

Small dots. Great potential



QNA Technology

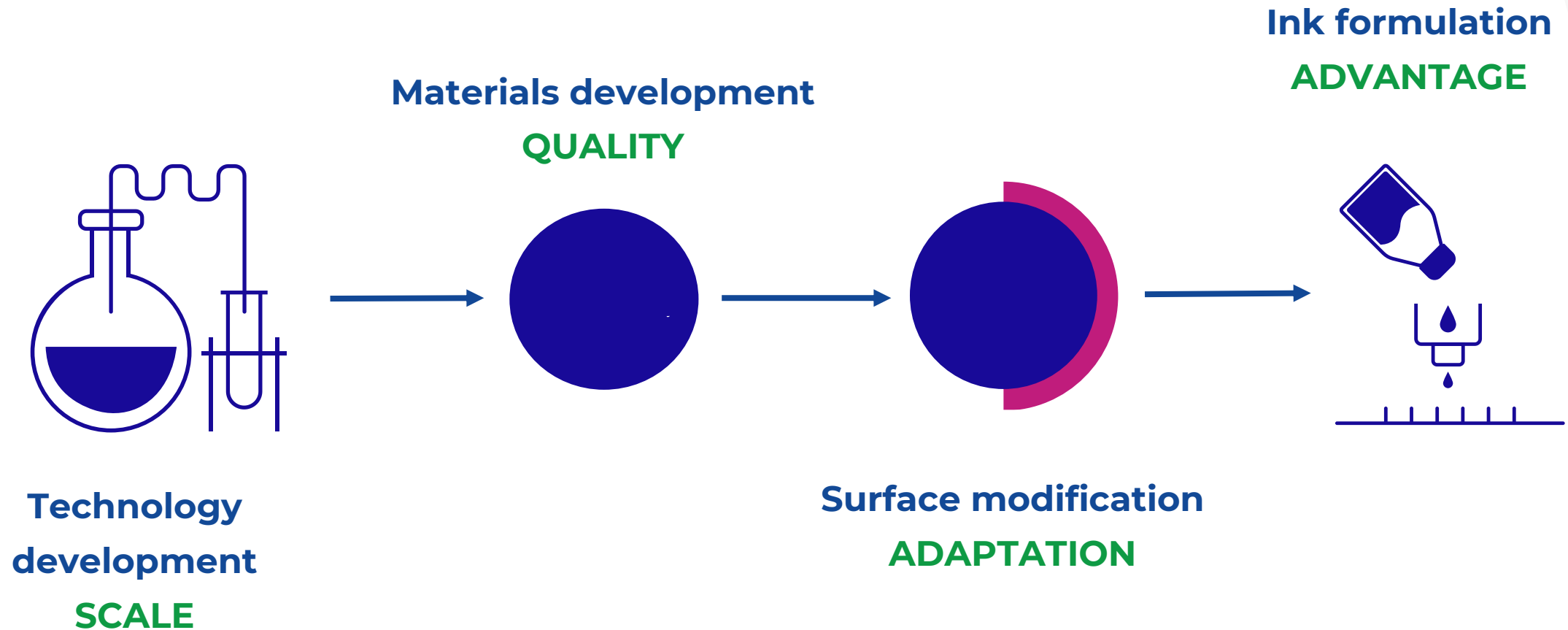
A pioneer in blue quantum dots development

