

# WORLD OF COLORS

Studying green light-emitting semiconductors

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DenBaars Research Group

# Green emitting light is used in everyday devices



Lasers are used in everyday life



Green light can be used in medical devices

Adapted from Google



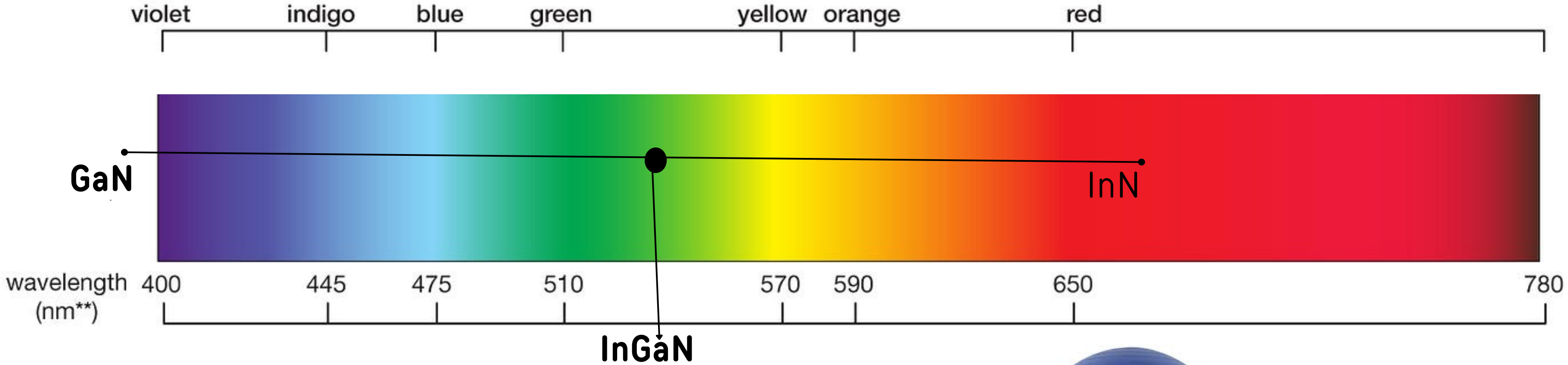
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# Nitrides can produce green light

Light, the visible spectrum



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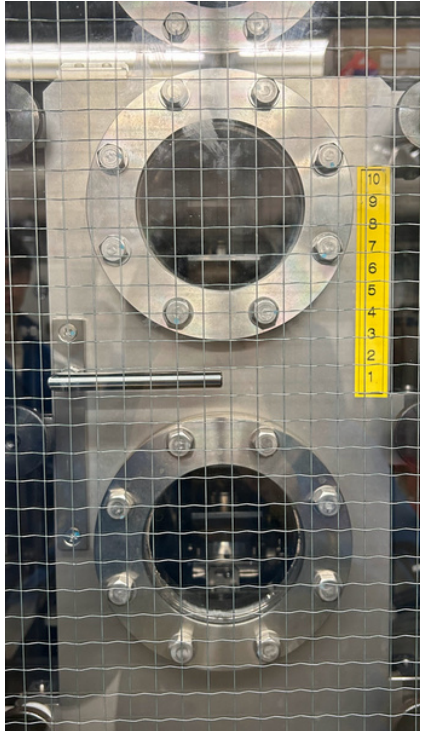
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# Layering compounds to create a green light-emitting wafer



