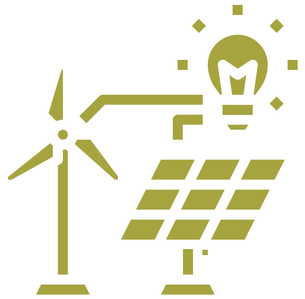
DIAMFAB

DIAMOND ENHANCED TECHNOLOGIES

The next generation of semiconductors

"HARDER, BETTER, FASTER, STRONGER"

Key trends towards a decarbonized economy



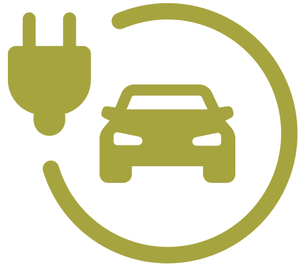
Carbon free electricity production

Energy efficiency improvement

We need to avoid

36,3

giga-tons CO_2 from fossil fuel



Electrification of mobility, transportation and industry process

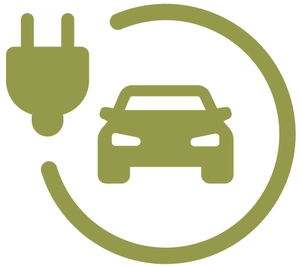
H2

Alternative carbon free fuels

Power Semiconductor: a key decarbonation enabler

POWER
CONVERSION
for distribution

POWER
CONVERSION
for better efficiency



POWER
CONVERSION
for motor management

H2

POWER
CONVERSION
for H2 production (electrolysis)

Silicon limits are reached

Silicon can no longer be used for efficient energy management.

Devices limited to 1200 V

10 % energy lost at each conversion

Heavy converters because of bulky cooling system (limited temperature operation)

