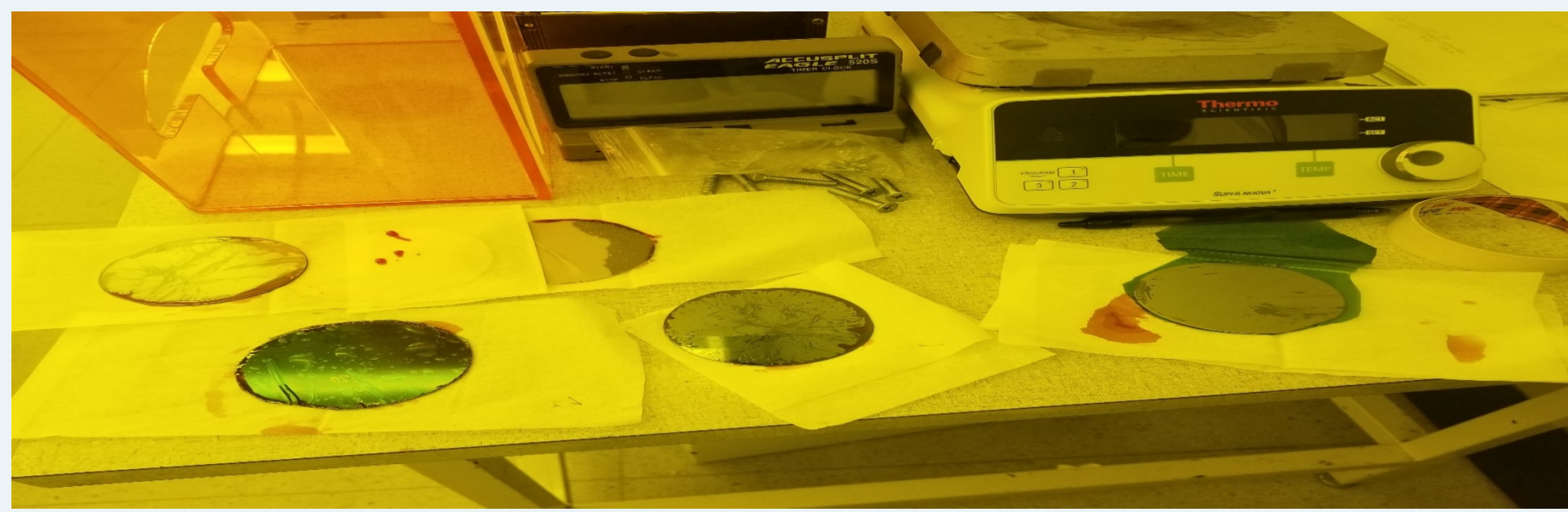
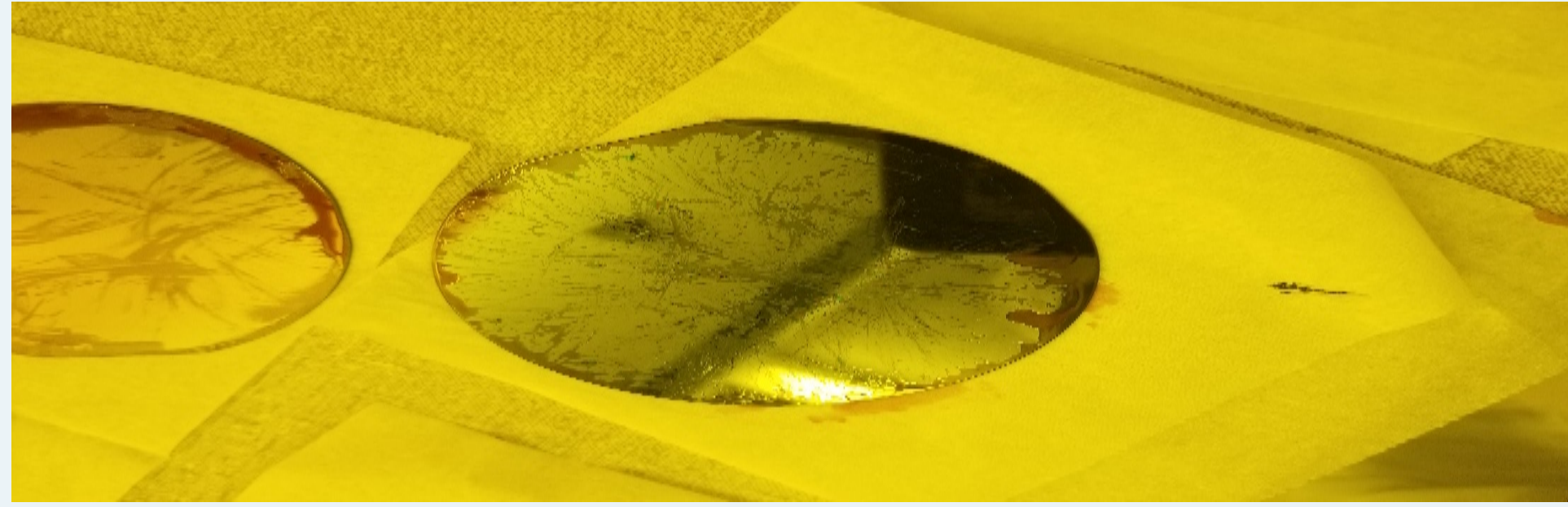


