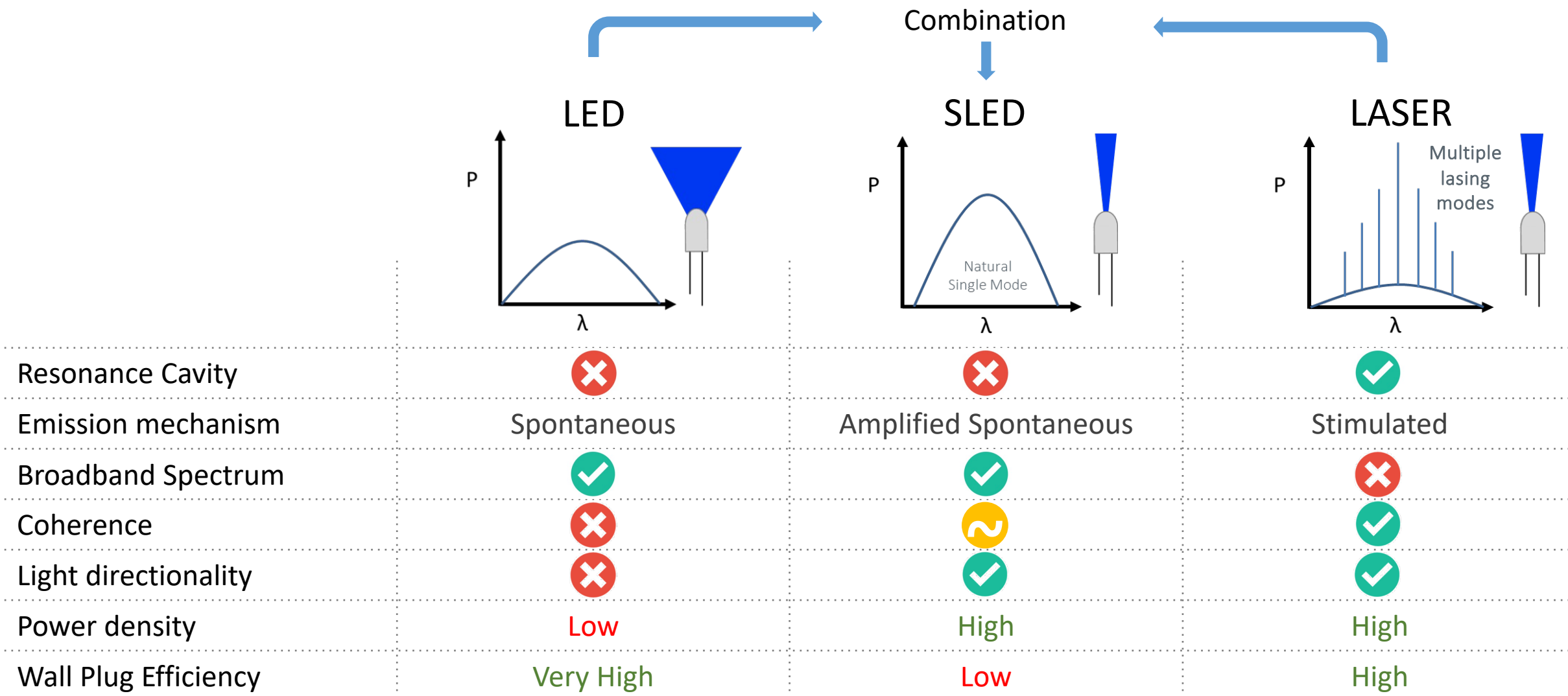




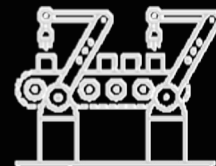
iSLight

intelligent SuperLuminescent solutions





Speckle



Tilted facet



Top view

Absorbing region



Coating the facets



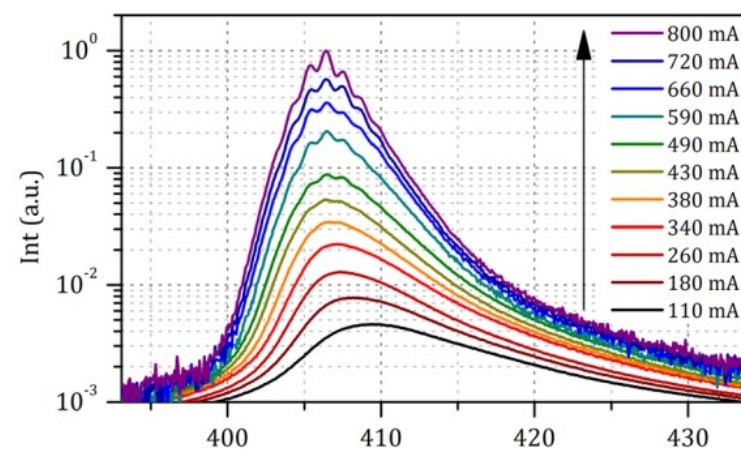
J-shape



Facet roughening

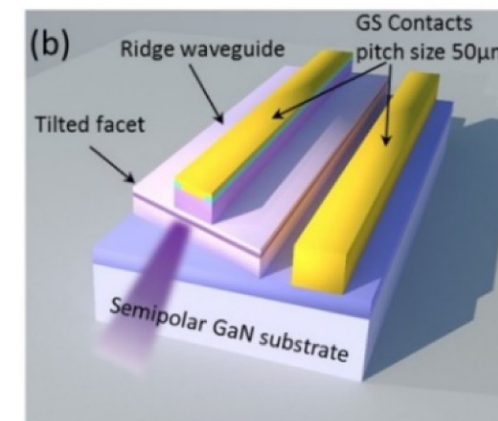


J-shape



Journal of Applied Physics 111, 083106 (2012) λ (nm)