DIAMOND

FOR POWER ELECTRONICS

x30
Higher voltage/Si

x5000
Higher current density/Si

>400°C
Higher temperature operation

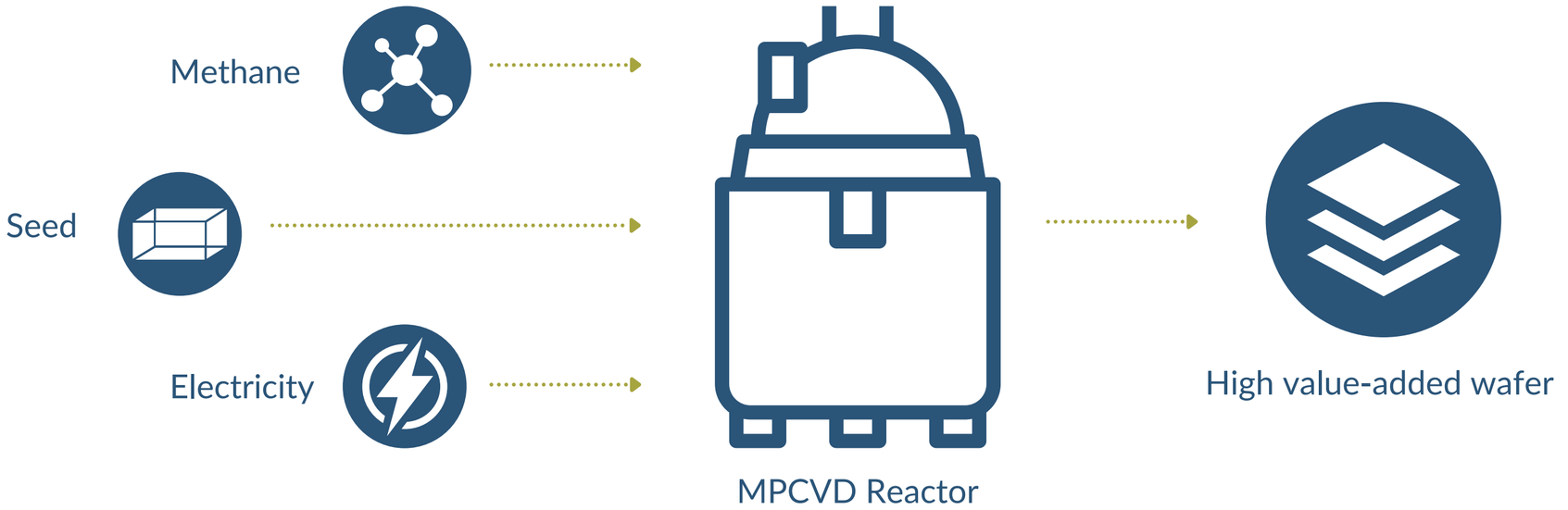
>1 MGy
Radioactivity withstand

80 %
Lighter & smaller converter

90 %
Less energy losses

FOR **MINIATURIZATION** AND
HARSH ENVIRONMENT
APPLICATIONS

DIAMFAB's unique know-how unleashes the semi-conductor potential of diamond

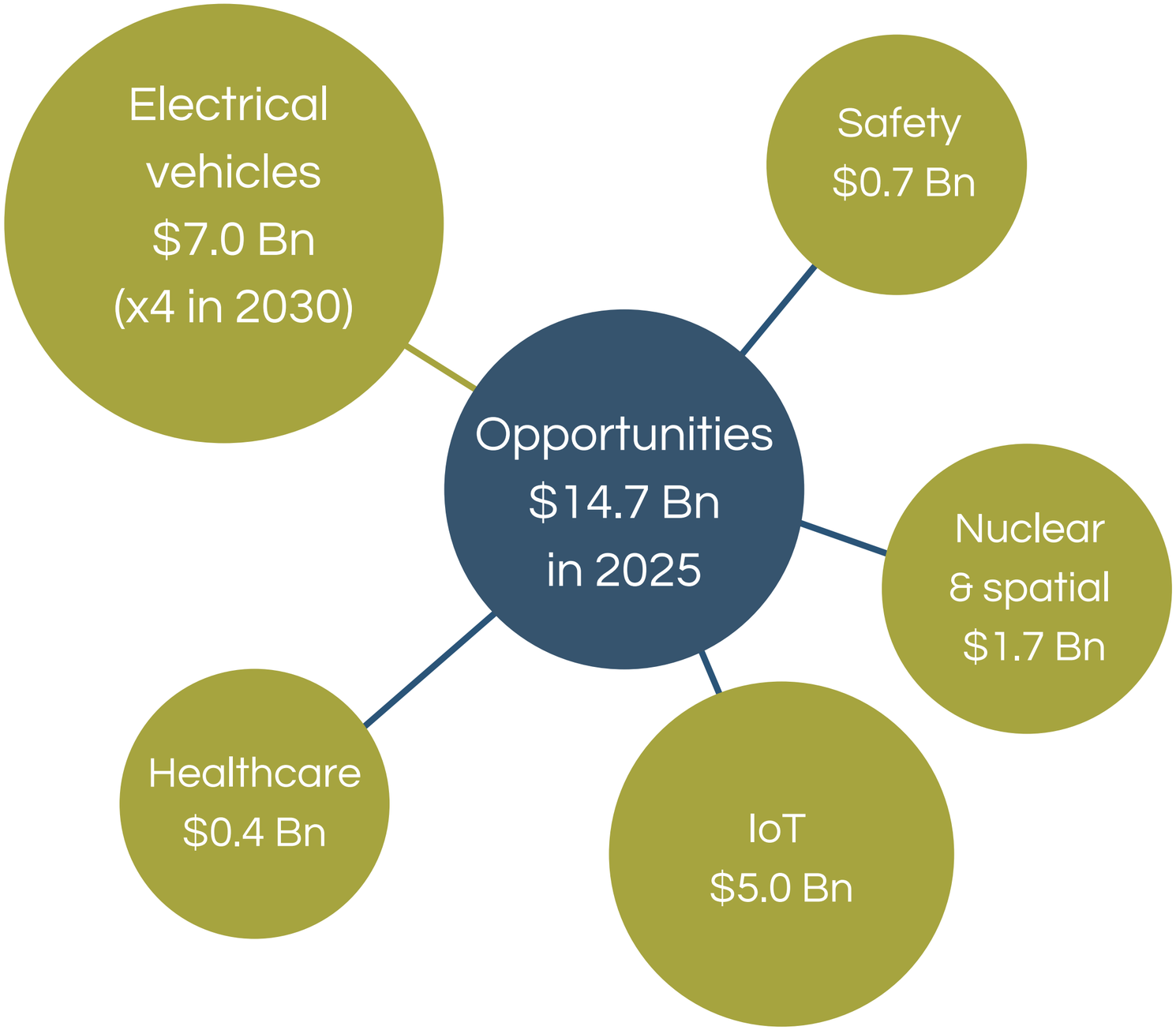


1- A diamond seed, methane (source of C), hydrogen and doping gases (boron, nitrogen) are the ingredients of DIAMFAB's diamond synthesis: epitaxy.