February 2024

EPIC Online Technology Meeting on Photonics for Automotive Lighting

**We are a manufacturer of optically active
nanomaterials**

We deliver customized solutions



We are developing **semiconducting quantum dots**



Quantum dots can be used **instead of organic dyes or phosphors**

Very high color quality

Precise peak position tuning $\pm 3\text{nm}$

Emission broadening can be as low as 10 nm

Efficient & spectraly broad absorption

Absorption band wider than 200 nm

OD@450nm/10 μm >1.4

Highly efficient conversion yield

Emission Quantum Yield can be close to

100%

Highly stable

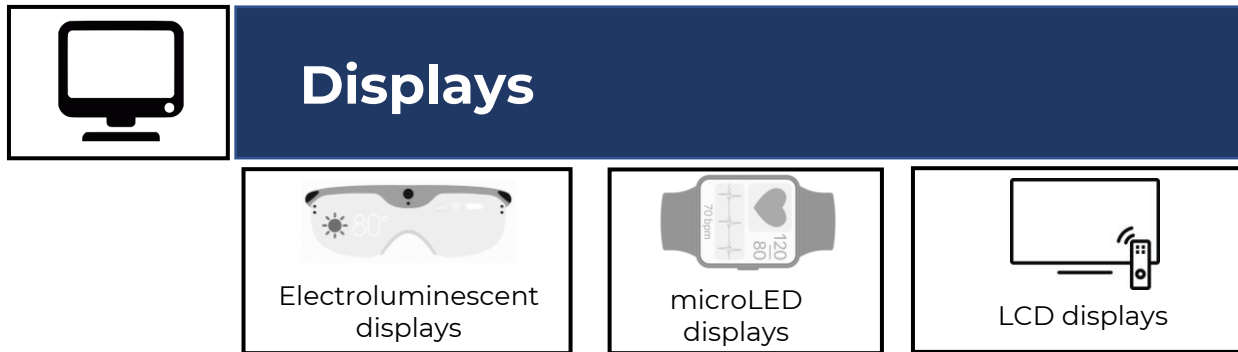
QDs are inorganic crystals of semiconductor

QNA is focussing on
**blue light emitting
quantum dots,
heavy metal free**

Blue Light Spectrum



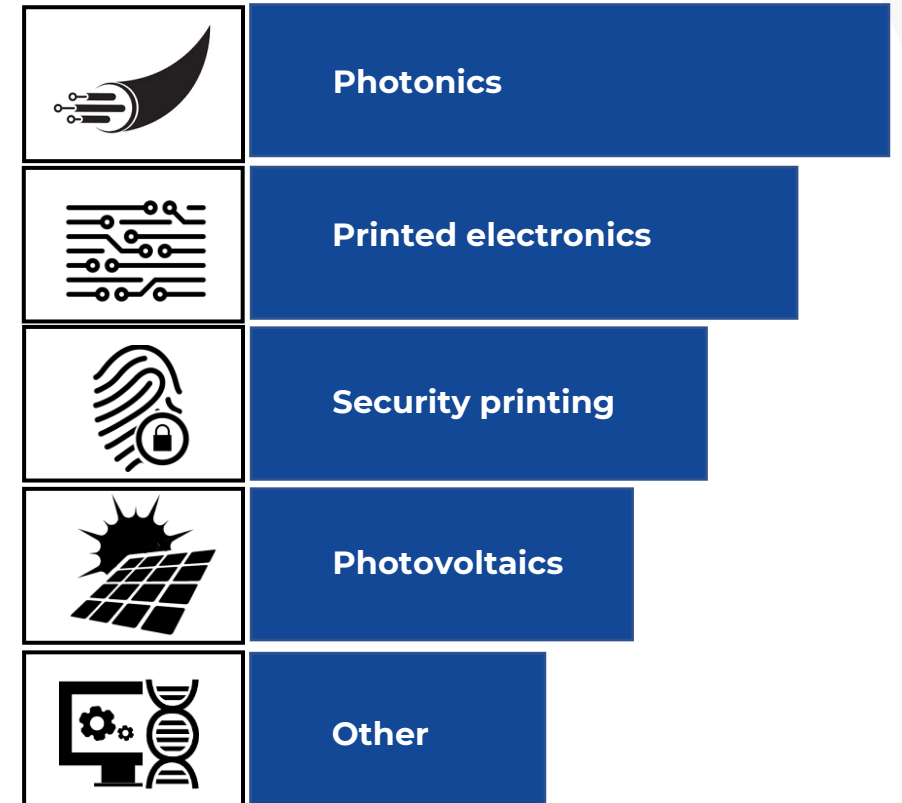
QNA main market



QNA potential market?

