

MICROLED ARRAY TECHNOLOGY FOR NEW APPLICATIONS IN AUTOMOTIVE



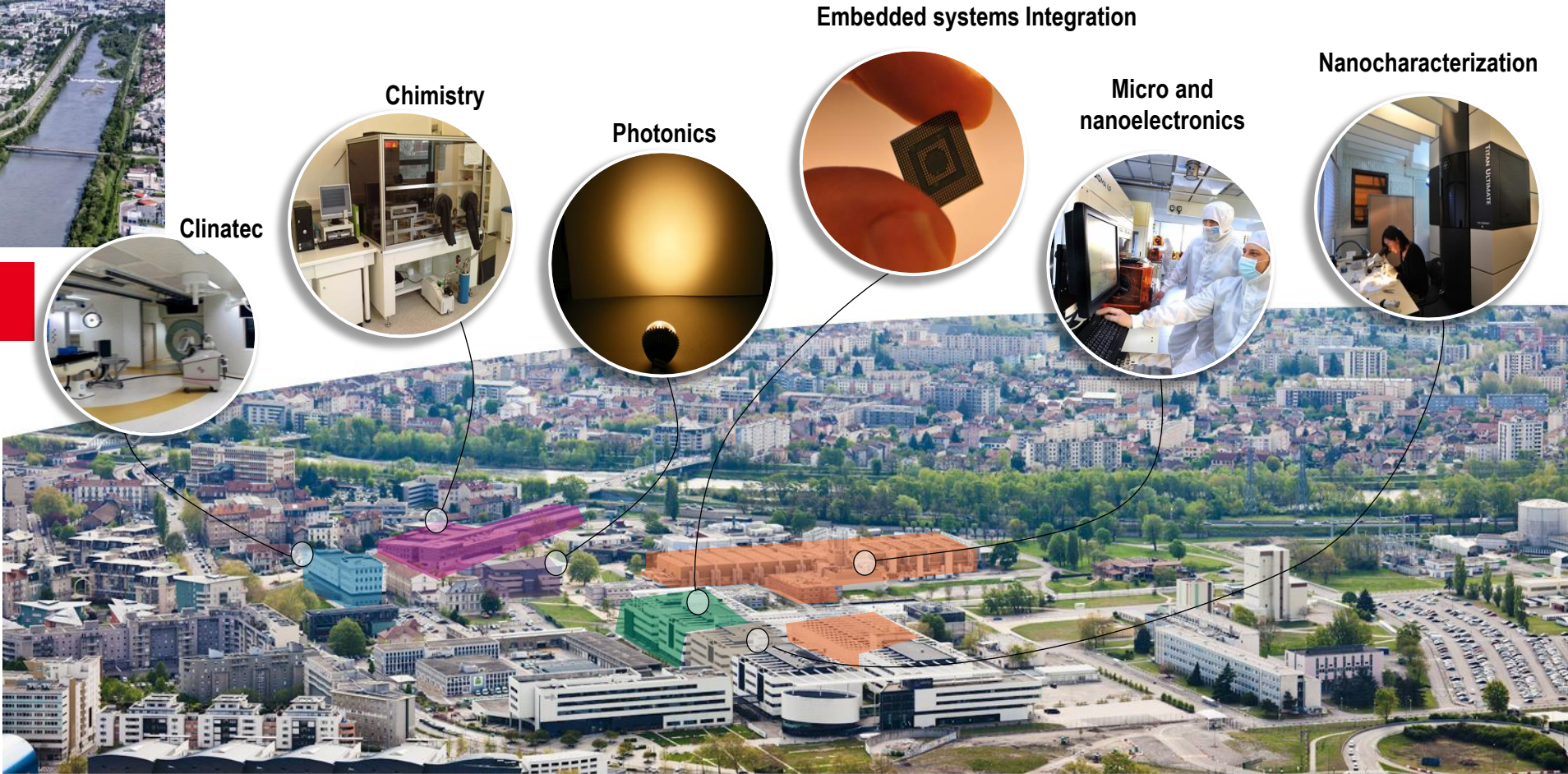
Founded in 1967, based in France (Grenoble) / offices in USA and Japan