2- In controlled temperature and pressure conditions, we crack methane into carbon that rearranges as a doped diamond crystal at the surface of the seed

3- The high value-added wafer obtained includes active layers (electronic grade) and is ready for device fabrication.

Our high value-added diamond wafer can enter several sectors opening huge market opportunities



DIAMFAB key position in the value chain: at the interface between material and devices

5

Integration of the devices in circuits

Adaptation of blocks to make the best of diamond devices.

4

Device processing

Leveraging existant technologies & foundries to limit CAPEX investment

3

Device design

The Diamfab's diamond know-how allows the design of the best performance diamond devices

2

Epitaxial growth of electronic grade diamond layers

This key stage gives electrical semiconductor properties to diamond

1

Seed wafer

Mechanical high quality - large surface required

Our go to market strategy based on co-development

muRata
INNOVATOR IN ELECTRONICS

IPCEI on Microelectronics

High voltage capacitor for electrical car

soitec

IPCEI on Microelectronics

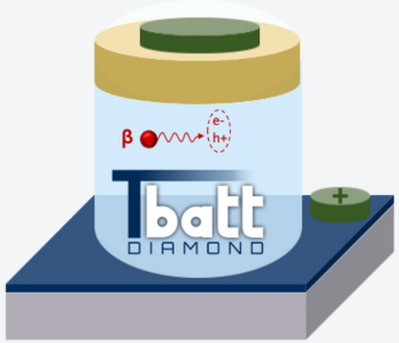
Large Size Diamond Doped epitaxial Synthetic Layers

FRANCE 2030

cea

20 year-long-life µ-battery for IoT

made of diamond and recycled nuclear waste (tritium)



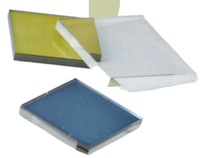
NUCLEAR Valley
FEDERER LES ENERGIES

Our 2 business models with material and services

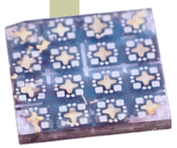
We turn a seed into a high-value added wafer ready for devices fabrication

HIGH VALUE-ADDED WAFER + PROCESS

To Integrated Devices Manufacturers



HIGH PERFORMANCES DIAMOND DEVICES supplier



To end users or OSAT* with a co-development approach

*Outsourced Semiconductor Assembly And Test

Our management team & Leadership

With strong expertise in semi-conductors and innovation

Gauthier Chicot
CEO & co-founder

Ing. Polytech' Grenoble 2008
PhD. Université Grenoble Alpes 2013
10 years experience CEA, CNRS
Innovation Marketing EM Lyon 2019

Khaled Driche
CTO & co-founder

Master UCL (UK), UGA (FR) 2015
PhD. UGA 2018 & Tsukuba (JP) 2019
5 years experience in diamond transistor
Innovation Marketing EM Lyon 2019

Ivan Llaurado
CRO & partnership development director

Electrical engineering INSA Lyon 2004
Marketing and strategy EM Lyon 2005
16 years experience in Business development, team management
@ Schneider Electric

Our advisory board

Experienced members from big industrial players and successful start-ups

Cyril Menon

Advisor Industry

Executive Vice President Operations
@ SOITEC

Yann Roche

Advisor Management

Founder & COO of SynapCell

François Desmarest

Advisor finance

Operating partner & CFO
Serial entrepreneur (x6)

Christel Galbrun-Noel

Advisor Bus dev'

Mobility Segment President
@ Schneider Electric

Our scientific advisors

Diamond world-class scientists

Pr. Etienne Gheeraert

Scientific advisor & co-founder

University Professor @ Grenoble University - CNRS & Tsukuba University

Diamond electronic devices

Pr. Julien Pernot

Scientific advisor & co-founder

University professor @ Grenoble University - CNRS

Electronic transport in diamond

David Eon, PhD

Scientific advisor & co-founder

Assistant professor @ Grenoble University - CNRS

Diamond synthesis

Our R&D team

With strong expertise on diamond from renowned research centers

Jessica Bousquet, PhD
R&D manager - Growth

8 years experience: diamant, MOS2, graphene

Diamond synthesis & doping

Manoël Jacquemin, PhD
Engineer

Dov Nusimovici
Engineer

Mathieu Loyer
Engineer

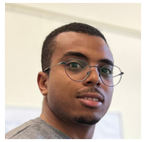
Juliette Letellier, PhD
R&D manager - Devices

