



Fabrication, transfer and optical characterization of few-layers MoS₂

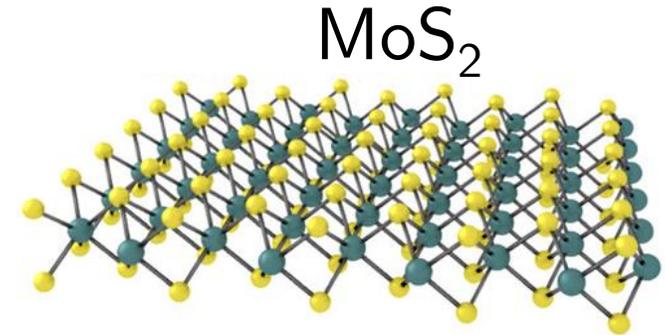
Aversa M., Gutierrez L., Boggiano H., Vega N., Comedi D., Bragas A., Grinblat G.

MoS₂ and our work

Transition Metal
Dichalcogenides
(MX₂)

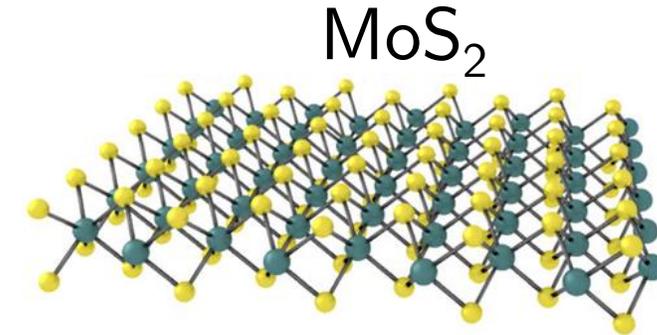
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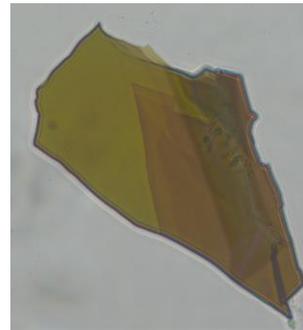
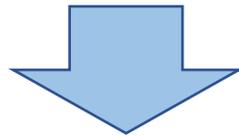


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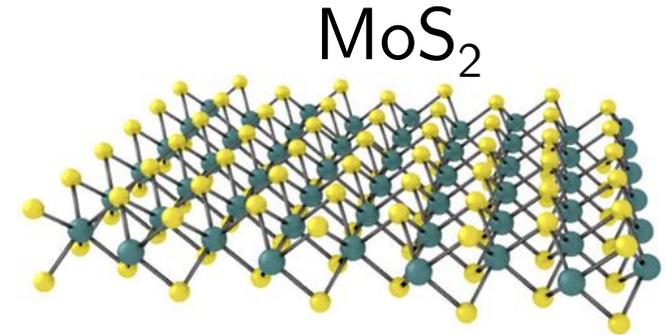
Mechanical
Exfoliation



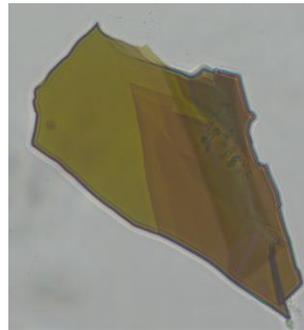
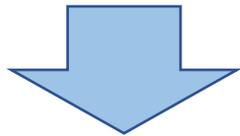
Atomically Thin
(Few – layers)

MoS₂ and our work

Transition Metal
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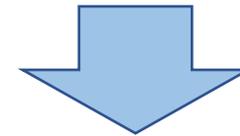
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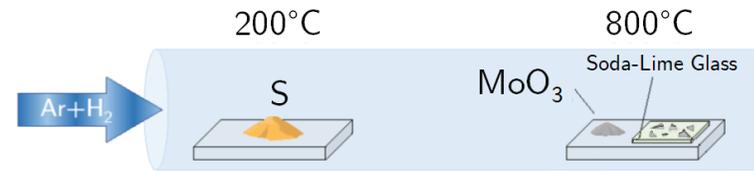
Direct Bandgap



PL and SHG
enhancement

MoS₂ and our work

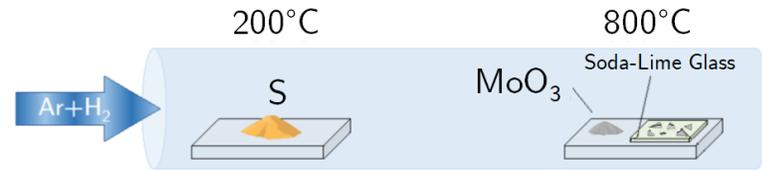
SYNTHESIS



Chemical Vapor Deposition (CVD)

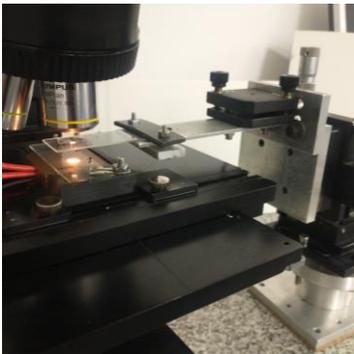
MoS₂ and our work

SYNTHESIS



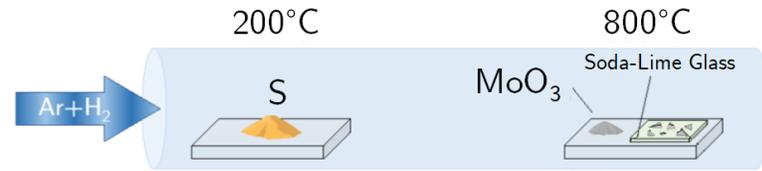
Chemical Vapor Deposition (CVD)

TRANSFER



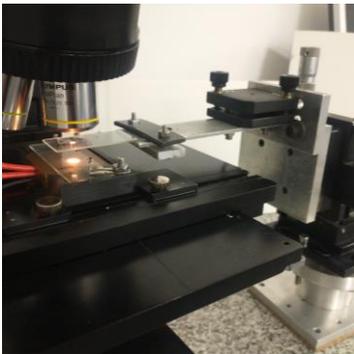
MoS₂ and our work

SYNTHESIS

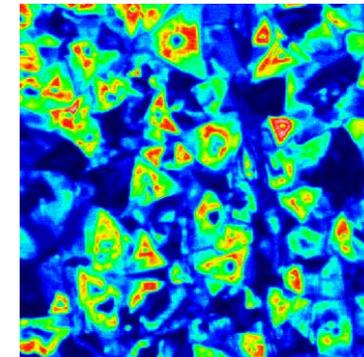


Chemical Vapor Deposition (CVD)

