

2D Detector Datasheet

Model: SLG2

25. 7. 25

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1. MoS₂ sample

Preparation Process of MoS₂ Sample

1. Prepare a wafer cleaned sequentially with acetone, IPA, and DI water for 10 minutes each.
2. Attach the MoS₂ exfoliated mechanically 4–5 times on tape to the wafer, then place it in a vacuum chamber for at least one hour. Remove the tape afterward.
3. Keep the sample in the vacuum chamber for over an hour, then remove the tape. *Type of tape used:* Blue tape with lower adhesive strength than Scotch tape.

Results: Scan 1 (overnight)

Substrate Size: 40x50mm²

Scan Conditions: (RGB values represent contrast. The RGB values were adjusted to maximize the test score of the directly identified 2D MoS₂.)

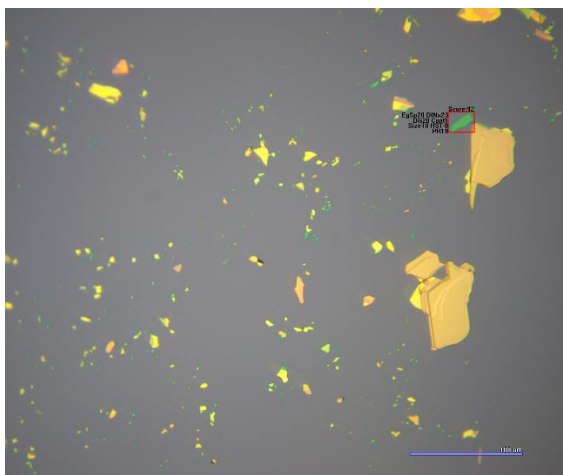
R	G	B	TOLERANCE	TEST SCORE**	Minimum SIZE***
-62%	30%	2%	35%	N/A	100 um ²

** Score Recognized by the Machine

***Setting value

Number Detected	Correctly Detected	Incorrectly Detected
11	11	0

Representative Detection results



Results: Scan 2

Substrate Size: 40x50mm²

Scan Conditions: (RGB values represent contrast, and the RGB values were adjusted to maximize the test score for the directly identified 2D MoS₂.)

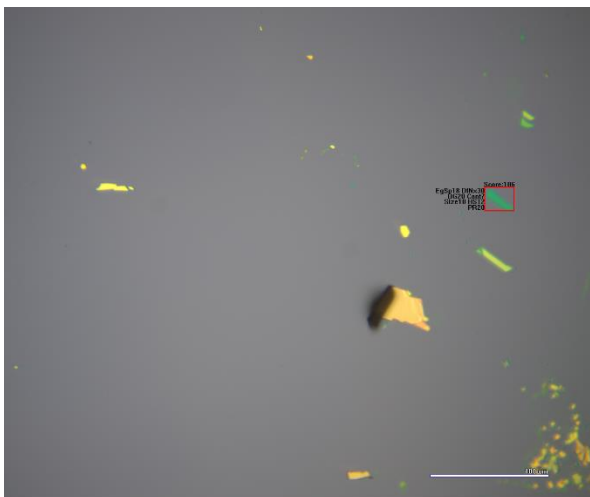
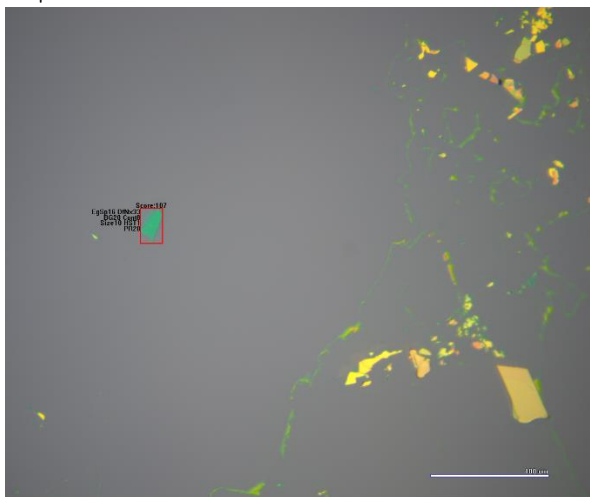
R	G	B	TOLERANCE	TEST SCORE**	Minimum SIZE***
-52%	43%	2%	25	50	100 um ²

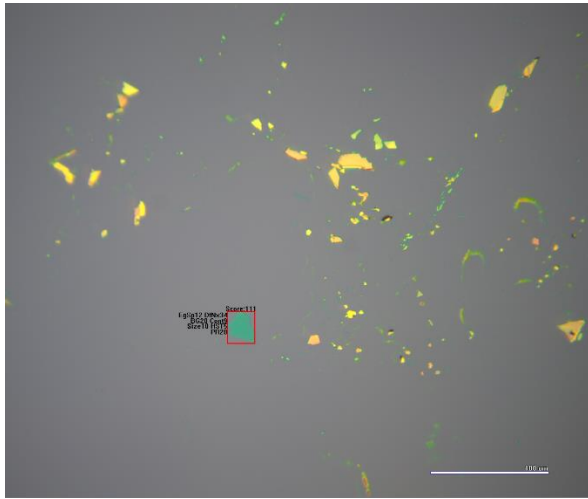
** Score Recognized by the Machine

***Setting value

Number Detected	Correctly Detected	Incorrectly Detected
6	6	0

Representative Detection results





2. hBN sample

– Preparation Process for hBN Sample

1. Prepare ITO glass (ensure the front side is the one with resistance).
2. Prepare PVA (mix 100g DI water + 13g PVA, stir the mixture at 80°C and 200rpm for 24 hours).
3. Coat the ITO glass with PVA four times (coating conditions: 700rpm for 10s, 2000rpm for 40s → bake at 110°C for 60s → cool).
4. After applying PVA four times, coat the ITO glass with PMMA twice (coating conditions: 700rpm for 10s, 2000rpm for 40s → bake at 110°C for 60s → cool).
5. Once PVA has been applied four times and PMMA twice, attach Scotch tape to the edges.
6. Mechanically exfoliate HBN onto the Scotch tape, attach it to the prepared substrate, bake at 110°C for 5 minutes, and then remove the tape.