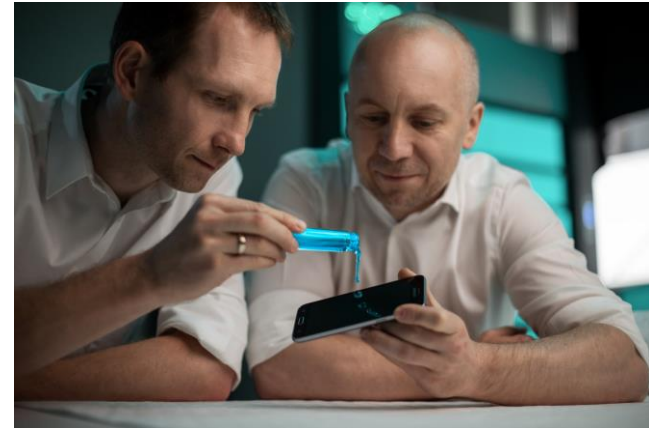


Other:



QNA overview

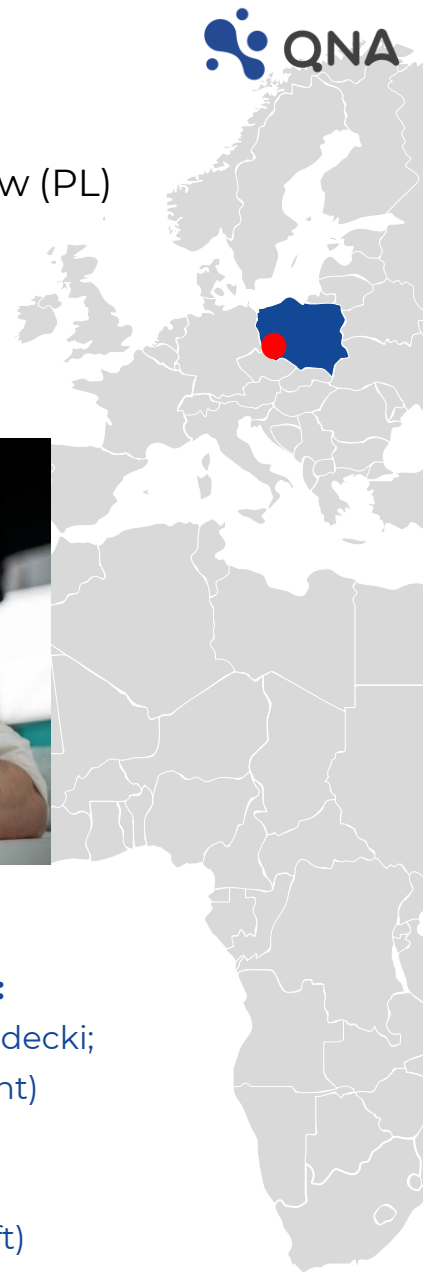
Localization: Wrocław between 3 Capitals – 350 km to Berlin (GER), 300 km to Prague (CZ), 350 km to Warsaw (PL)



We develop our materials in our own fully equipped laboratory located at Wrocław Technology Park in Poland (**LabSpace 200m²**, 6 Labs.)

We employ **25 people** of which **19 are R&D** members with high expertise in chemistry, nanotechnology, materials engineering (including **9 PhD, 15 MSc.**)

Founders (December 2016):
Prof. DSc. Dr BEng. Artur Podhorodecki;
PhD in Solid State Physics (right)
&
Dr BEng. Mateusz Bański
PhD in Solid State Physics (left)



QNA materials – quantum dots (QNA.dots)

Our flagship materials are **heavy metal-free, high quality, blue light emitting quantum dots & inks**



PureBlue.dots *

- Photoluminescent PureBlue.dots (**PL - PureBlue.dots**)
[455 nm, FWHM < 30 nm, PLQY 75%, toluene]
- Electroluminescent PureBlue.dots (**EL - PureBlue.dots**)
[455 nm, FWHM < 30 nm, PLQY 75%, octane]