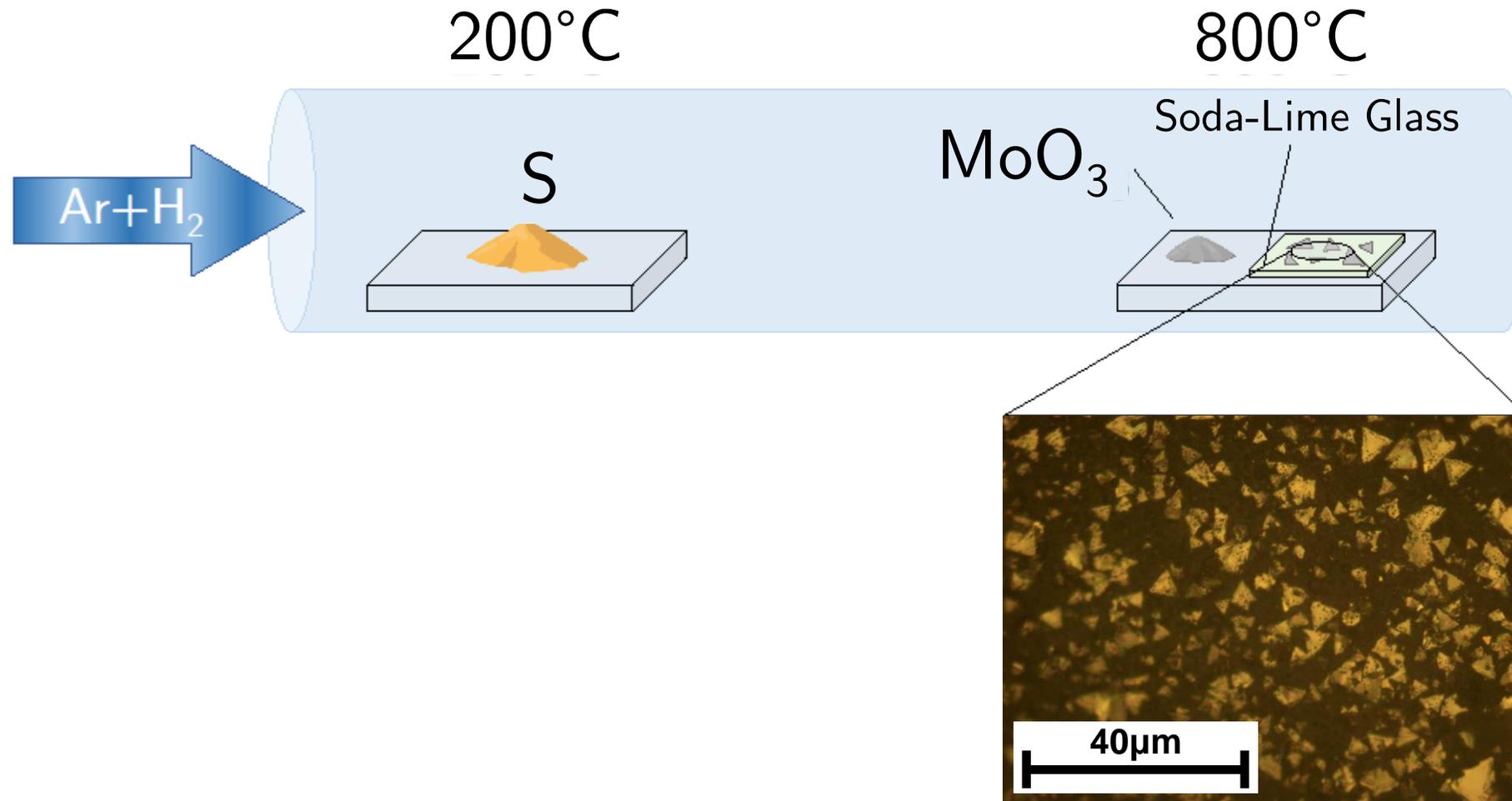
TRANSFER



CHARACTERIZATION



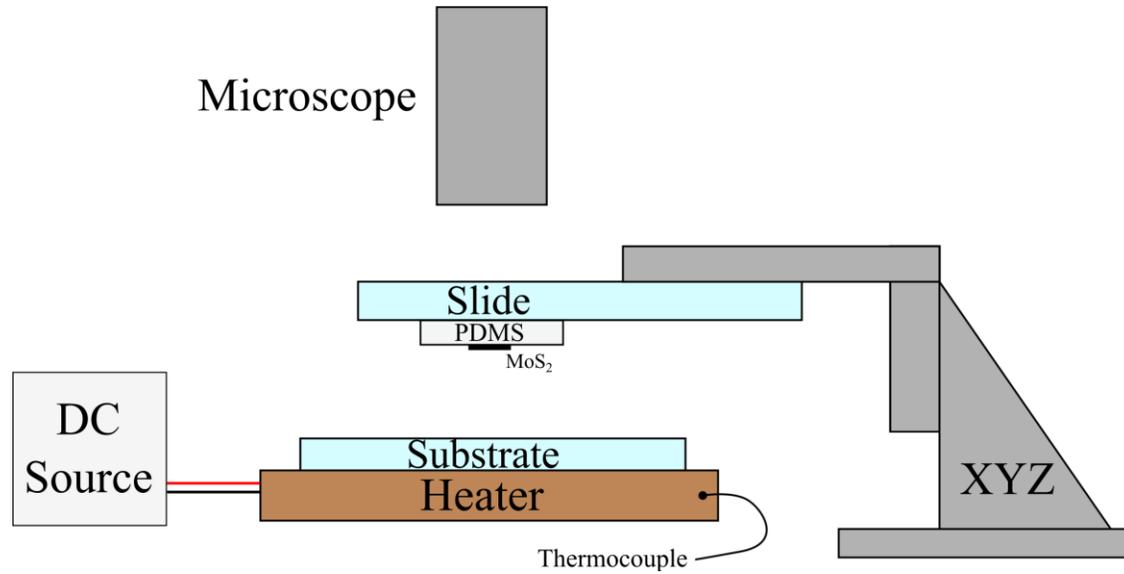
CVD growth



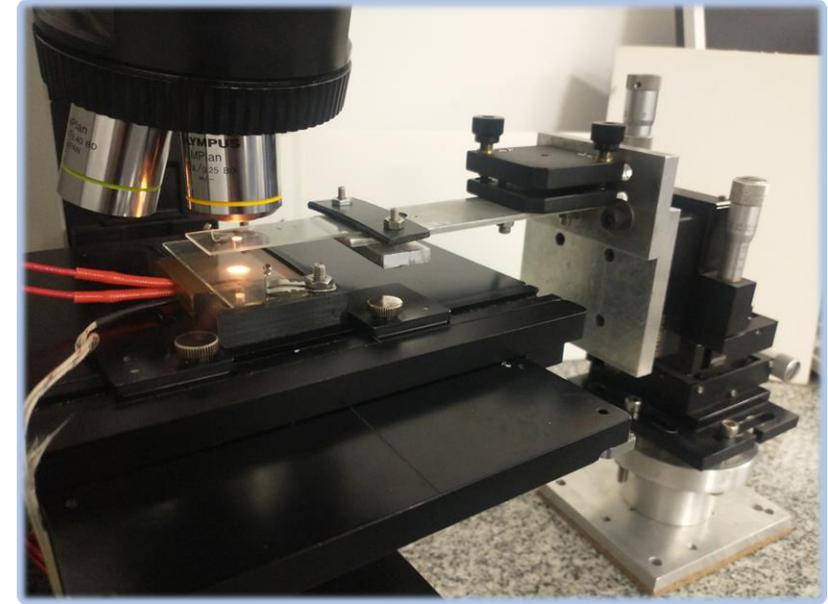
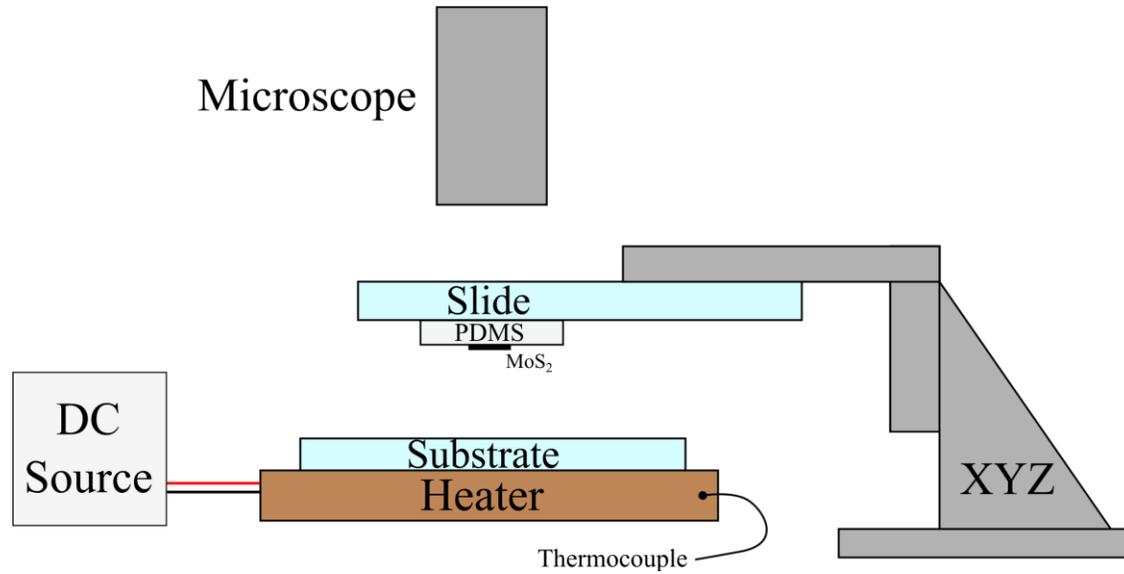
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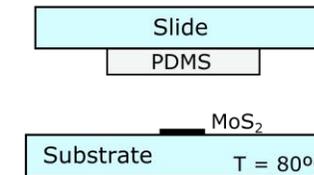
