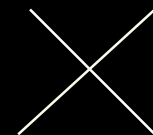
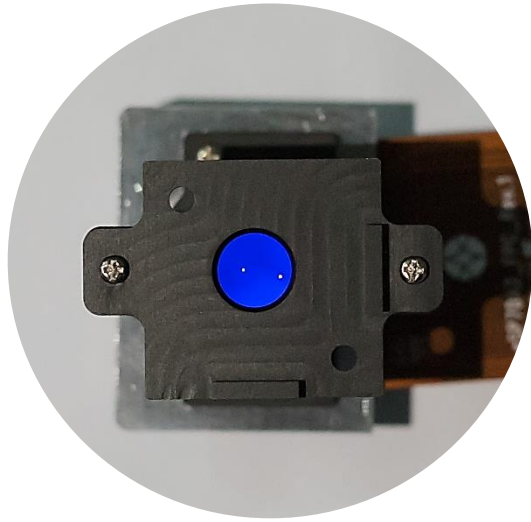


# DPT® - The Ultimate Solution for Microdisplays

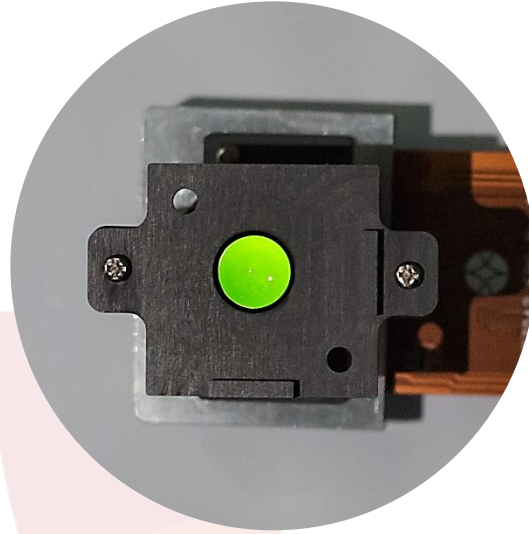
PROTECH



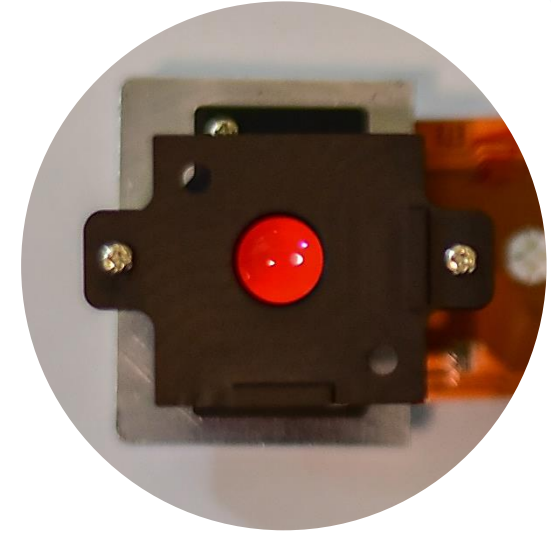
# Outline



About Porotech



Technology & Applications



Future Plans

# World's No. 1 GaN Material Platform & MicroLED Display System Solution Provider

>15

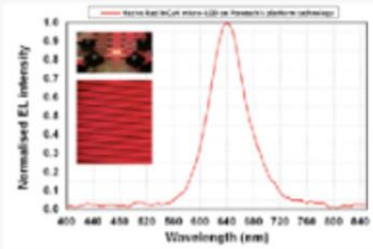
Years of R&D;  
Spin-out from  
Cambridge University in  
Jan 2020