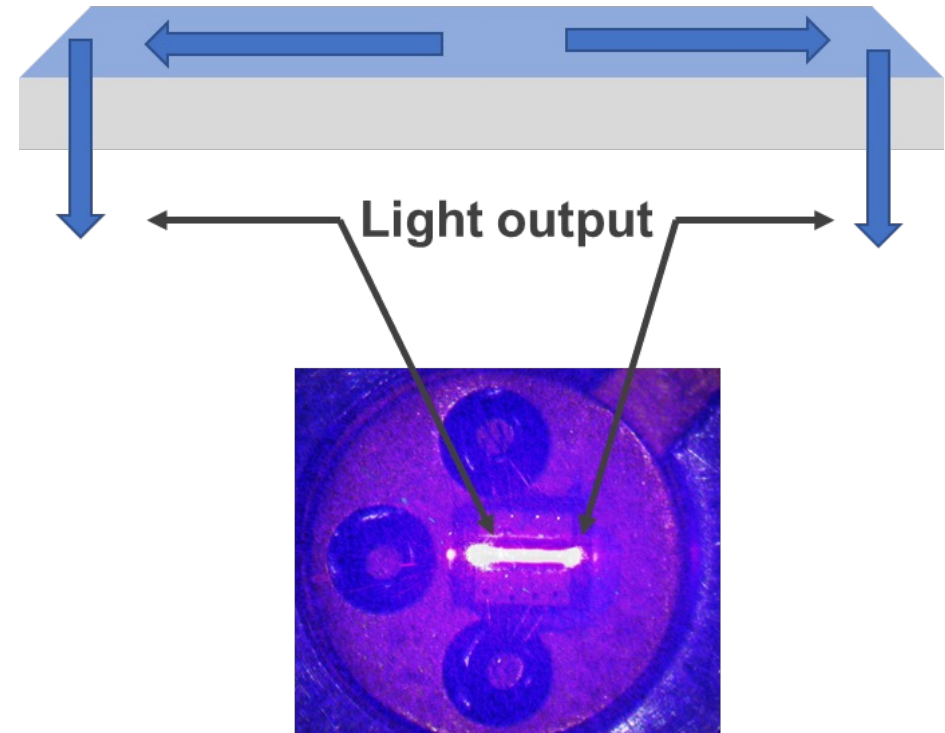
Inevitable parasitic lasing



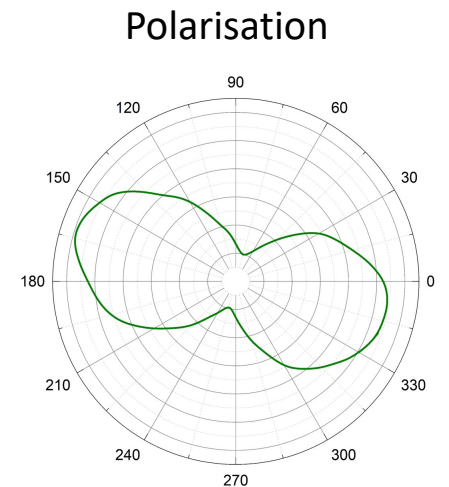
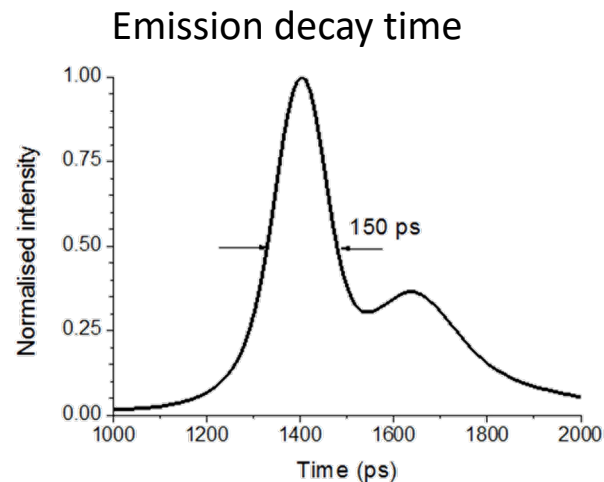