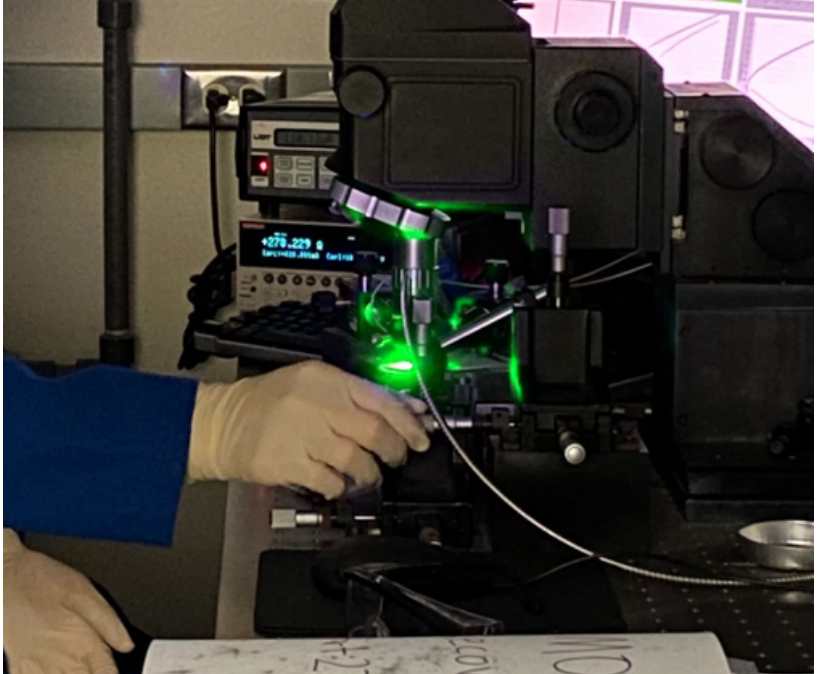
Recipe creation



Growing material



Clean room processing



Testing

Created with biorender



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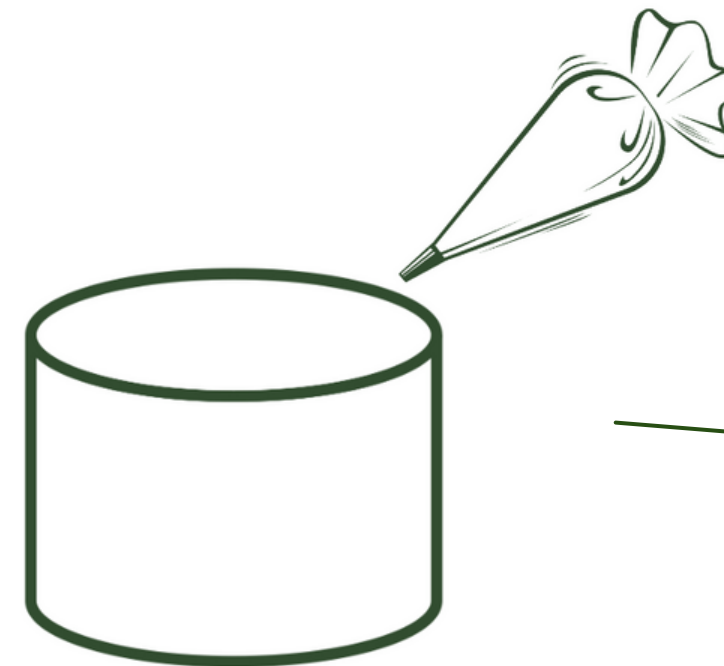
# Creating the wafer is like baking a cake