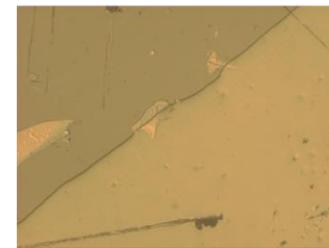
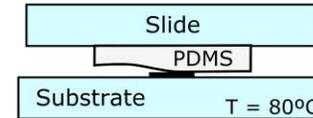
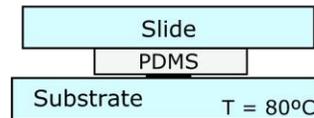
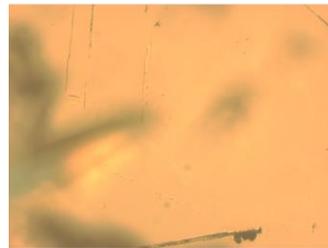
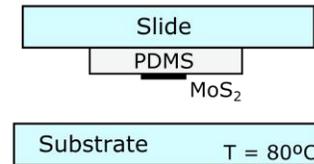
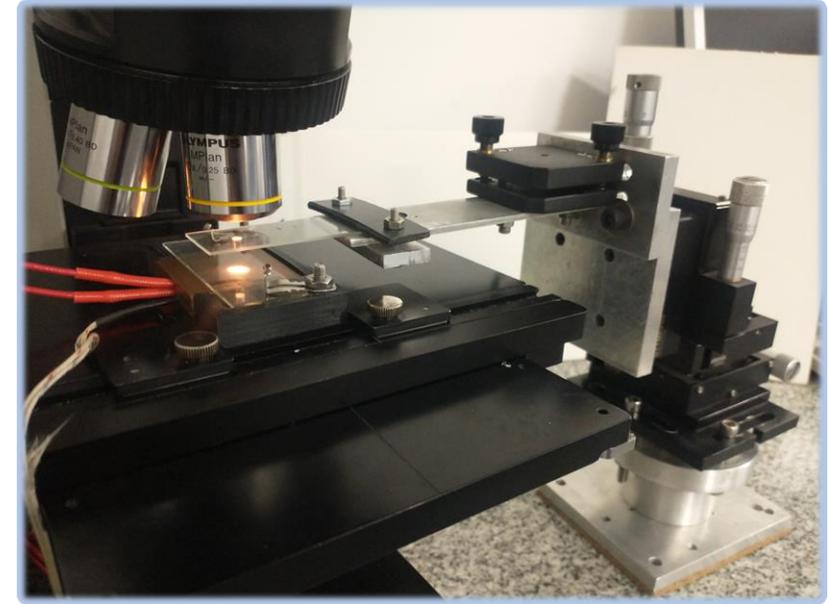
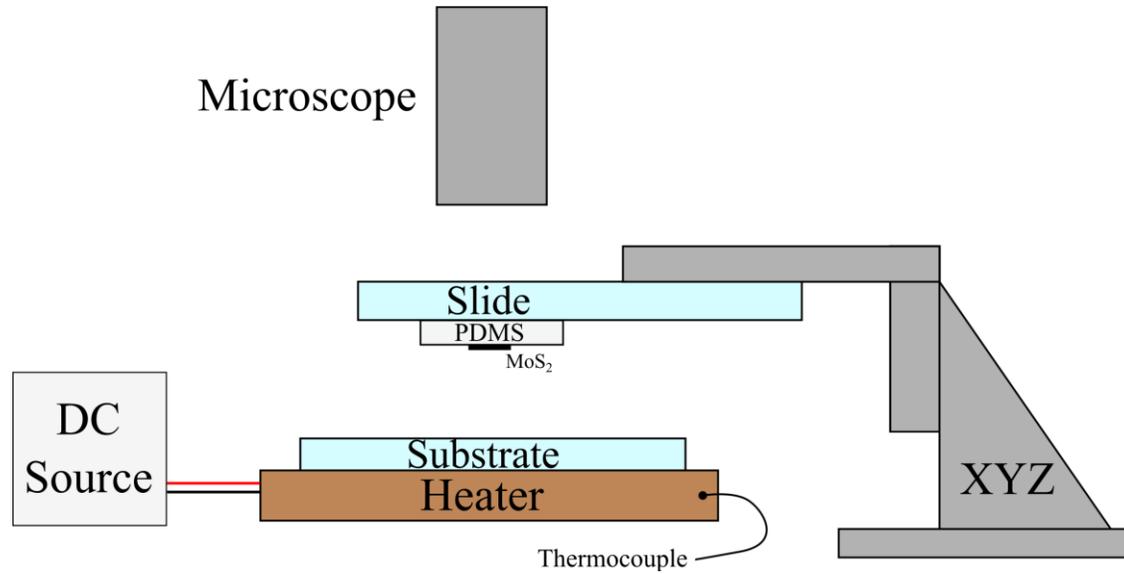
Transfer device



