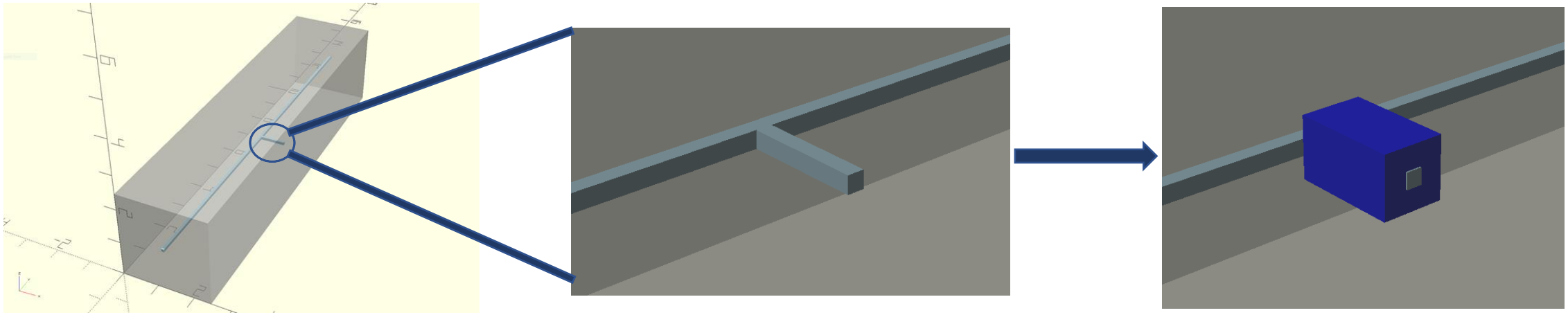
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End Goal



Squeeze Valve



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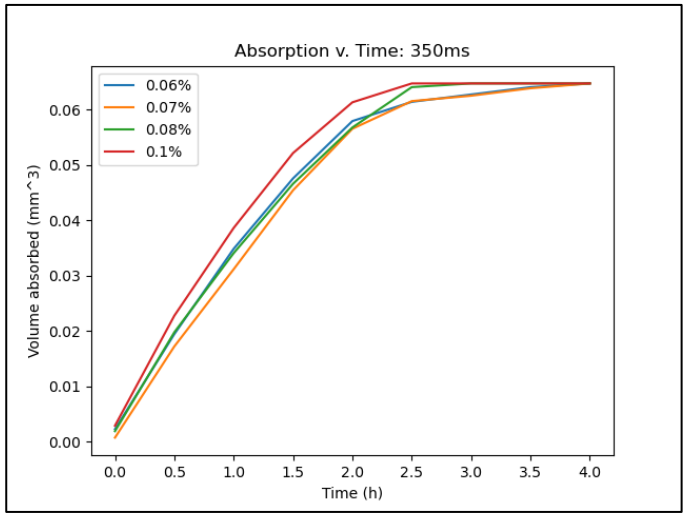
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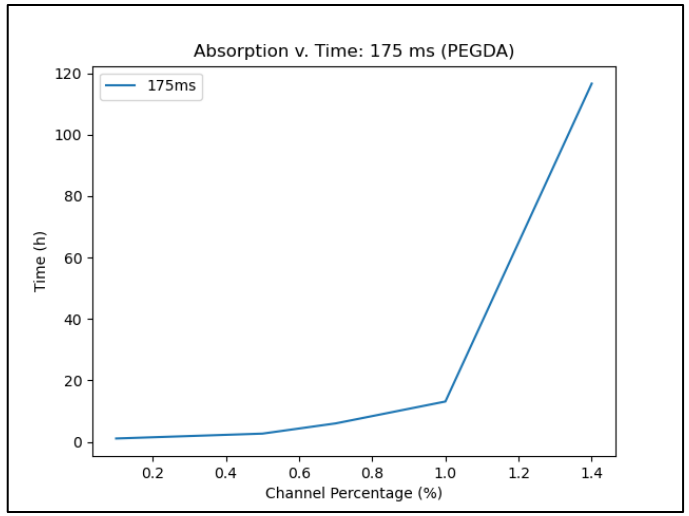
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Last Semester's Work

- Switched approach: *Channel Ratio (x) vs. Total Clearing Time (y)*, as opposed to *Time (x) vs Volume Absorbed (y)*
  - More encompassing for usage
  - More practical