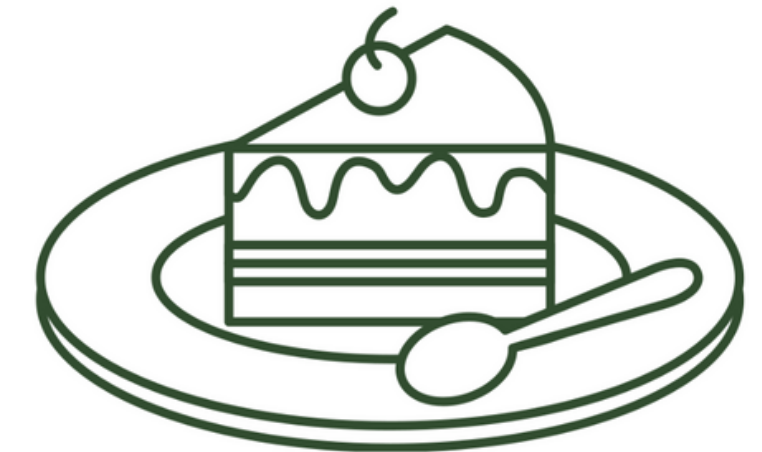
Recipe creation



Growing material



Clean room processing



Testing

Created with Canva

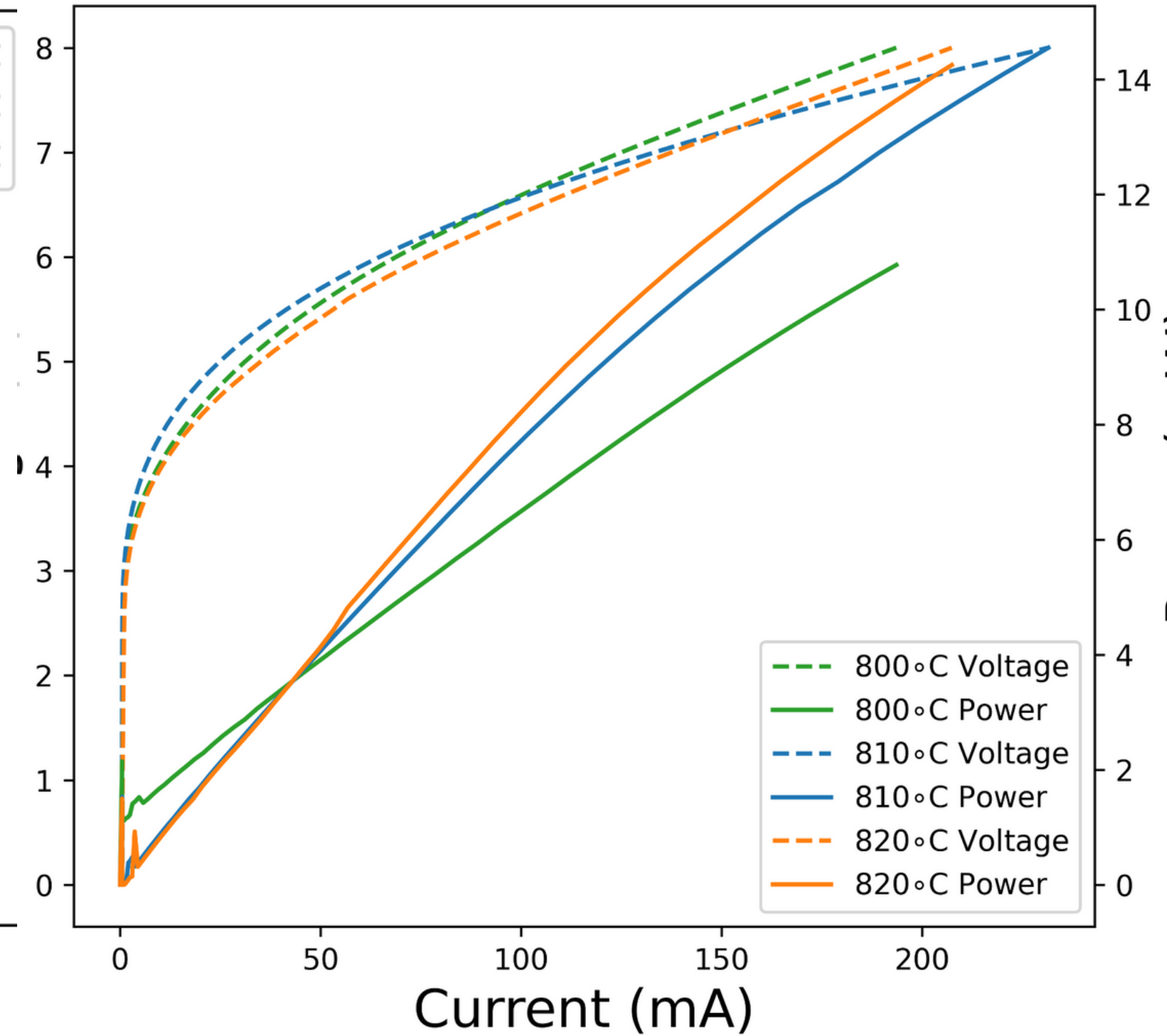
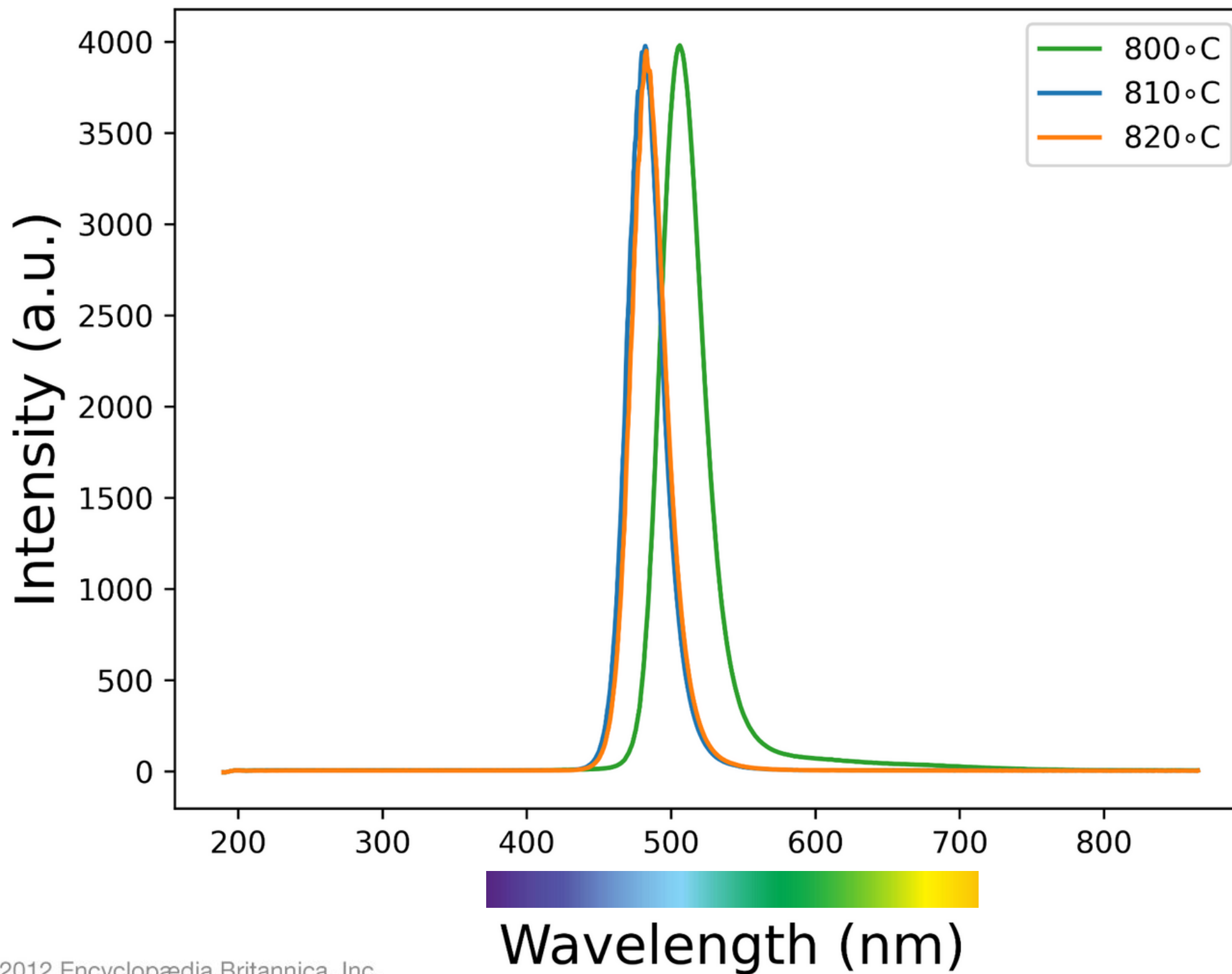