5 years experience: diamond diodes and MOSFET

Devices fabrication & characterization

Eliott Corne
R&D technician

Damien Michez
Engineer



Mehdi Oujanba
Engineer

DIAMFAB
DIAMOND ENHANCED TECHNOLOGIES

in few figures :

Awards :

i-Lab
21e édition du concours d'innovation i-Lab
Grand prix

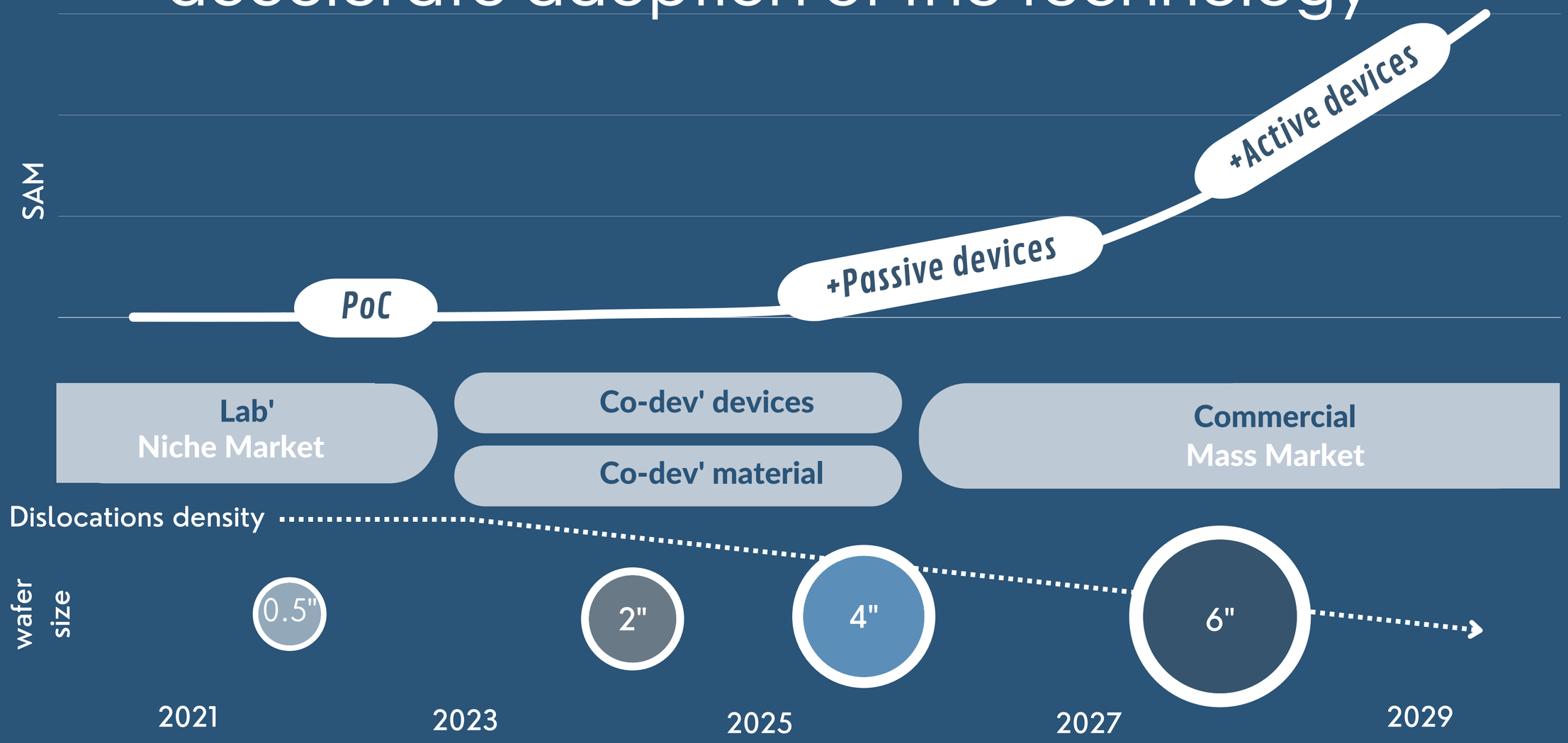
Rotary | LE TROPHEE ROTARY de la création d'entreprise