Double-Sided Silicon Wafer Protection

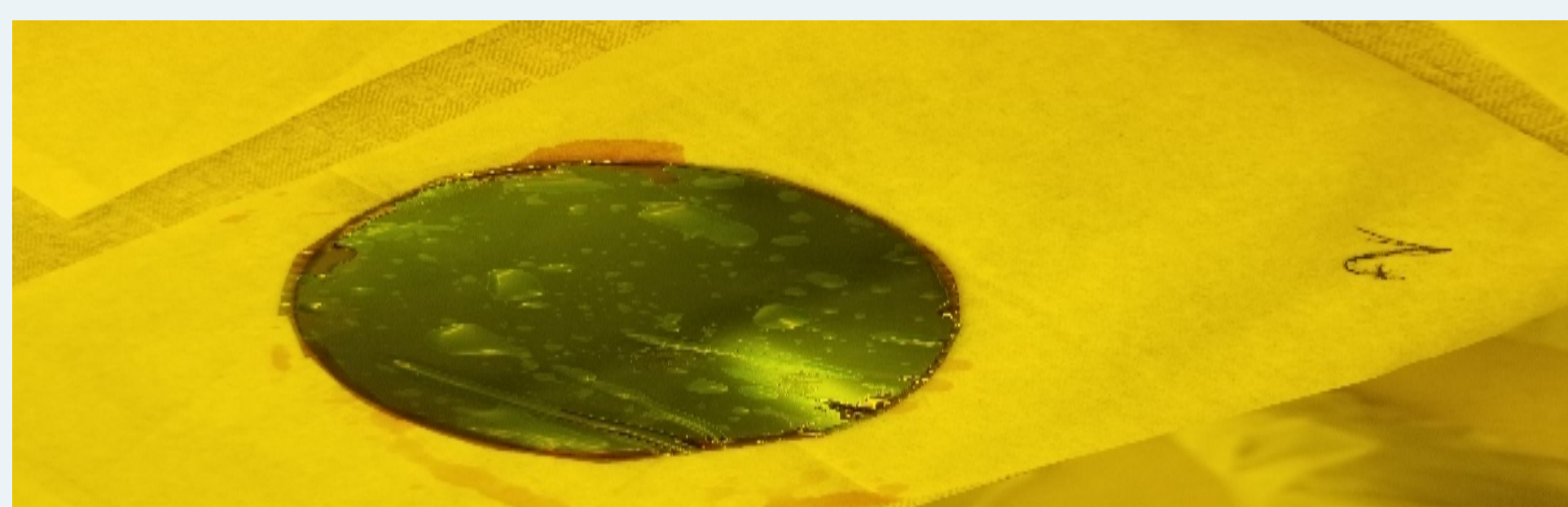
Authors: Dibiz Kansakar, Olabode Ajayi, and Rebecca Horak