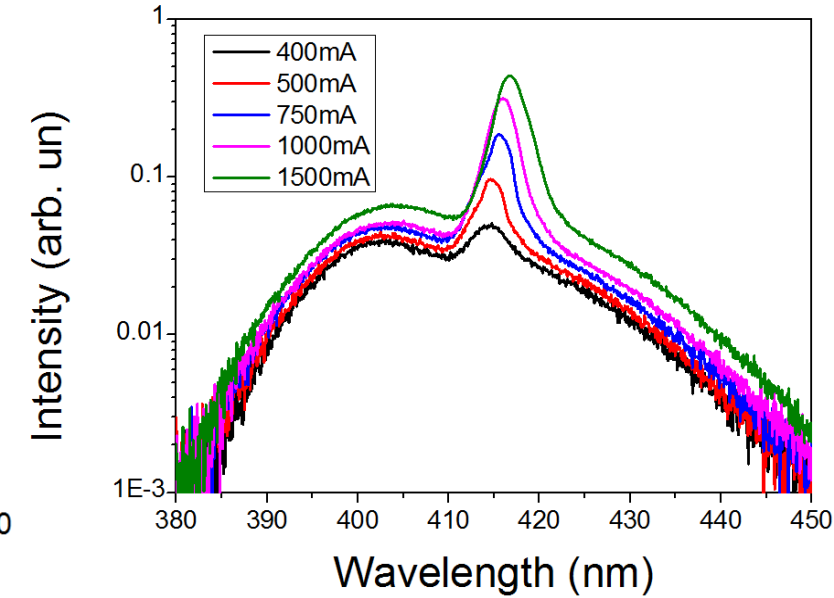
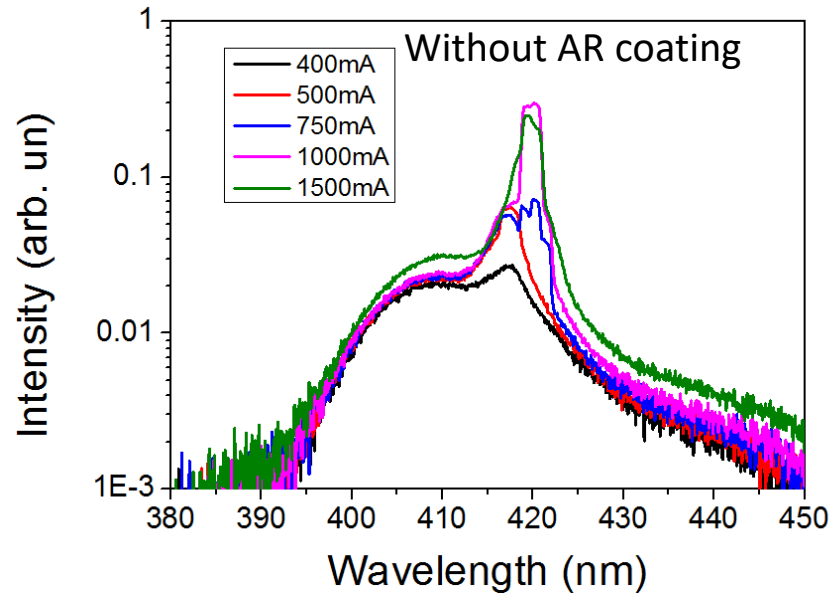
Opt Express. 2016 Sep 5;24(18):20281-6.