GRENOBLE ECOBIZ | BANQUE POPULAIRE AUVERGNE RHÔNE ALPES
11E ÉDITION INNOTROPHÉES 2020

Réseau Entreprendre ISÈRE

Linksium
technology transfer & startup building
Grenoble Alpes

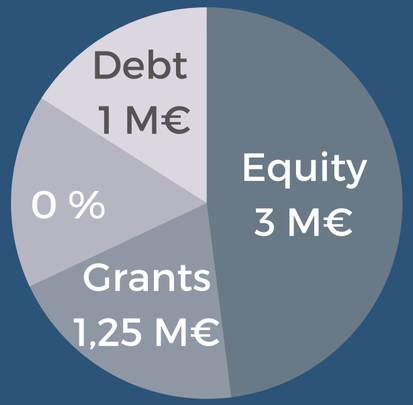
Our roadmap to lower unit costs and accelerate adoption of the technology



To accelerate our access to market

- Reach pilot scale: 4" wafers
- Demonstrate devices (capacitor & battery)

3 M€
SEED ROUND



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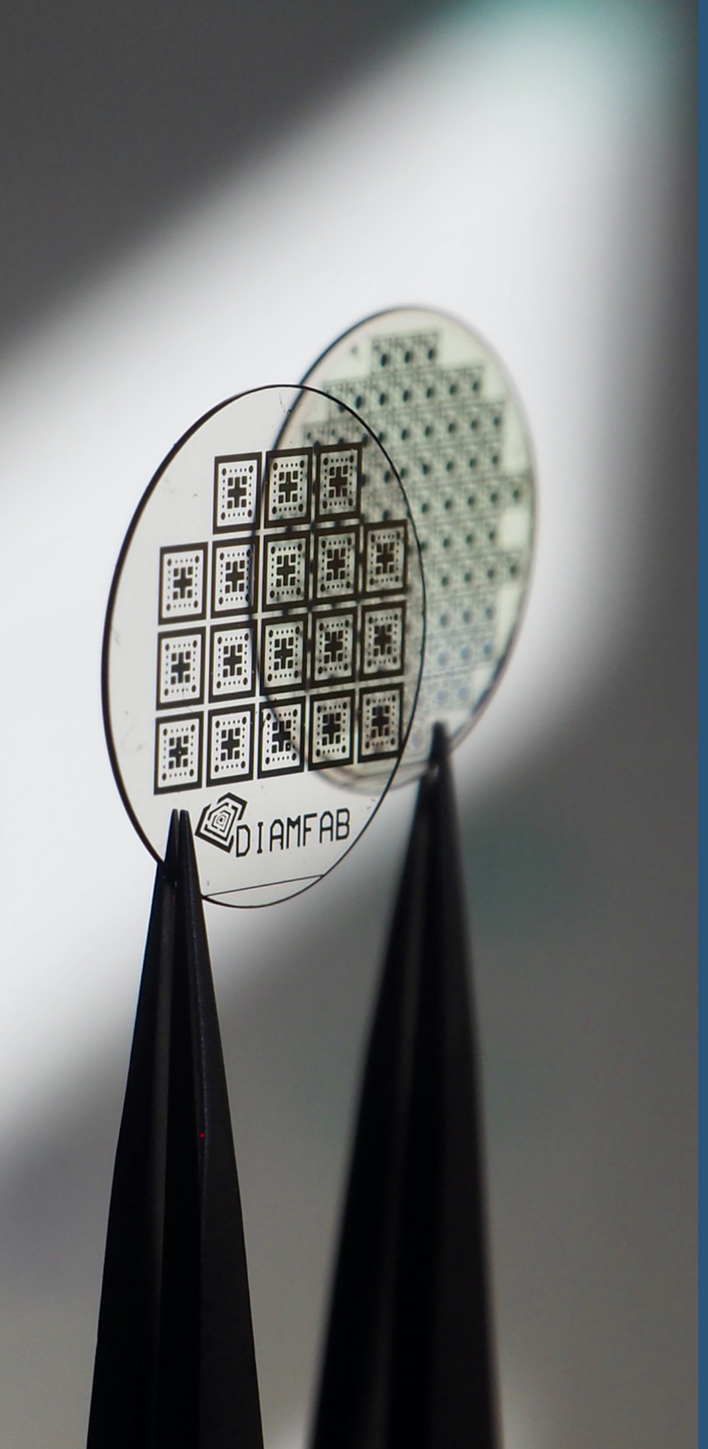
Disruptive technology to meet major environmental and economic challenges

DIAMFAB
DIAMOND ENHANCED TECHNOLOGIES

Thank you



Pitch Deck Presentation

DIAMFAB

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