Blue light spectrum



* Our materials are still under development

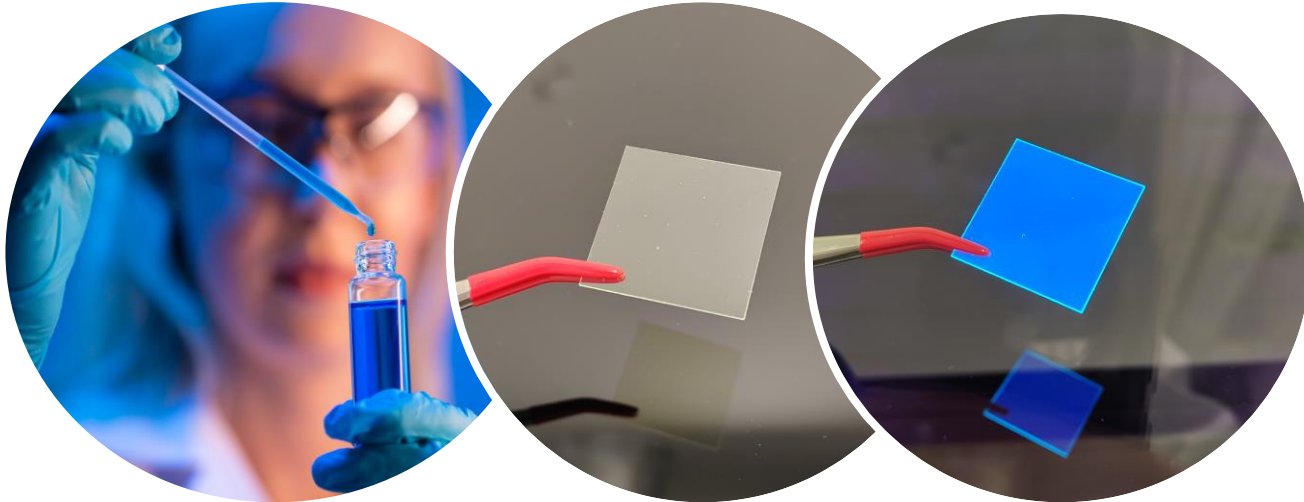


DeepBlue.dots *

- Photoluminescent DeepBlue.dots (**PL - DeepBlue.dots**)
[420-450 nm, FWHM < 15 nm, PLQY 80%, octane]

QNA materials – quantum inks (QNA.inks)

Our flagship materials are **heavy metal-free, high quality, blue light emitting quantum dots & inks**



PureBlue.ink

Photoluminescent PureBlue.inks (**PL - PureBlue.inks**)

- UV curable PureBlue.ink (**PL- PureBlue.UVink**)
- PureBlue.dots in photoresist form (**PL-PureBlue.resist**) *

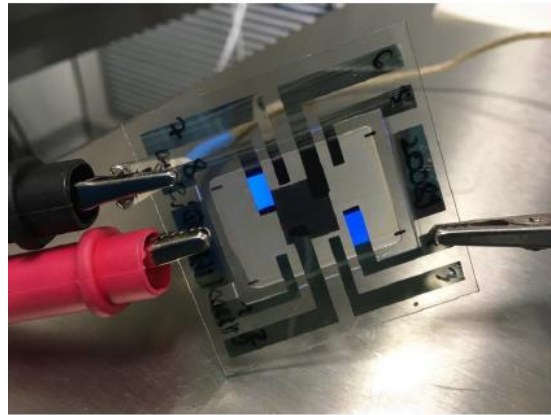
With our technology of QNA.inks, **semiconductors can be printed** on various substrates including glass, plastic foil or paper

- We deliver also **customized solutions** where type of monomers, additives can be selected to obtain desired physico-chemical properties of ink (viscosity, surface tension etc.)
- We can deliver inks with **as high as 40% concentration** of inorganic content

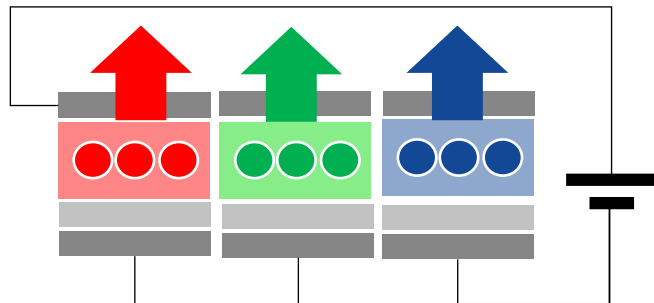
Our goal is to have two product lines for PureBlue.dots

Different applications needs QDs with a different ligands or shell structure.