iSLight iSLight SLED patented architecture

- Ridge waveguide device
- 45° shaped facets
- Total internal reflection mirror
- Transparent GaN substrate
- Reduces feedback
- Surface emitting design
- Two emitting facets
- Antireflection coated substrate
- Allows for better light extraction



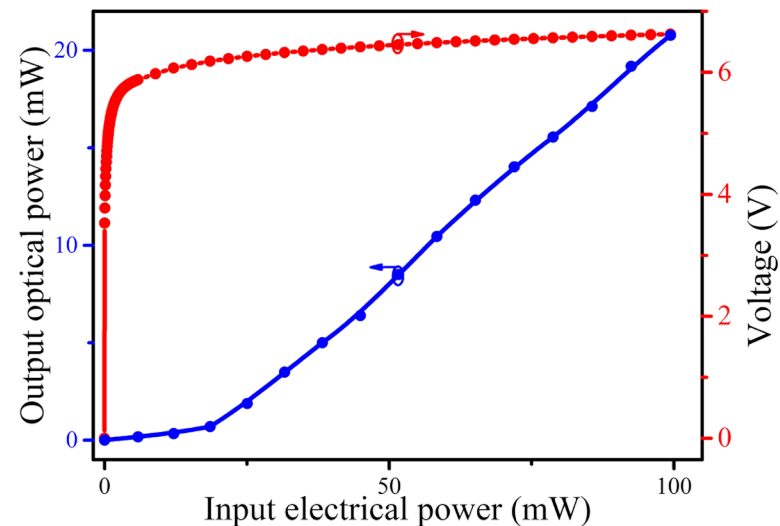
- AR coating very effective in reducing feedback
- FWHM of 8nm (ASE spectrum)
- Red shift at high current
→ Heating
- Decay time of 150 ps
- Polarised light



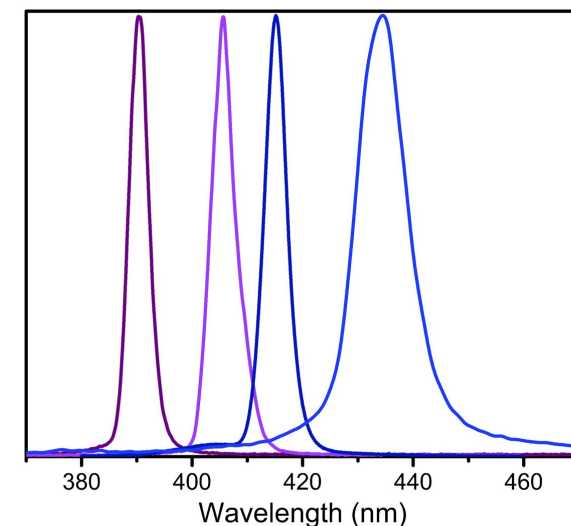
Parameter	Symbol	Value			Unit
		Min.	Typ.	Max.	
Average power	P		20	-	mW
Emission wavelength	λ	390	415	450	nm
Spectral Width	$\Delta\lambda$	4	8	-	nm
Beam divergence single output	$\Theta_{\parallel} \times \Theta_{\perp}$		7×15		deg
Wall Plug Efficiency	WPE		10		%
Etendue			8E-5		mm ² ·sr