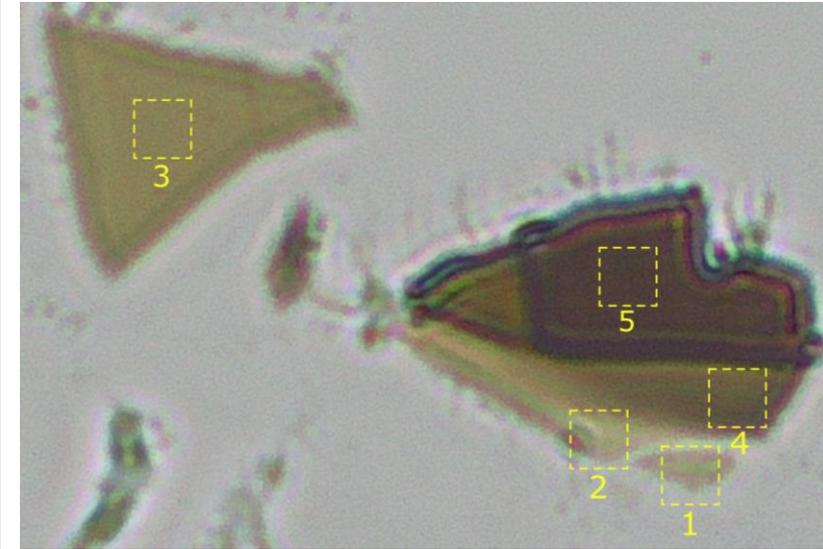
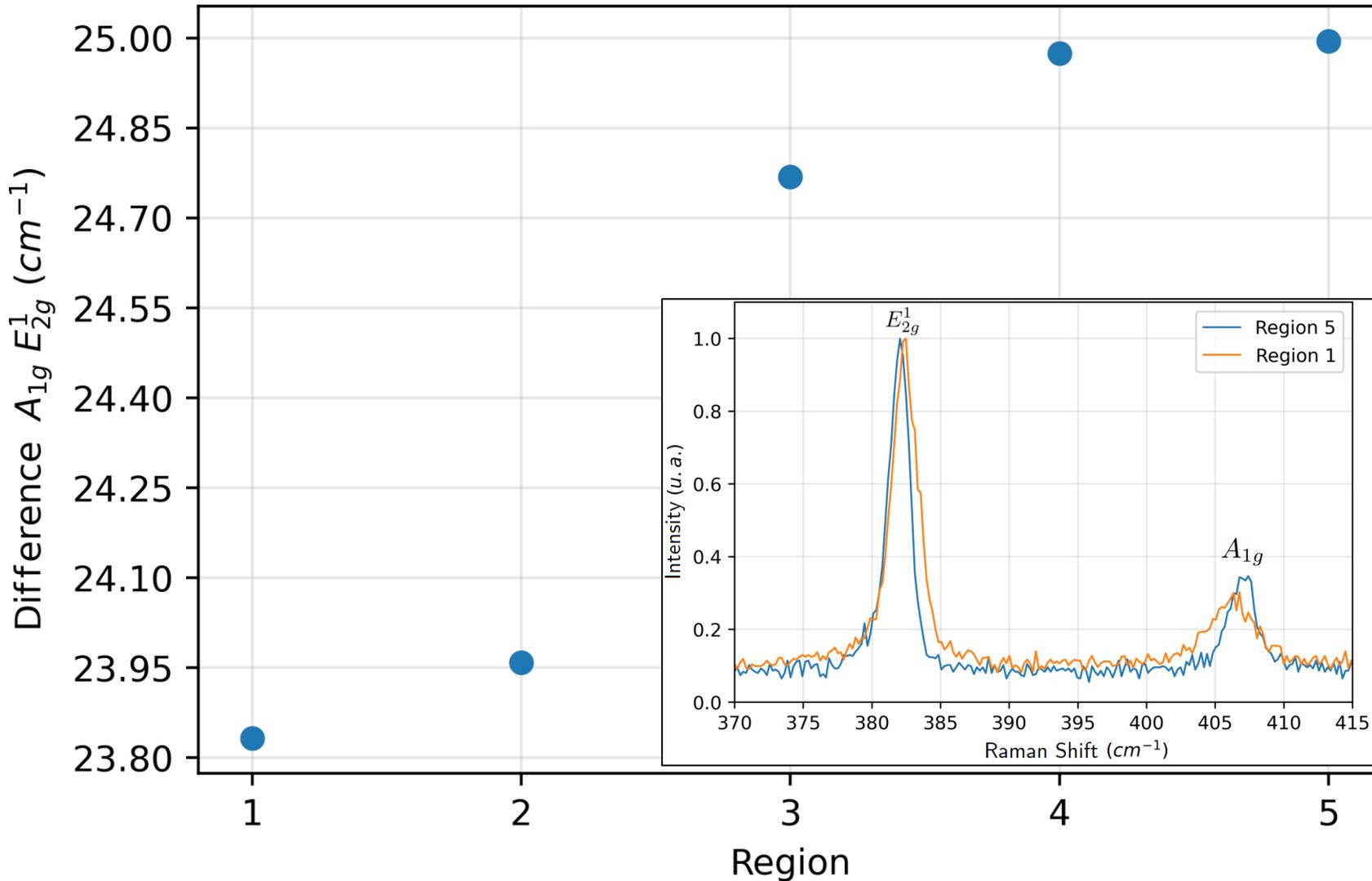
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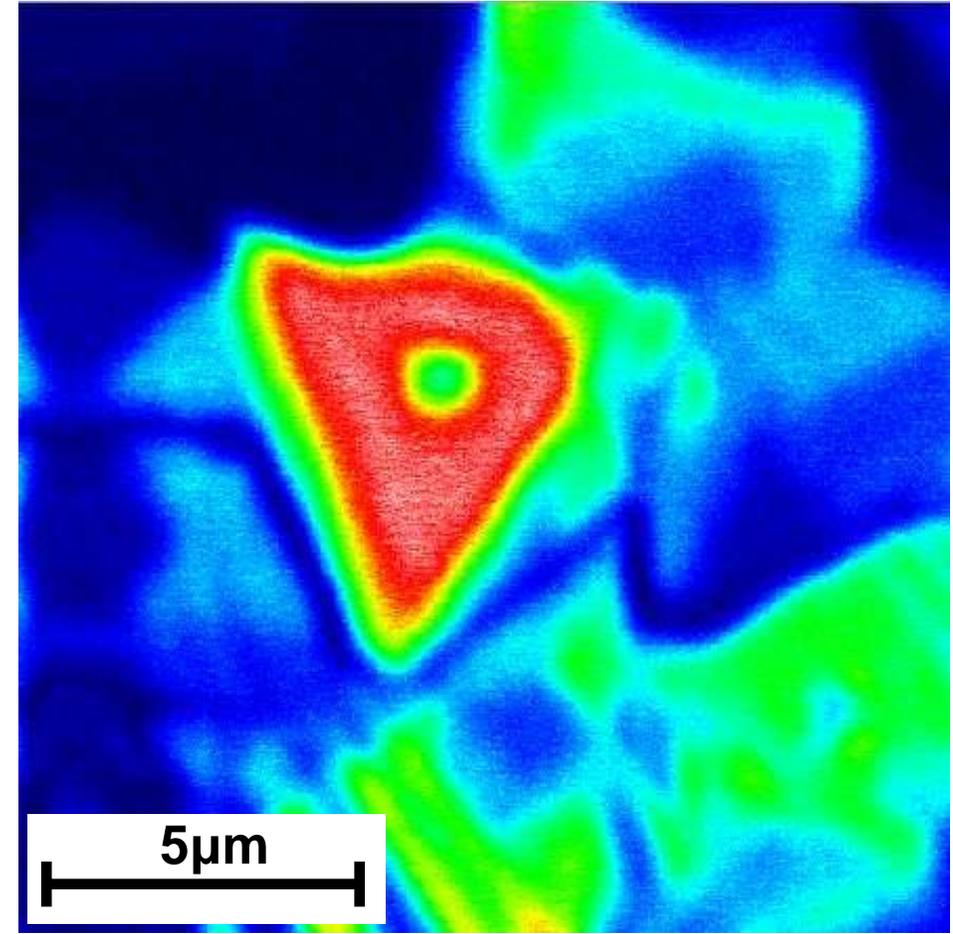
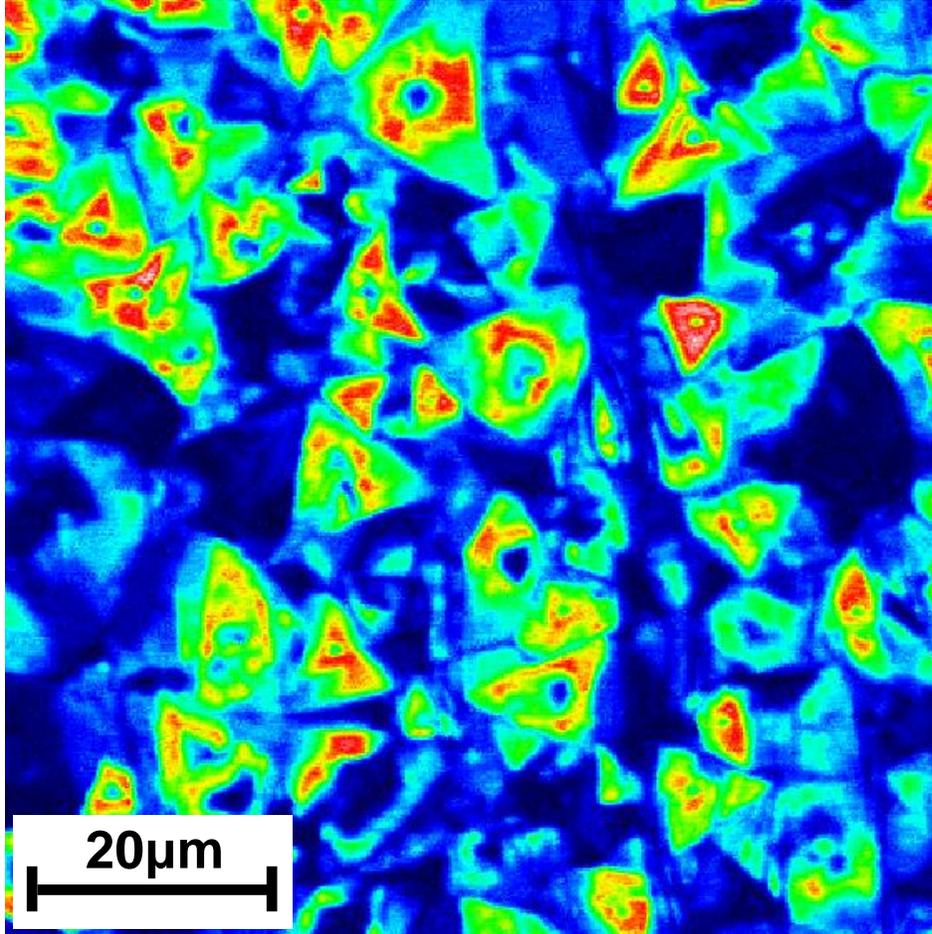
Transfer device