>70

Patents  
and patents pending

## World's 1<sup>st</sup> Commercial InGaN Red MicroLED

Highest Efficiency



Nov 2020

## World's 1<sup>st</sup> Native RGB Micro-Displays

Brightness >2M nits



Nov 2021

## Best Prototype Award

SID Display Week 2022



May 2022

## Manufacturing Partnership with IQE

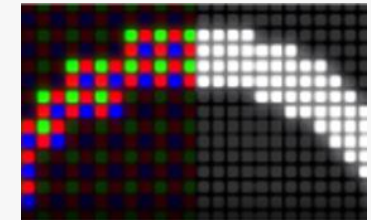
200mm in Qualification,  
300mm in 2023



May 2022

## “All-in-one” Full-Colour MicroLED Display

The Only Manufacturable Full  
Colour MicroLED Display  
Solution



Oct 2022

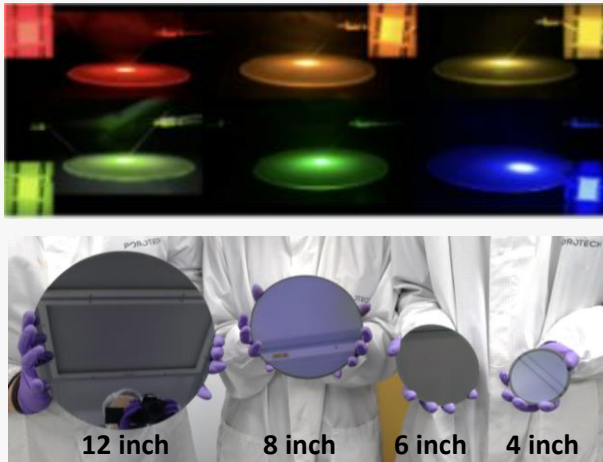
# Built One Breakthrough at a Time

Innovations Only Porotech Can Thrive to Empower Full-Colour & Tuneable MicroLEDs

## PoroGaN®

### Revolutionary Multi-Functional Material Platform

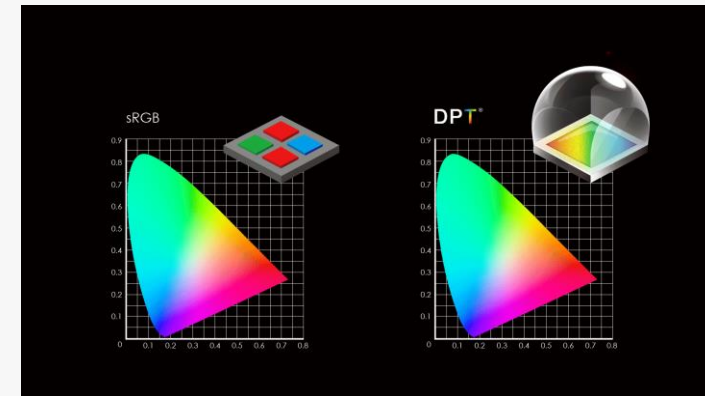
- ✓ Provides high-quality materials with tailored properties and functionalities on all sizes.
- ✓ Enables the highest efficiency, brightness and colour with a single material system.



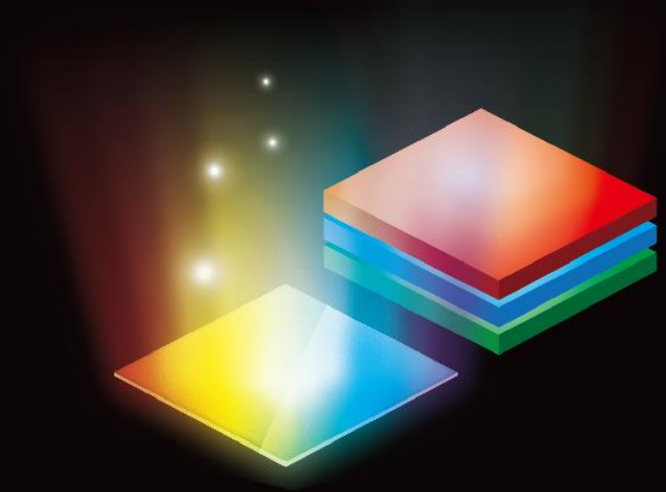
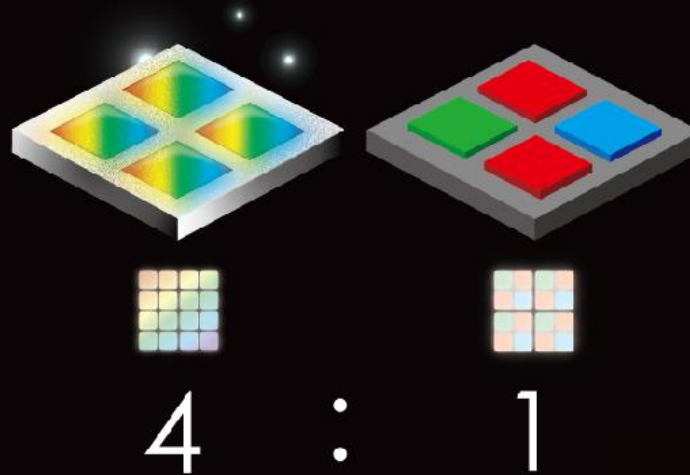
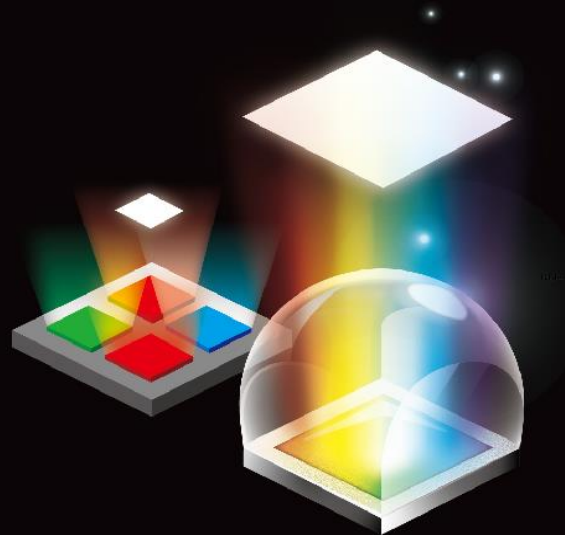
## DynamicPixelTuning® (DPT®)