Display of all the silicon wafers used in the experiments



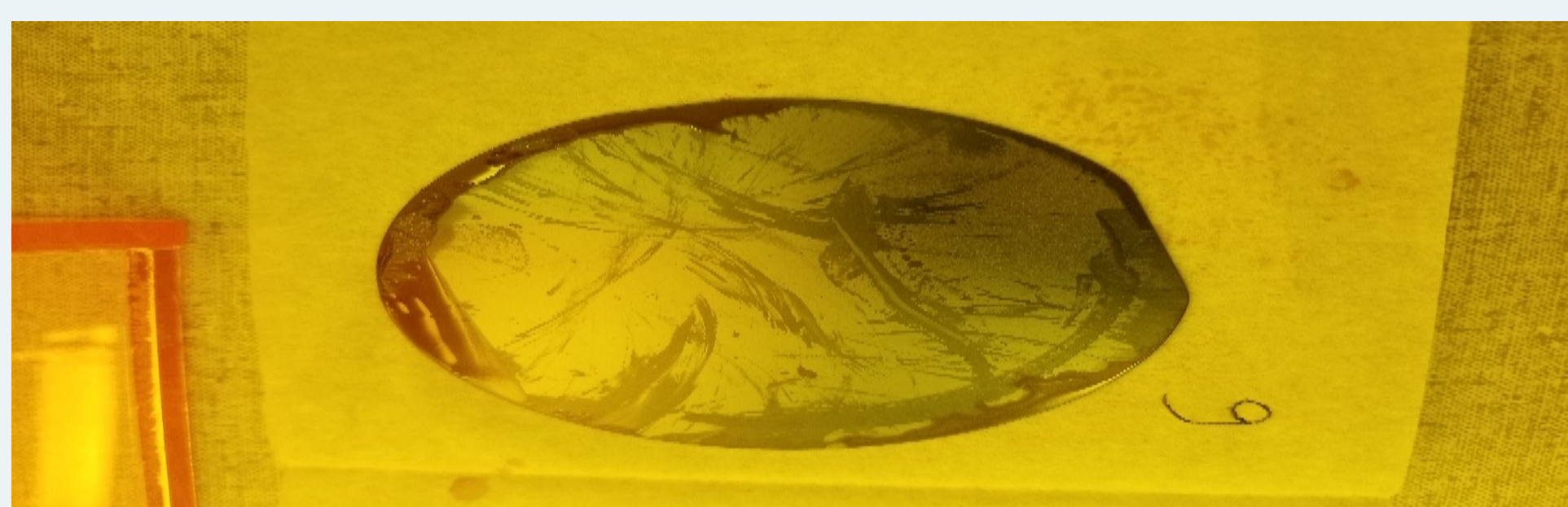
Test 1: Using photoresist and protecting the shiny side of a silicon wafer (not using the Parafilm properly). The photoresist process worked until 2000RMP, and then it fell off the center plate. (Parafilm)



Test 2: Using photoresist and protecting the shiny side of a silicon wafer. The photoresist process worked until 2000RMP, and then it fell off the center plate. (Film)