1900
People

60
Startups created

2670
Patents in portfolio

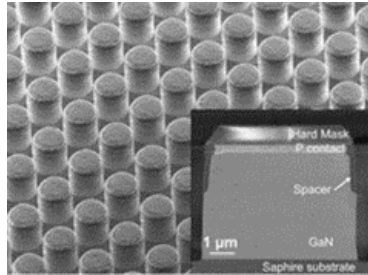
€315
Million budget



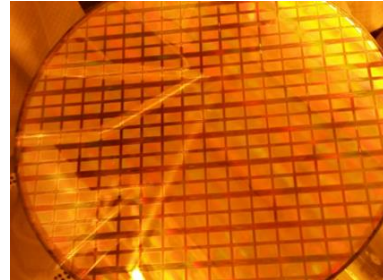
Design & Fabrication
Epitaxy on patterned substrates & native color



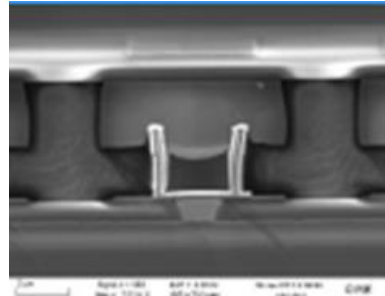
LED array process
pixelization



IC Design & Fabrication
silicon active matrix for LED driving

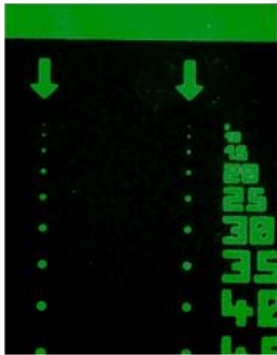


3D integration
assembly of LED arrays on CMOS



Color conversion
QDs and nanophosphors
2D layers

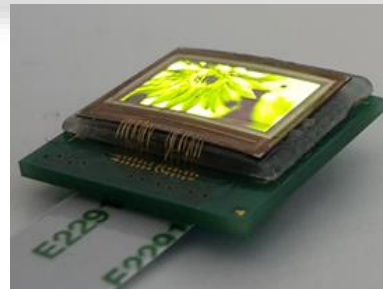
Green pixels on GaN
(scale in μm)



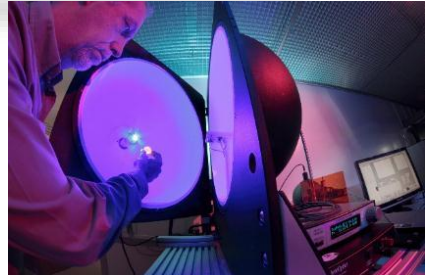
Red pixels on Gan



Packaging
Curved display to simplify the optics



Characterization
Electro-optical
Aging...