Characterization: Raman Spectroscopy

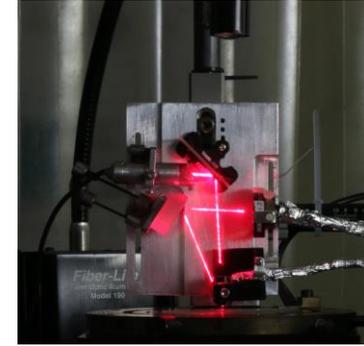


Characterization: SHG



Future Perspectives

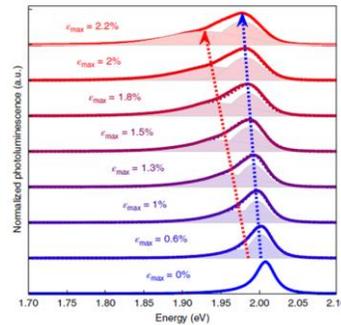
- Atomic Force Microscopy (AFM) calibration



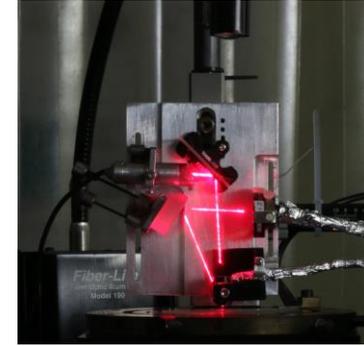
Future Perspectives

➤ Atomic Force Microscopy (AFM) calibration

➤ Strain modulation

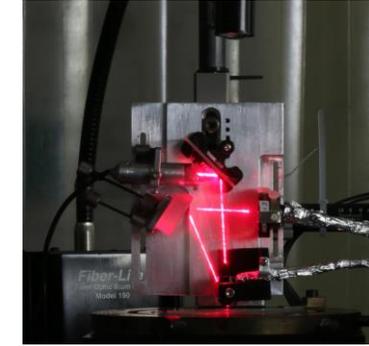


Harats et al
Nature photonics 2020

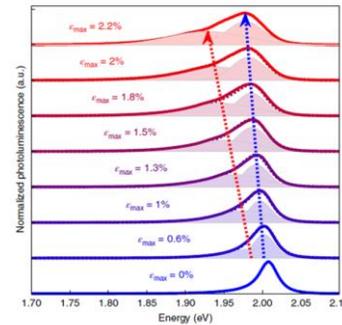


Future Perspectives

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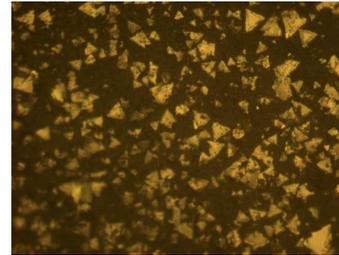


➤ Strain modulation