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# Green light-emitting wafers are power inefficient



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# Green light-emitting semiconductors are technologically valuable

Layer	Loop	Time	TC Temp	Gas Carry	NH3
1		20	15	N2	0.5
2		8.3	516	H2/N2	4
3		3.3	716	H2/N2	4
4		3.3	916	H2/N2	4
5		6	1180	H2/N2	4
6		11	1180	N2	4
7		4	980	N2	4
8		12	970	N2	4
9		3	970	N2	4
10		95	970	N2	4

Altering recipe



100 mW power

Adapted from Google



# Acknowledgements



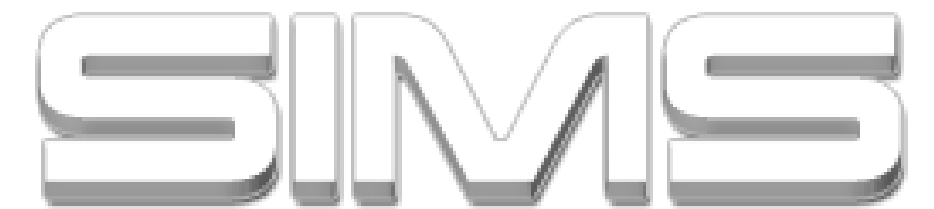
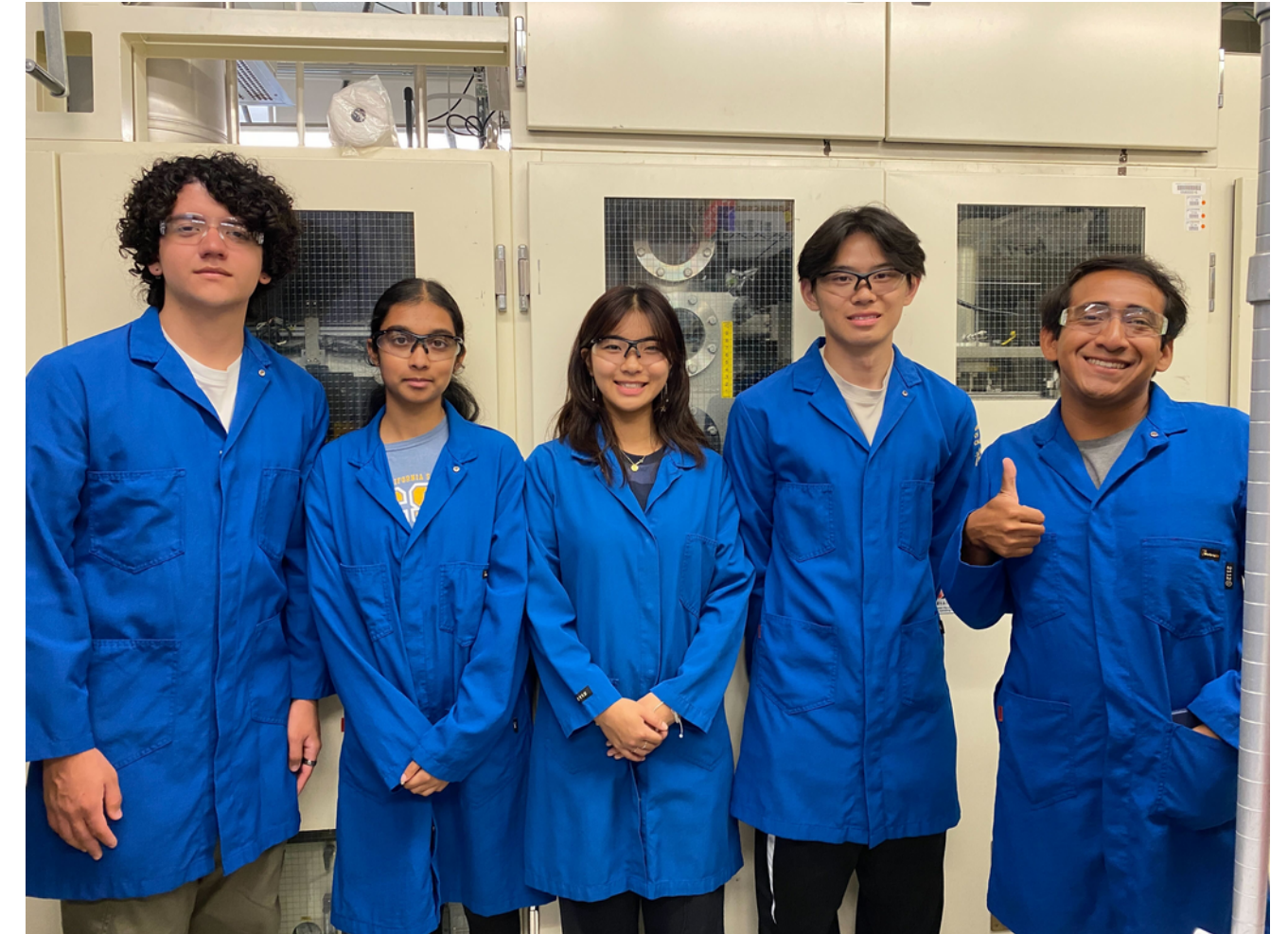
Dr. Steve Denbaars