Operating at 45kHz, 1% duty cycle, and 25°C case temperature

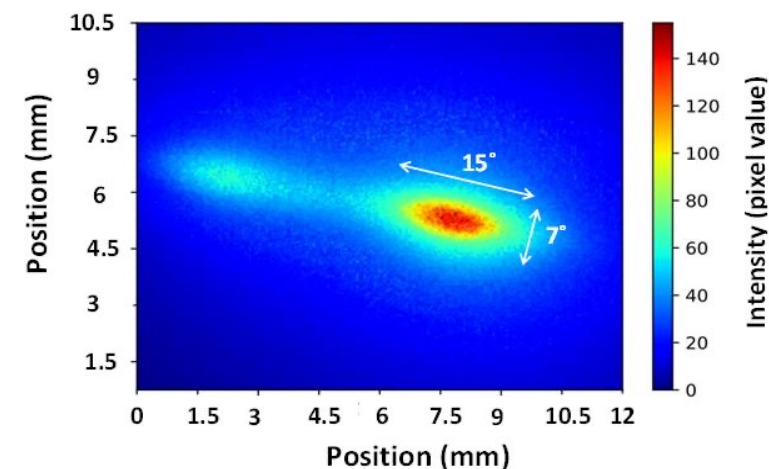
LIV Characteristics



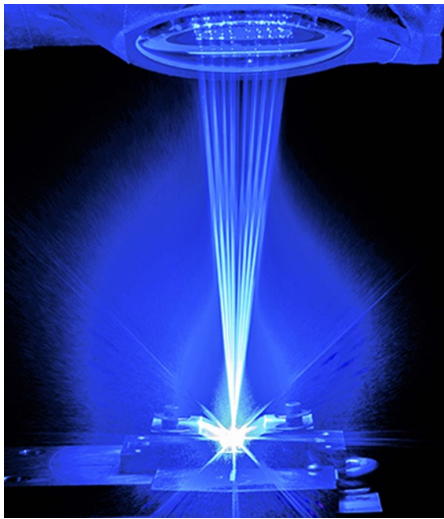
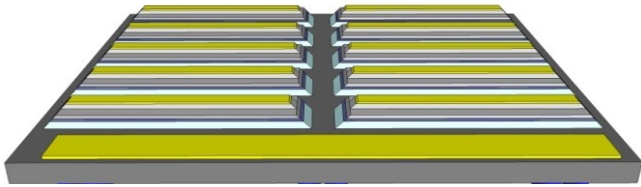
Spectra