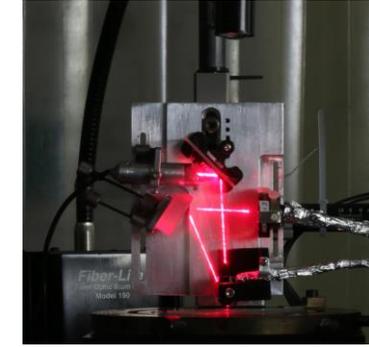
Harats et al
Nature photonics 2020

➤ Improve CVD samples

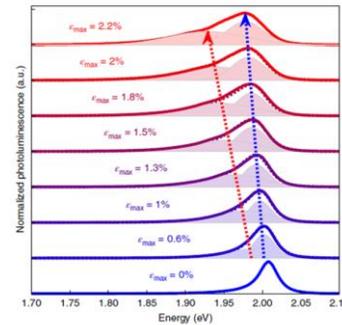


Future Perspectives

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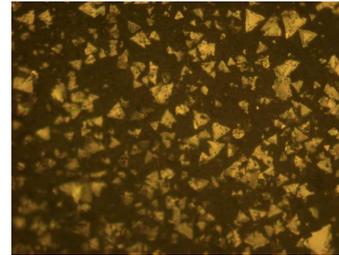


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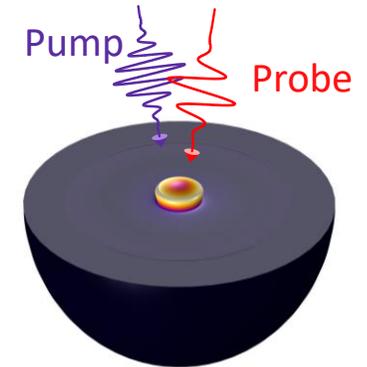


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Nature photonics 2020

➤ Improve CVD samples



➤ Hybrid Systems and Pump-Probe characterization

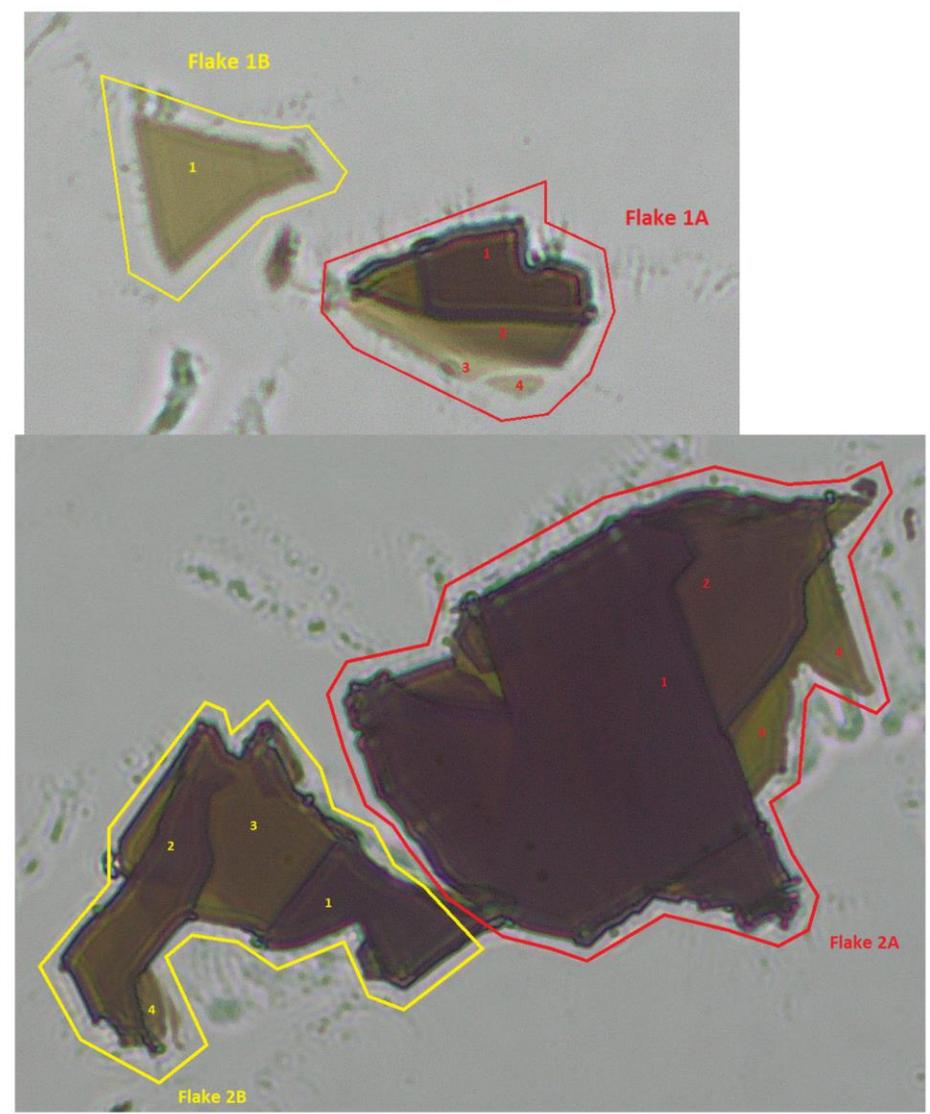
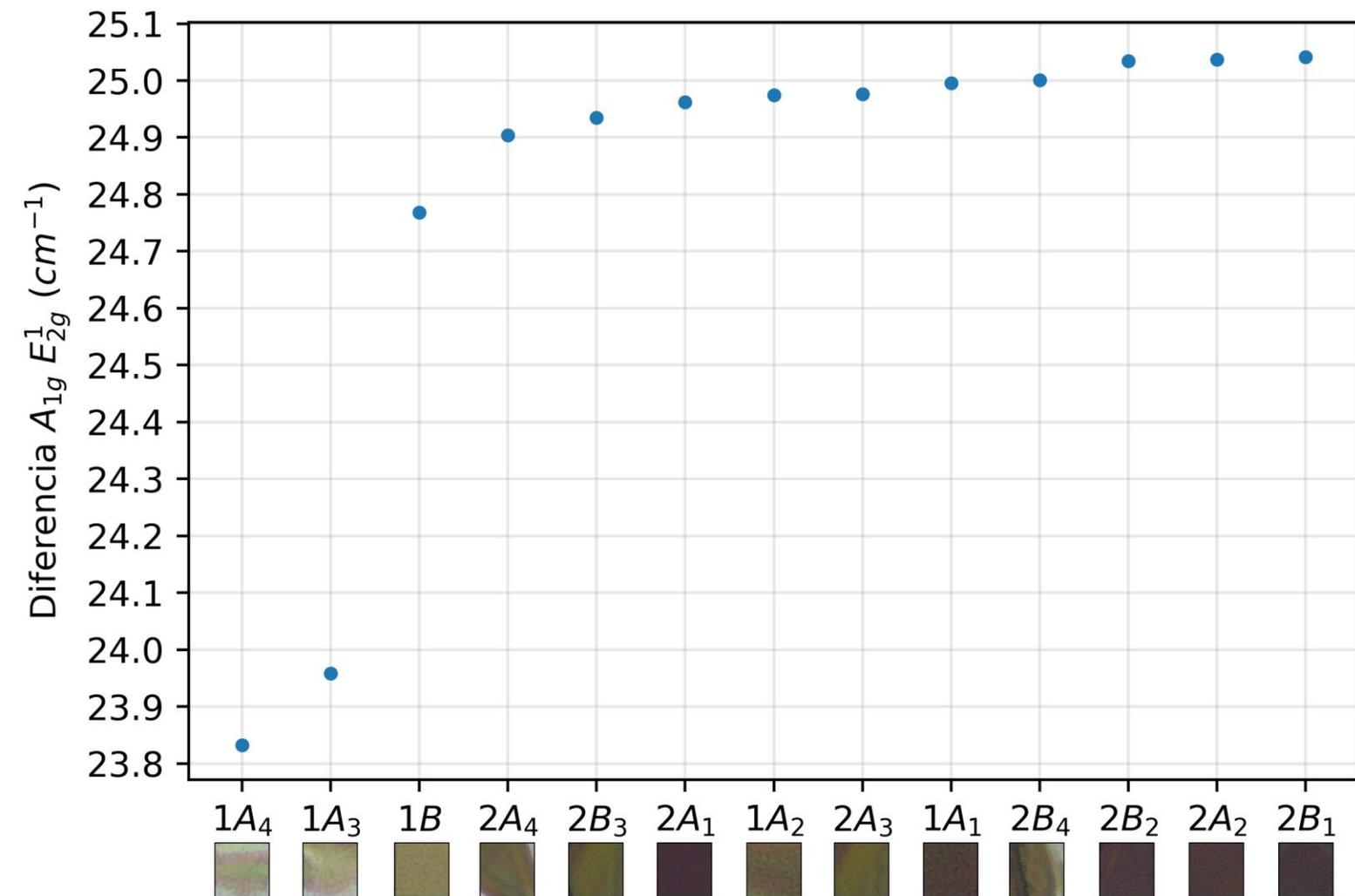