Arturo Juan

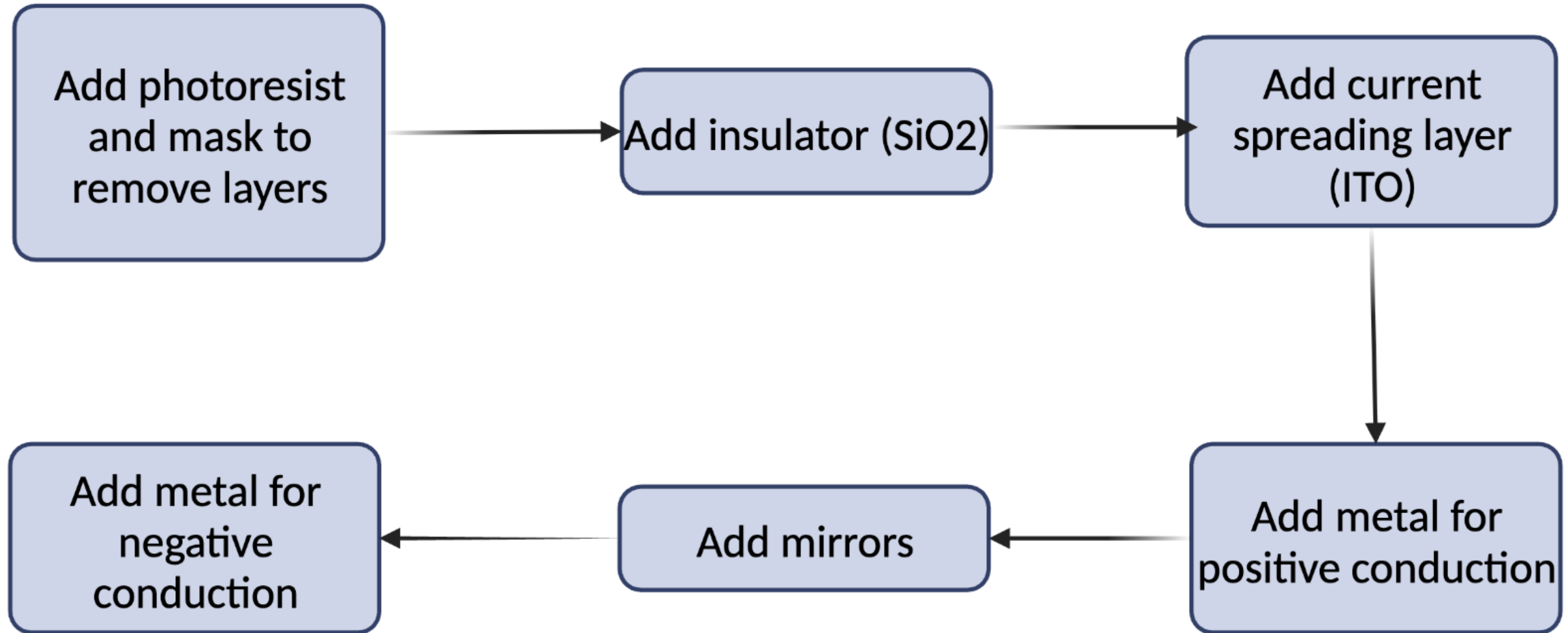


Jessy Gonzalez