Far field measurements



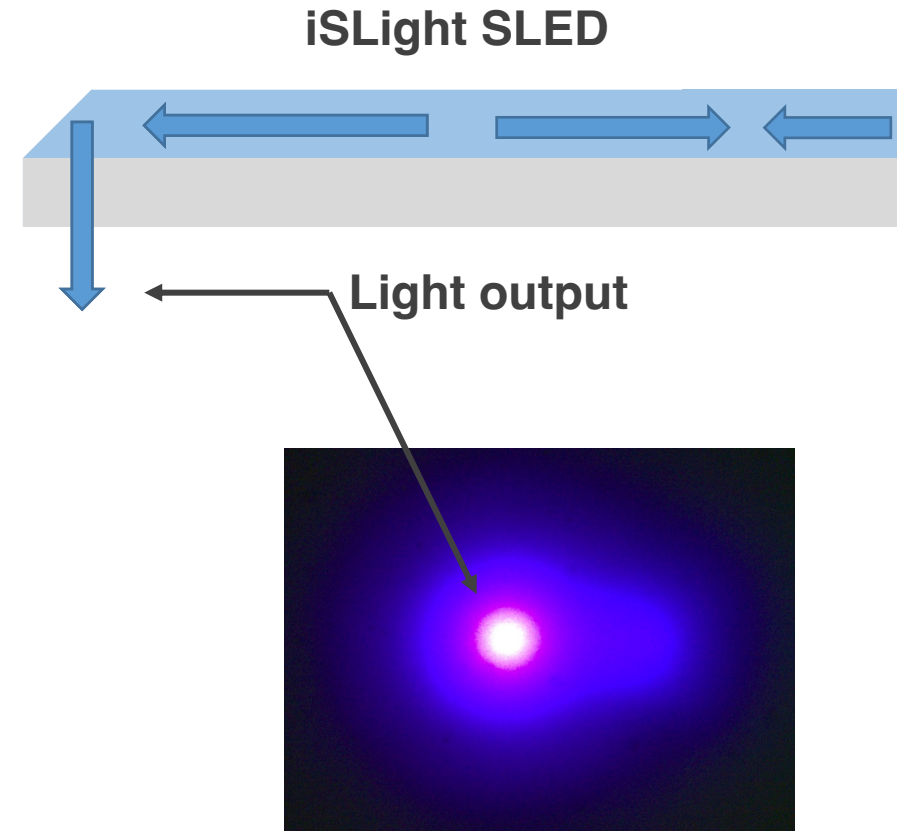
Arrayed SLEDs on wafer

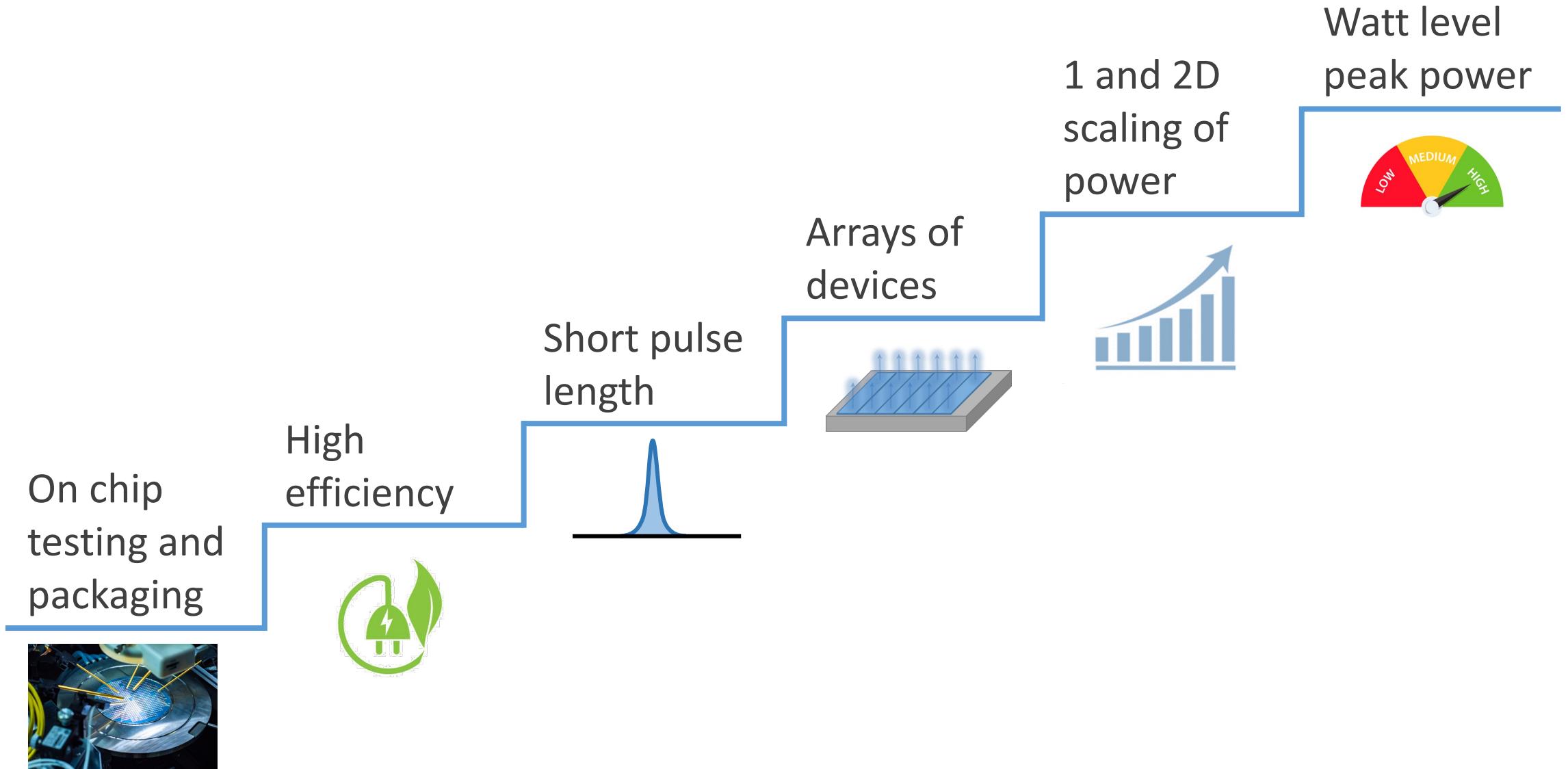


Multiple wavelengths

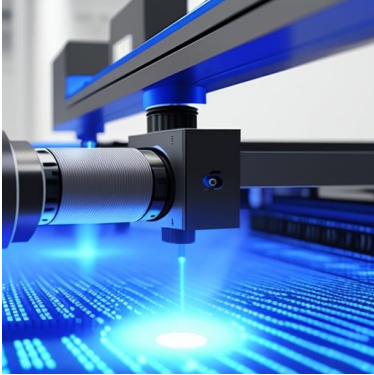


Single output





Machine vision



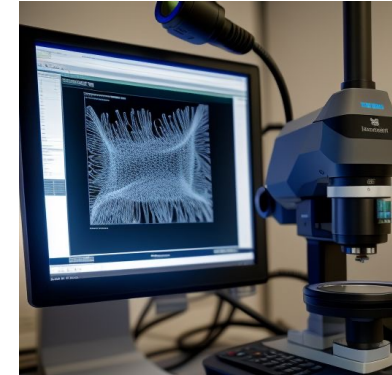
Laser direct imaging / Laser scanners for 2D/3D profile

AR/VR headsets



LCoS-based SLED / SLED beam scanning display / DMD-based SLED

Microscopy imaging



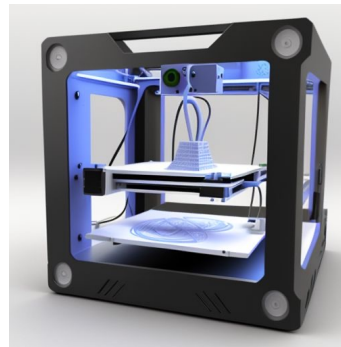
Fluorescence microscopy and confocal microscopy / Nanoscale imaging for detecting nanoparticles