The end

i THANKS!

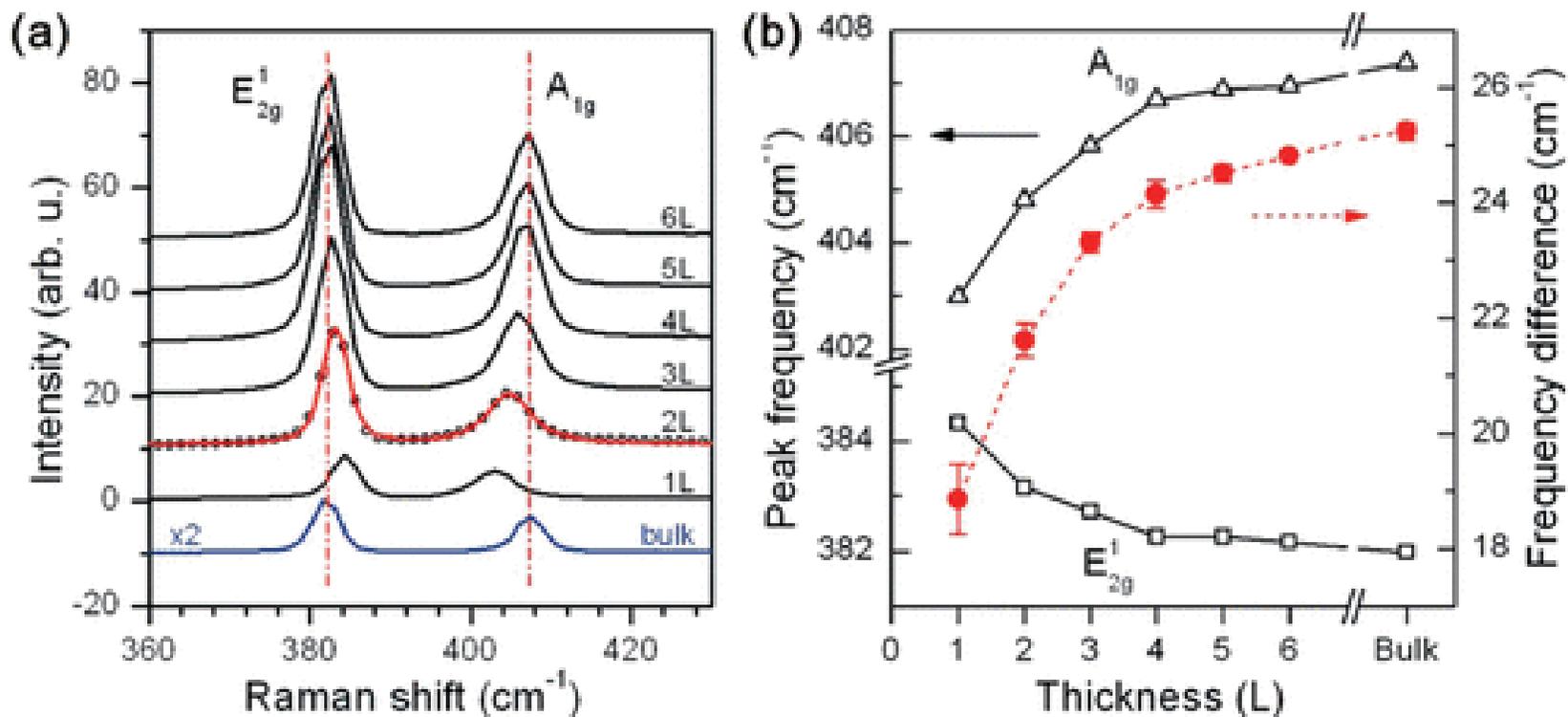
Questions?...