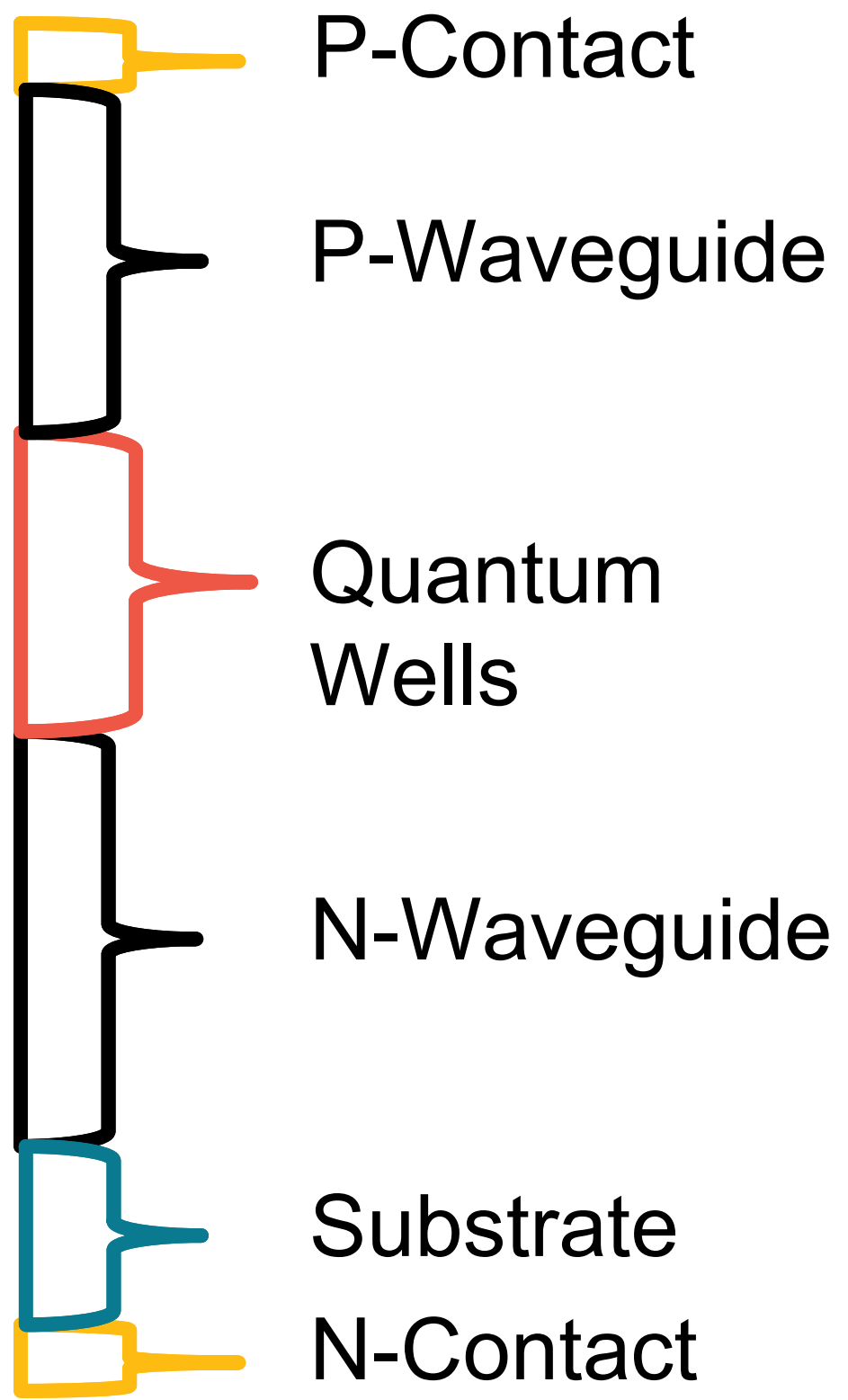
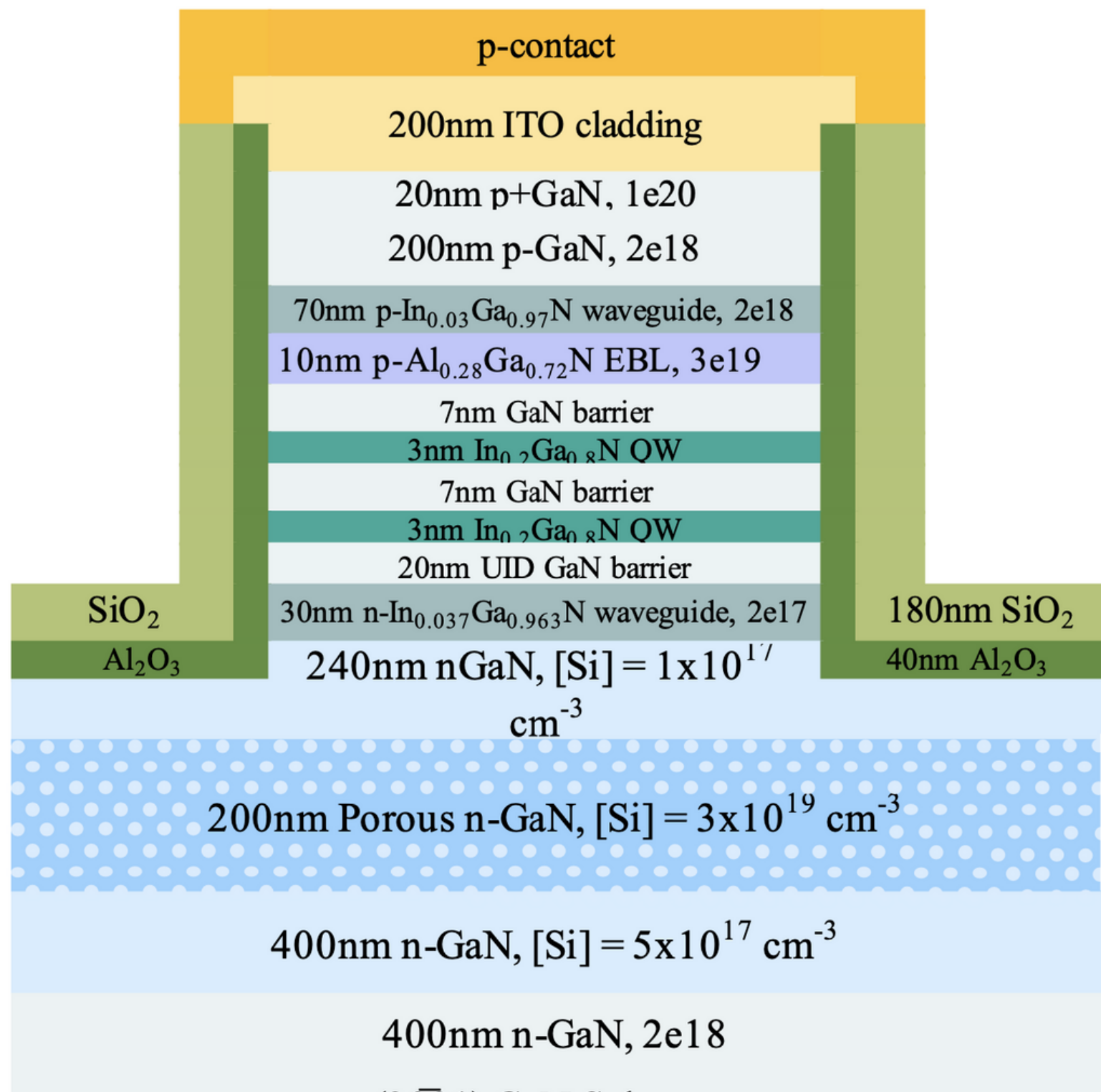




# Processing the wafer inside the cleanroom



# Completed InGaN wafer after cleanroom processing



# Spectra