Created in 1978
300 researchers,
engineers
and PhD students



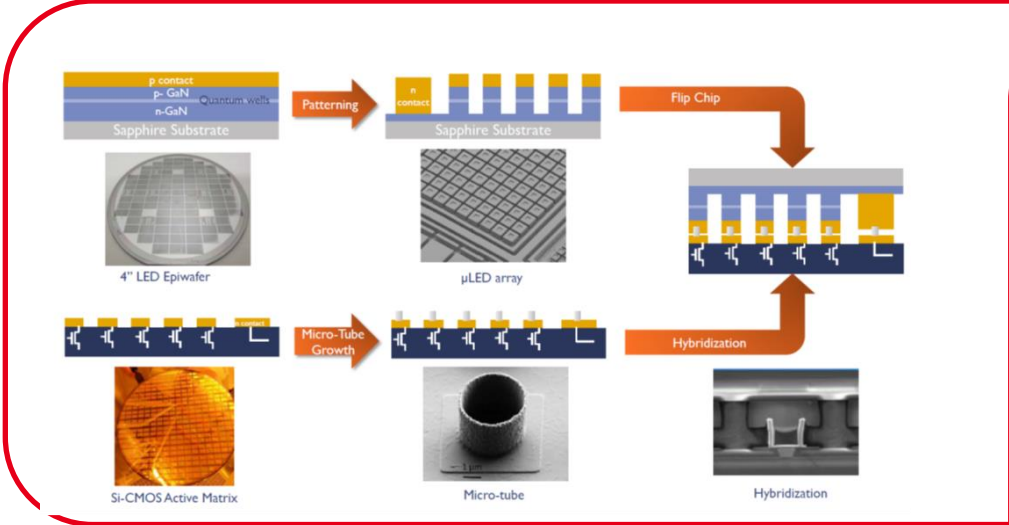
500 patents in
portfolio
91 new patents in
2017



~55 M€ budget
90% from external
revenue

- High brightness microLED array projector & microdisplay required the integration on LED and transistors. There are different methods for integration

1 Hybridization



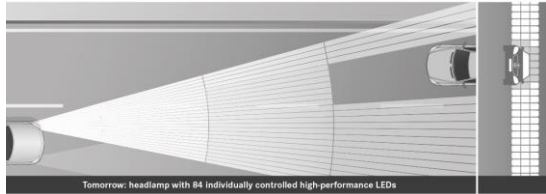
WVGA (873 x 500) at 10 μm pitch video



Side mirror projector

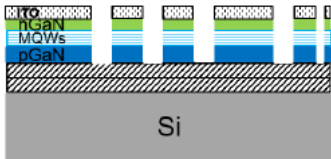
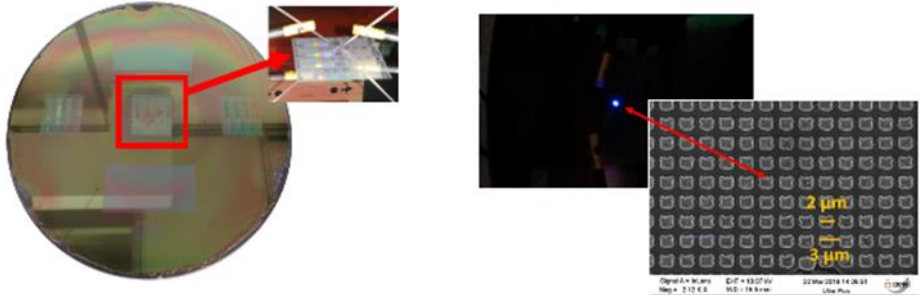
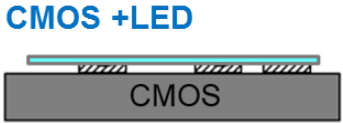


Automotive head lamps/ tail light



LIFI for V to V communication

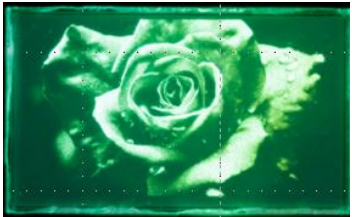
2 Monolithic



Proof of concept done

- MicroLEDs operate after transfer process and post processing (patterning)
- Record pixel-pitch GaN microLED array (3 μm)
- Good Electrical characteristics

AR/VR



3D light field cockpit display



HUD



leti
cea tech

Dr Hani Kanaan

Business Development & Lighting Program Manager

Optronics Departement : DOPT/ Dir

Laboratory of Technologies and Components for Visualisation

hani.kanaan@cea.fr

Leti, technology research institute

Commissariat à l'énergie atomique et aux énergies alternatives

T. +33 4 38 78 14 50 M. +33 6 73 26 10 28 M. +33 6 66 96 18 18

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Thank you

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Minatéc Campus | 17 rue des Martyrs | 38054 Grenoble Cedex | France

www.leti-cea.com