EXTRA 1: RAMAN FULL



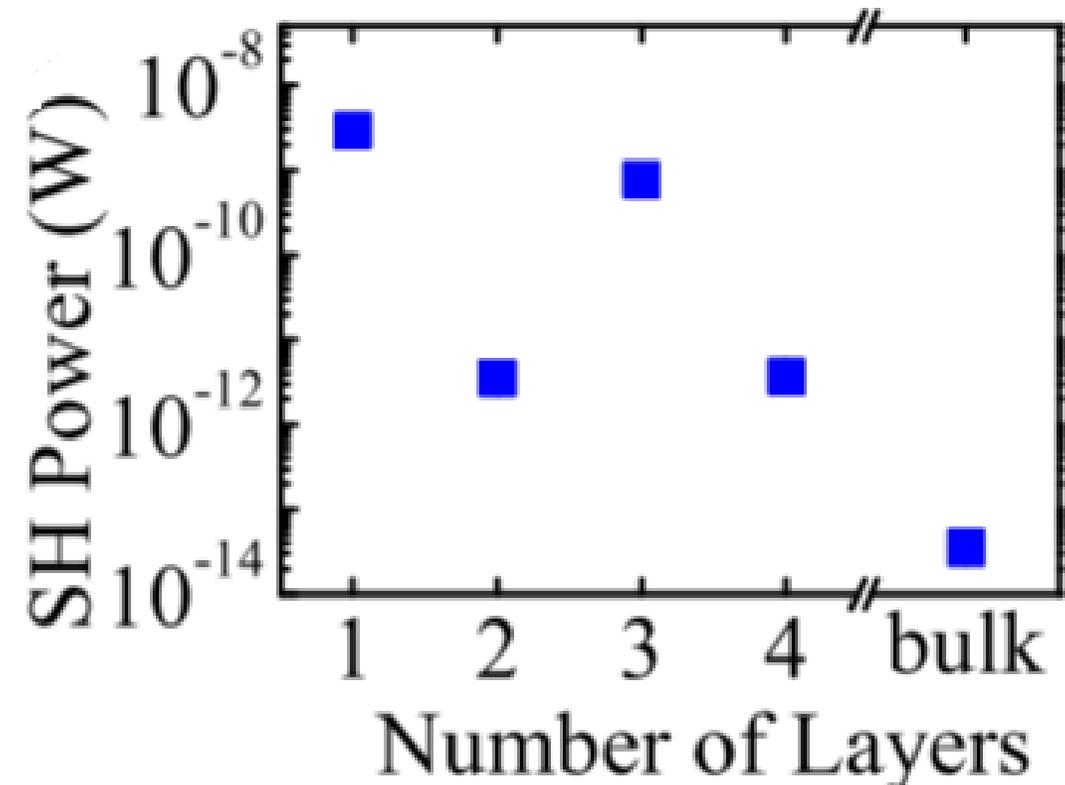
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EXTRA 2: RAMAN DIFFERENCE CALIBRATED

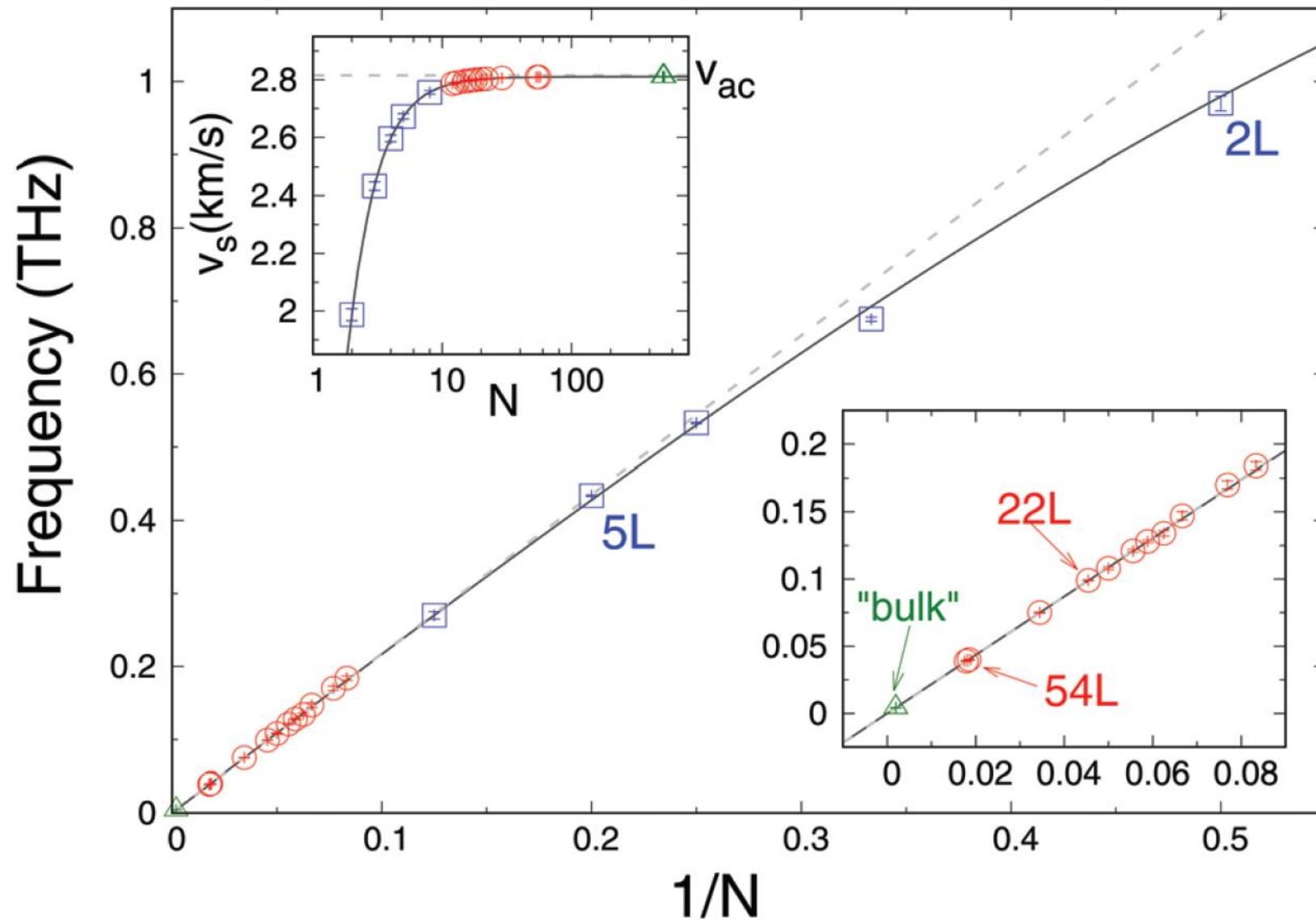


Lee et al – ACS Nano 2010

EXTRA 3: SHG POWER



EXTRA 4: PUMP PROBE FREQUENCIES



Soubelet et al
Nanoscale 2019