### Monolithic RGB System Integration

- ✓ uLED pixel can emit any colour from blue to infrared
- ✓ Dynamically tuned by the choice of material design, pixel architecture and specific driving schemes
- ✓ World's first & only full-colour & dynamically tuneable pixel



# Dynamic Pixel Tuning



**4x**

Pixel Per Inch

**100x**

Pixel Per Inch

**>50%**

Pixel Per Inch

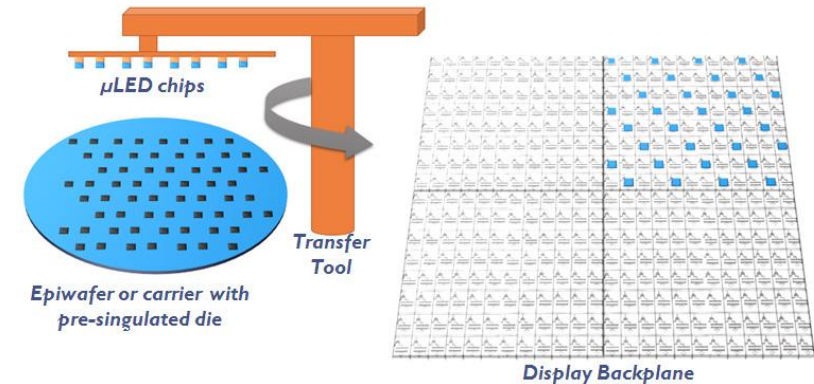
**85%**

Pixel Per Inch

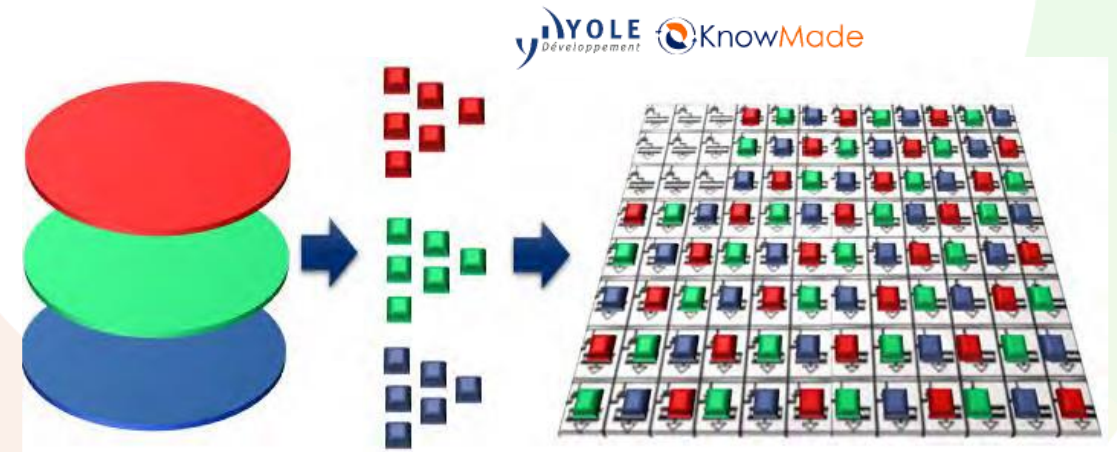


# Barriers to mini/micro-LED adoption

- Full colour mini/micro-LED displays currently require separate red, green and blue emitters
  - Light from all three is mixed to produce full colour and white
- InGaN-based blue and green + AlInGaP red
  - AlInGaP LEDs efficiency drop with size reduction
  - AlInGaP temperature sensitivity is more severe, complicating final display design & increasing cost
  - Different electrical characteristics make driving difficult
- Manufacturing is complex, costly and prone to high yield loss