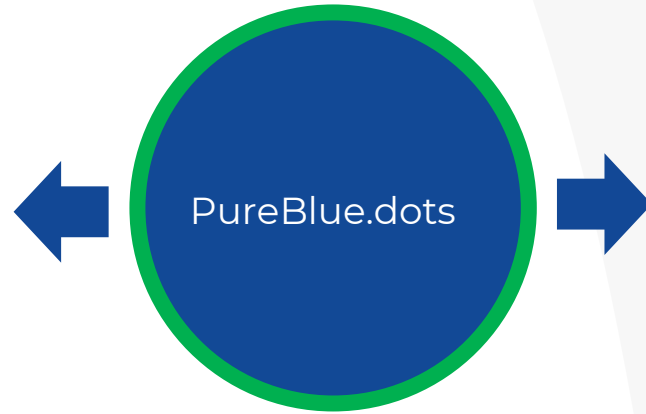
PureBlue.**EL**dots for **electroluminescent applications**



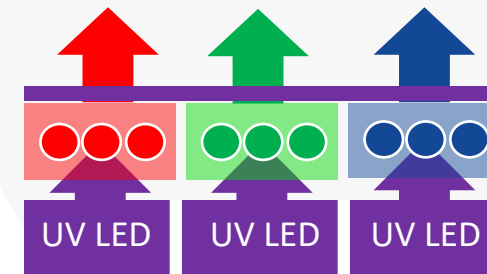
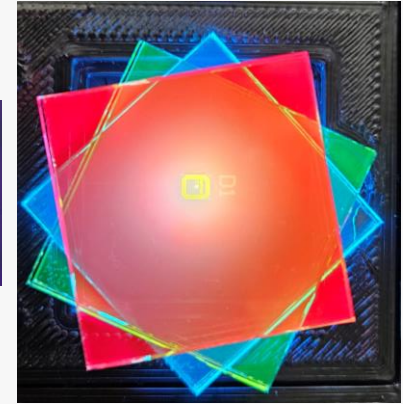
QDEL prototype with PureBlue.dots inside



QDEL Display Technology



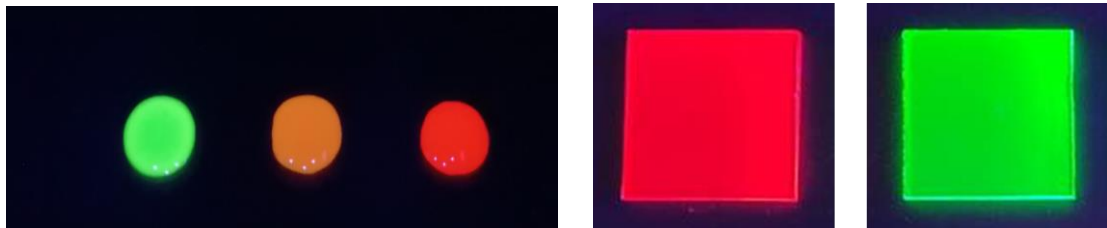
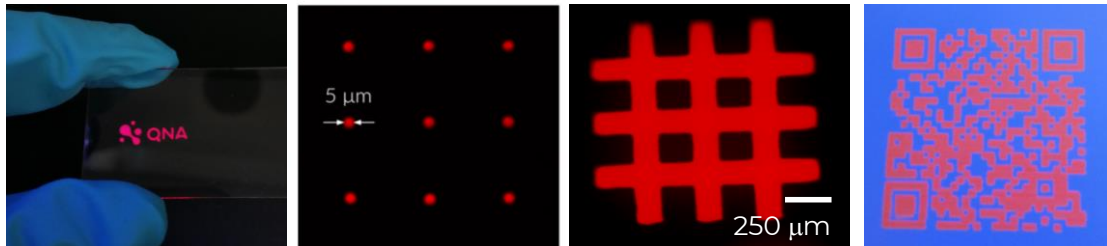
PureBlue.**PL**dots for **photoluminescence applications**



microDisplays Technology

Our potential is beyond blue QDs

In QNA we have know-how on other types of quantum dots



In QNA, we offer also **modifications of other types of QDs** (Cd-based & Cd-free, third party QDs) to enable their:

- efficient **transfer to various solvents**, monomers
- **formulation of QDs inks** with customized rheological parameters
- **formulation of QDs resists** with customized rheological parameters

We are looking for:

- Clients
- Partners



What is your need?

Artur Podhorodecki

CEO

artur.podhorodecki@qnatechnology.com

tel.: +48 882 760 672

www.qnatechnology.com