Scan

Substrate Size: 50x50mm²

Scan condition:

R	G	B	TOLERANCE	SCORE*	Minimum SIZE**
0.7%	4.2%	0.7%	3.0%	45.0	300 um ²

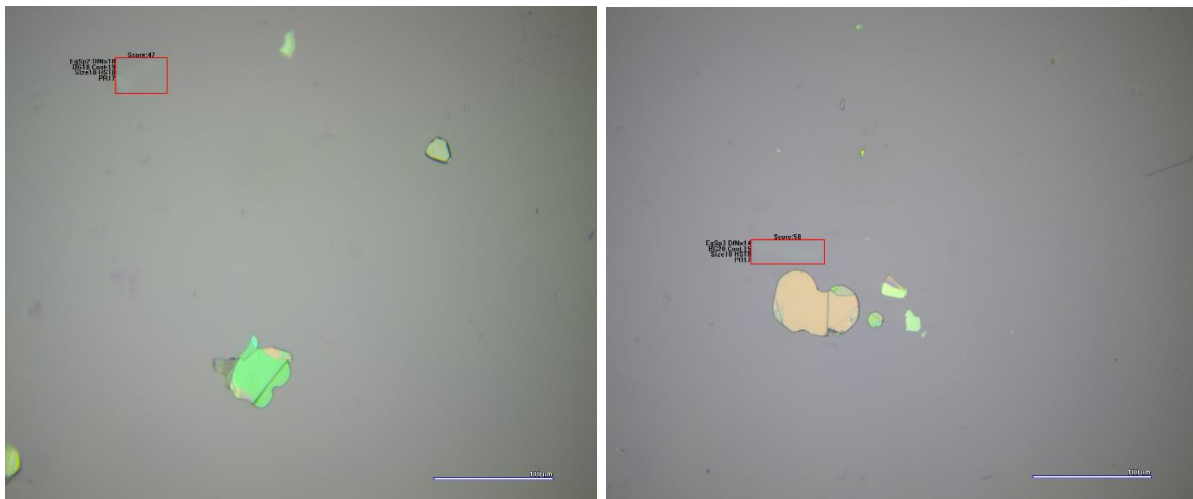
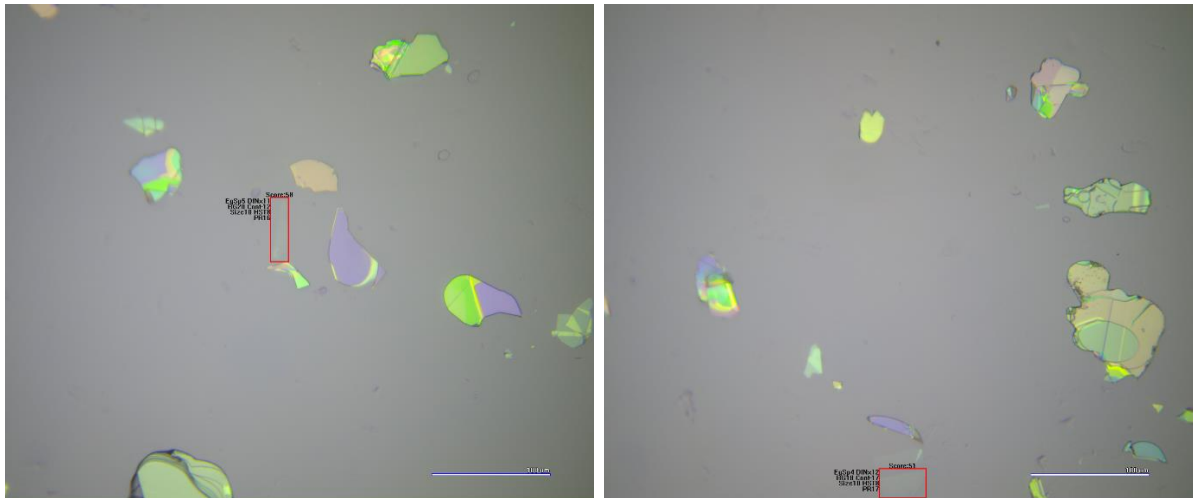
** Score Recognized by the Machine

***Setting value

Results:

Number Detected by the Machine	Correctly Detected	Incorrectly Detected
7	7	0

Representative Detection results



No incorrect detections were found, as shown in the image.

Results of Scan

- Setting the minimum size to 300 μm^2 yields meaningful flake sizes.
- Adjusting the tolerance to between 5% and 10% improves the target score, enabling more accurate flake detection.
- hBN is very difficult to detect visually; therefore, preparing larger samples and utilizing this equipment for automated detection is effective.