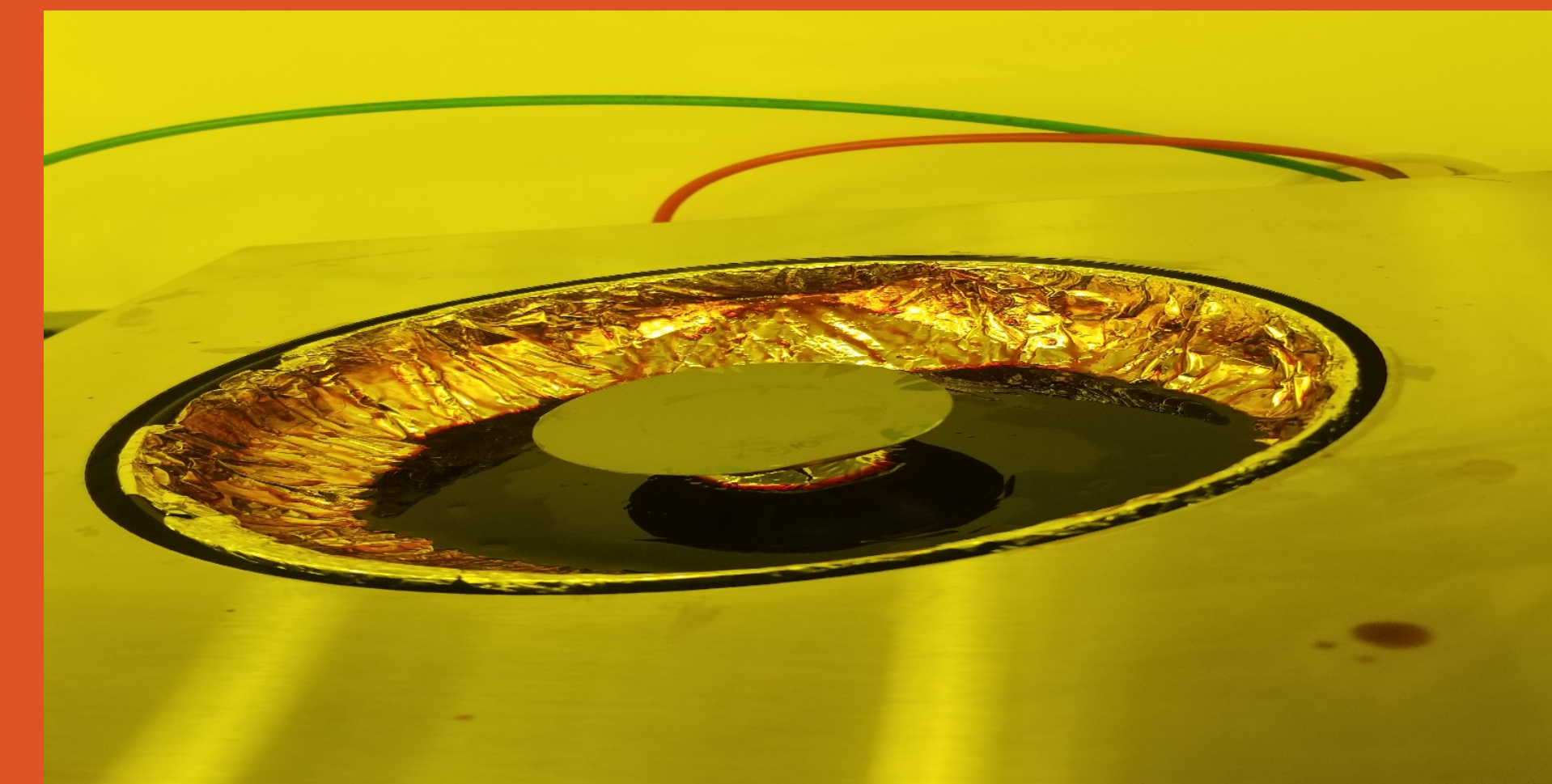
Test 5: Not using photoresist and protecting the shiny side of a silicon wafer using a double-sided sticking technique. The photoresist process worked until 1600RPM, and then it fell off the center plate. (Film)



Test 6: Using photoresist and protecting the rough side of a silicon wafer (not using the Parafilm properly). The photoresist process worked until 1400RPM, and then it fell off the center plate. (Parafilm)



Front Panel of Photoresist Spinner



Silicon Wafer on the Photoresist Spinner

Goal:

Compare using Parafilm and Film as a bottom protector of a double-sided silicon wafer.