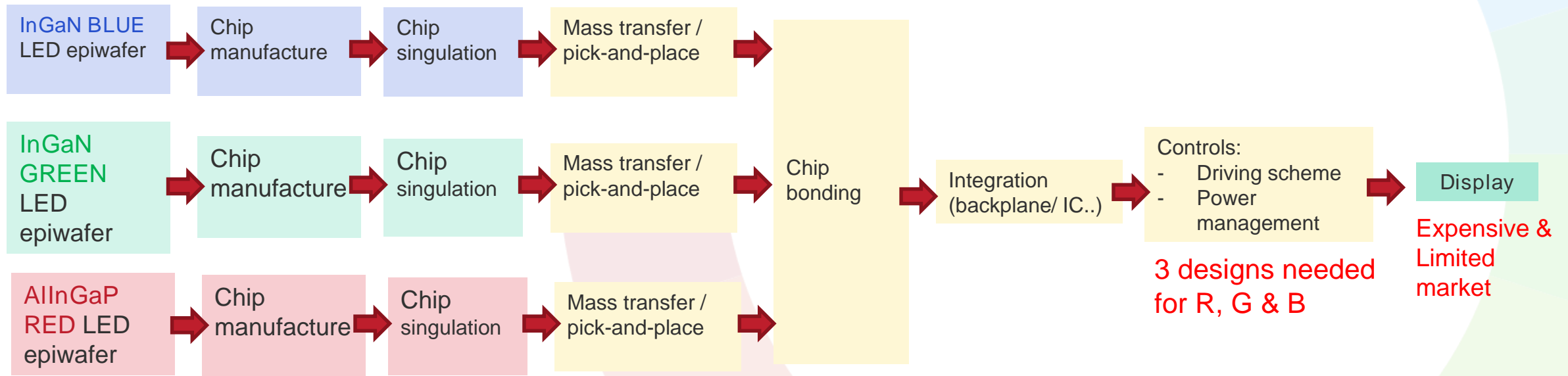
Pick-and-place process (x3 for R, G & B chips)



Complex mass transfer process

# Barriers to mini/micro-LED adoption

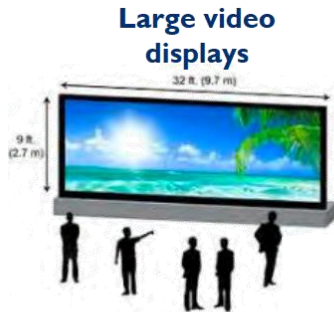
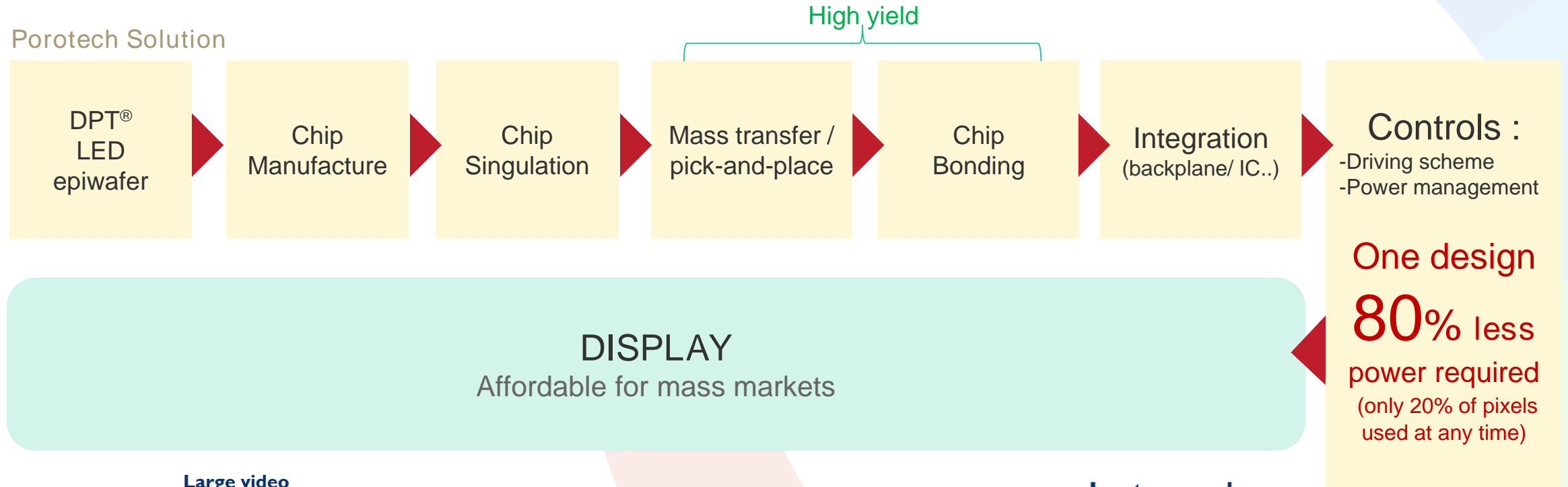
## Conventional manufacture of mini/micro-LED displays



Yield loss x3 = majority of final display cost

# Simplifying Production – Large Area Displays

## Porotech Solution







# POROTECH

Cambridge (UK) • Hsinchu (Taiwan) • Chandler, AZ (USA)

[www.porotech.com](http://www.porotech.com)