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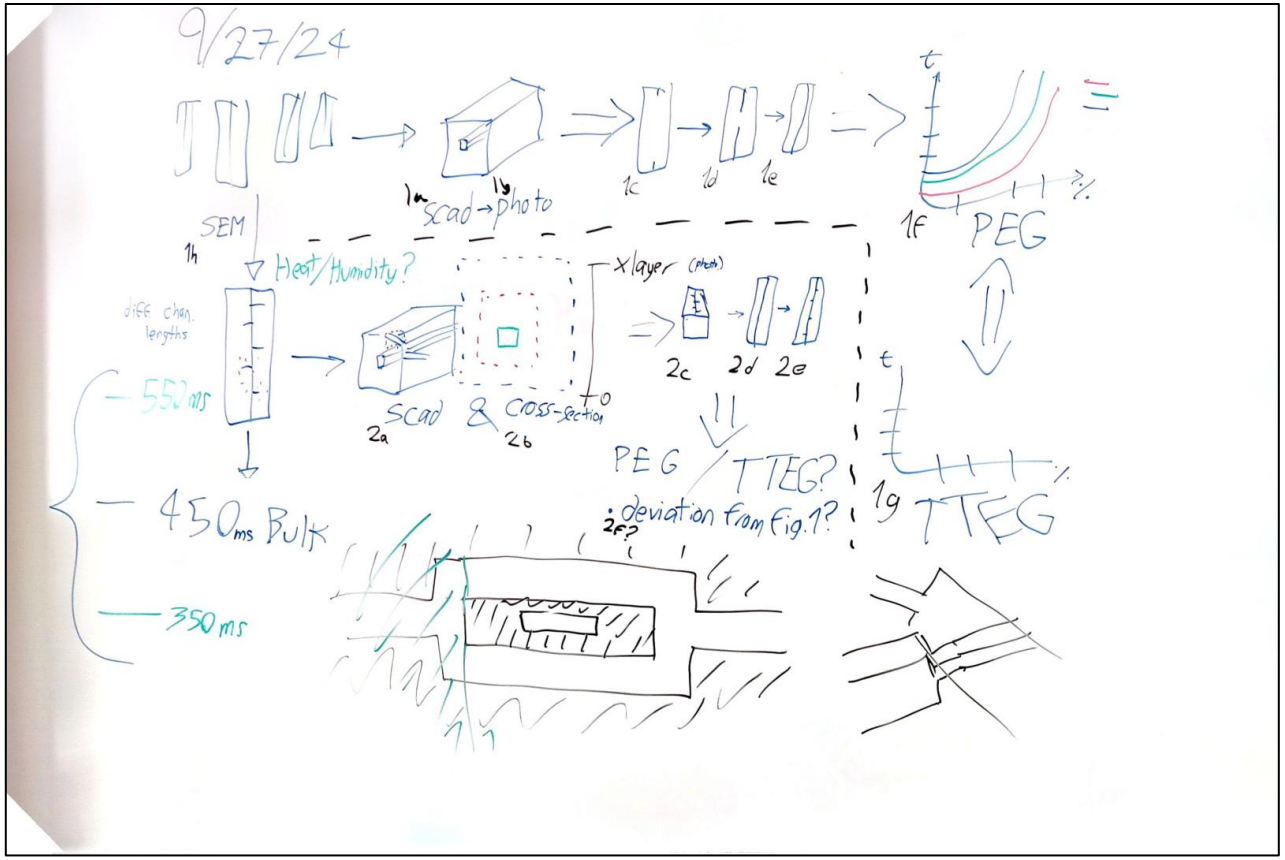
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Paper Structure

- Three Stages
  - Single Channel Clearing
  - Offshoot Channel Testing
  - Device Practicality and Effectiveness
- Gathering data for stage #1



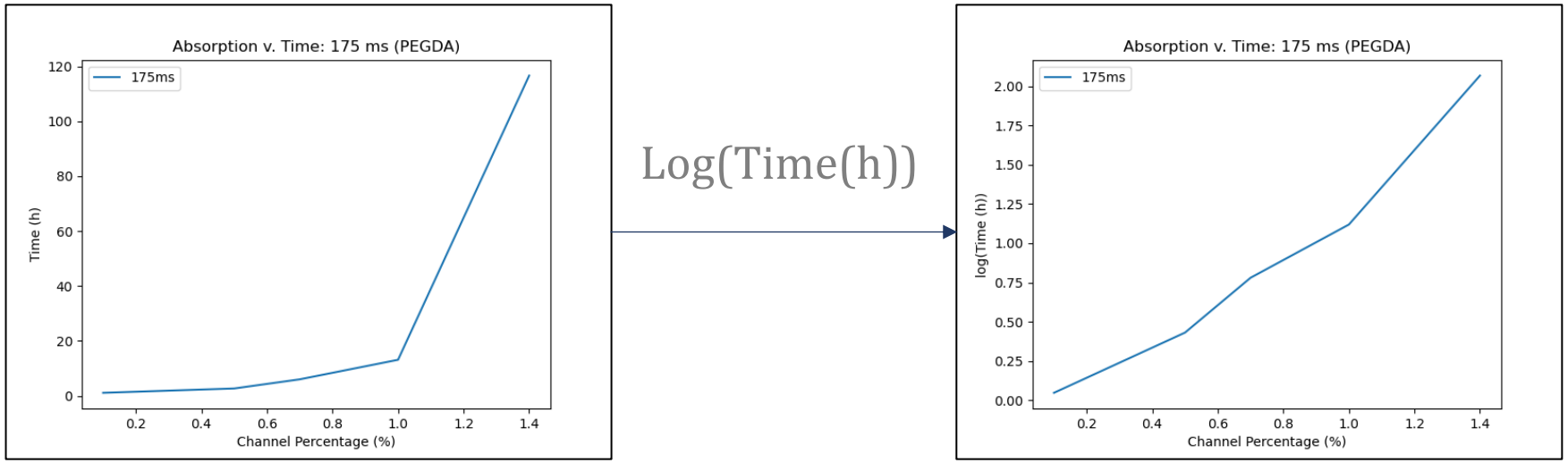
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Developments

- Potential Exponential relationship between channel ratio and clearing time
- Shorter Length testing
- To IPA or not to IPA



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THOUGHTS?