Additional Information:

Double-sided wafers are expensive, so our experiences were applied to single-sided dummy wafers.

Terms:

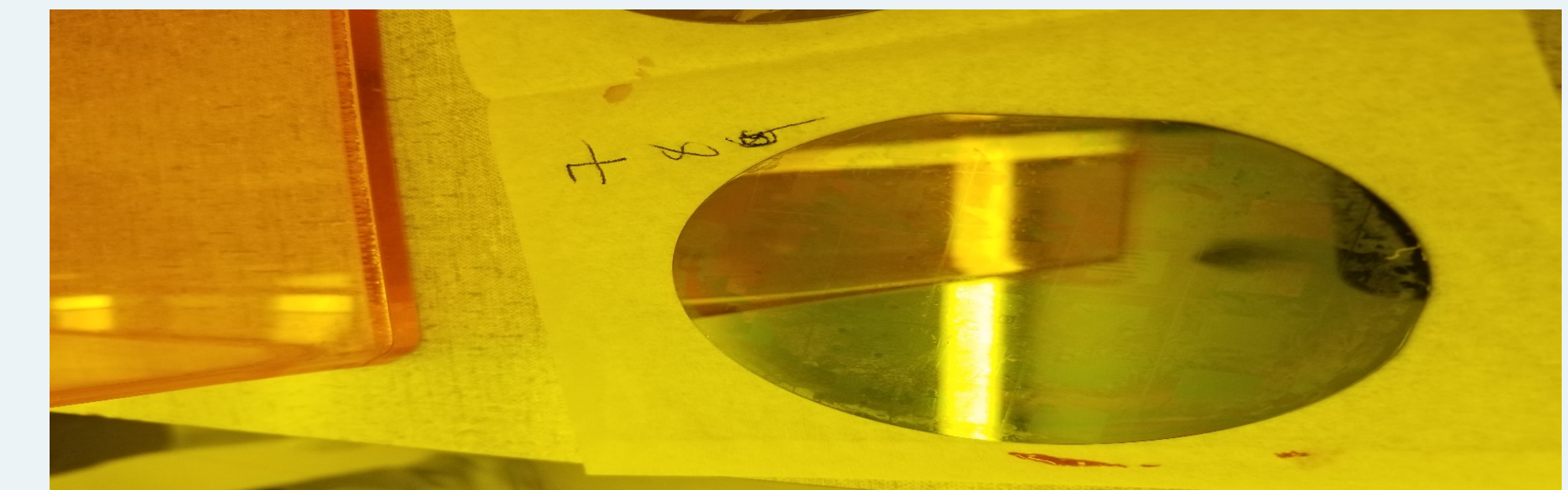
Shiny side = SiO_2 or Al_2O_3 coated side

Rough side = uncoated side

Observations:

Parafilm: Not very sticky and smooth

Film: Sticky, but leaves air bubbles



Test 7: Using photoresist and protecting the rough side of a silicon wafer. The photoresist process was successful. (Film)

Test 8: Not using photoresist and protecting the shiny side of a silicon wafer (using the Parafilm properly). The photoresist process was successful. (Parafilm)

Test 9: Using photoresist and protecting the shiny side of a silicon wafer (using the Parafilm properly). The photoresist process was successful. (Parafilm)

Concerns:

- The photoresist used was taken directly out from fridge, thus it was not used in the room temperature.
- The wafer we used already had mask on top of it. So, we were not sure if the weight due to mask would have influence for its success.
- We used shiny side at top and rough side (bottom) was tapped using film.
- Would the result be same if the rough side was at the top and shiny at the bottom?
- This is because for the double-sided wafer, both the sides are shiny.
- How good will it stick on the shiny side?

Conclusion:

In this series of experiment, we had a chance to try out multiple technique to protect bottom side of the double-sided wafer. Based on attempts made on the dummy wafer, we were successfully able to deliver 3 good results. Two of which we used Parafilm (Test 8 and Test 9) and one was with Film (Test 7).