Lighting



Vehicles / Theatre / Projectors

3D printing



Industry / Consumers

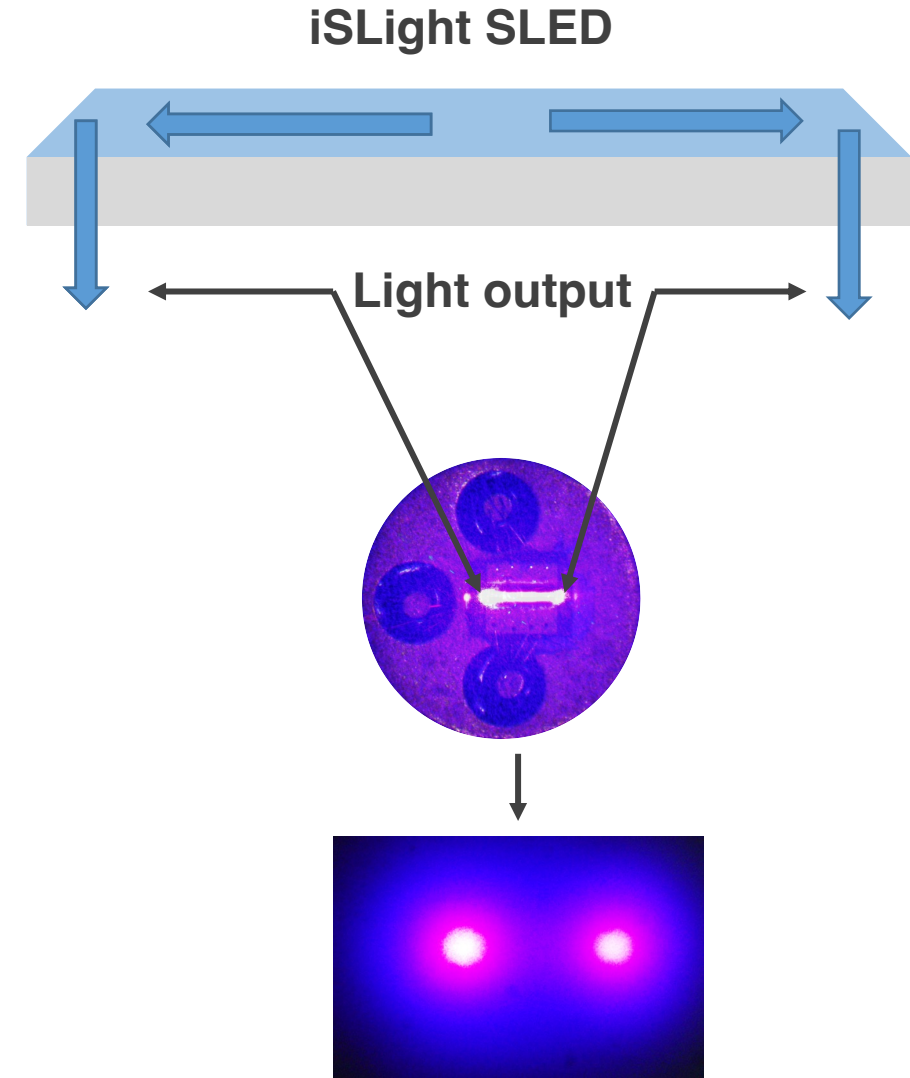
LIDAR and 3D Sensing



Vehicles / Consumers

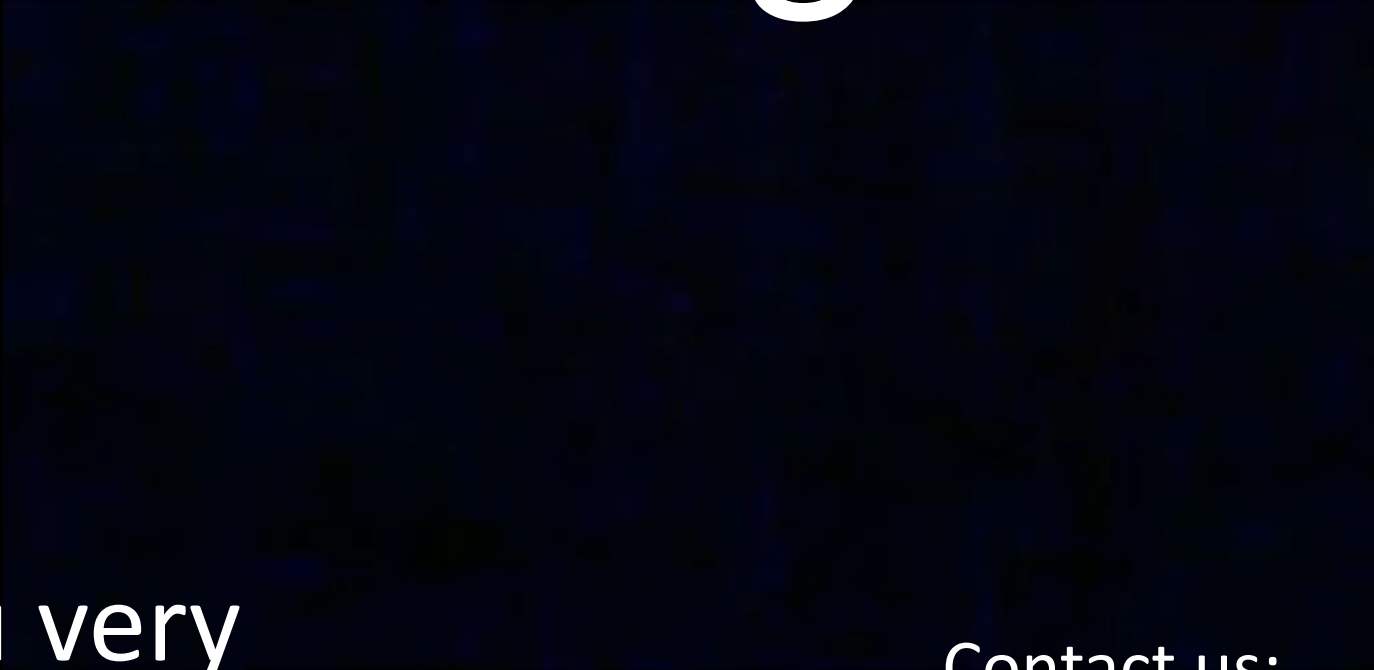
iSLight uses a patented design in photonic devices to engineer SLEDs with:

- Speckle free
- High and Scalable optical power (World-Record in SLEDs)
- Small etendue ($8E-5 \text{ mm}^2 \cdot \text{sr}$)
- Efficient light source (WPE 10%)
- On wafer arrayed SLEDs
- Polarised light





iSLight



Thank you very
much



Contact us:

CEO: Gerry.OCarroll@islight.ie

CTO: Juan.Morales@islight.ie

www.islight.ie

