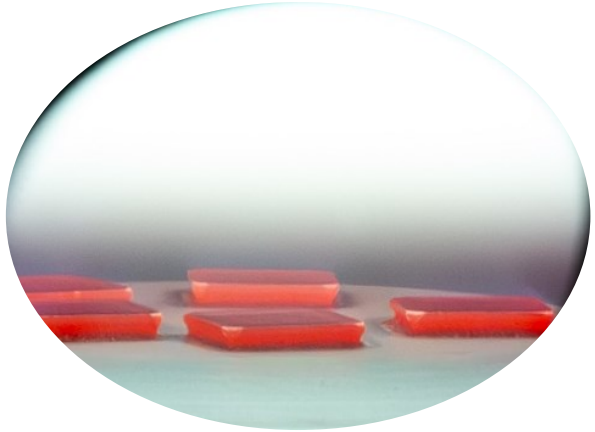
HIQUTE DIAMOND

Lab-grown diamonds powering the future of technology

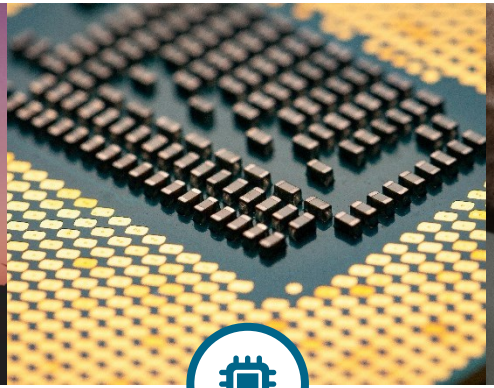
Company Presentation – Q4 2024



Current high tech materials **have reached their limits**

Power Electronics

- **SiC & GaN cannot operate** up to thousand volts
- **A lot of energy is lost** due to the lack of efficiency of circuits

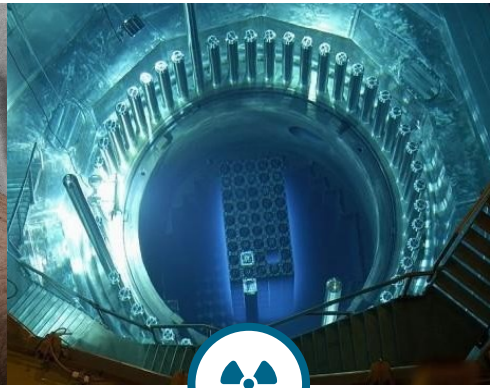


Quantum Computing

- **Silicon is reaching its physical limits** for high-performance computing
- **Some problems cannot be solved** with classical computing

Quantum Sensing

- **Sensors cannot detect critical variations** in our body
- **Need for reliable navigation systems** without satellite connection



High-Perf Sensors

- **Sensors do not last long enough** in extreme environment
- **Sensors accuracy struggles** when temperatures change quickly

We are now able to consistently produce **exceptionally high-quality diamonds using CVD process**

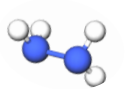
CVD growth process over a seed

Carbon source
(CH_4 gas)

⊕

Energy source
(electric plasma)

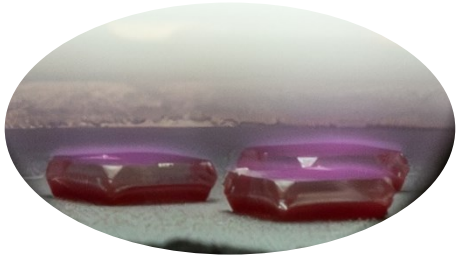
⊕



Dopant source
(B_2H_6 or N_2 gases)

Plain

Functionalized



x5-10
larger operating voltage vs GaN

x15
thermal conductivity vs Silicon

Excellent
quantum properties at room temperature

x5
radiation hardness vs Sapphire

There is a **significant market opportunity** enabled by our product portfolio

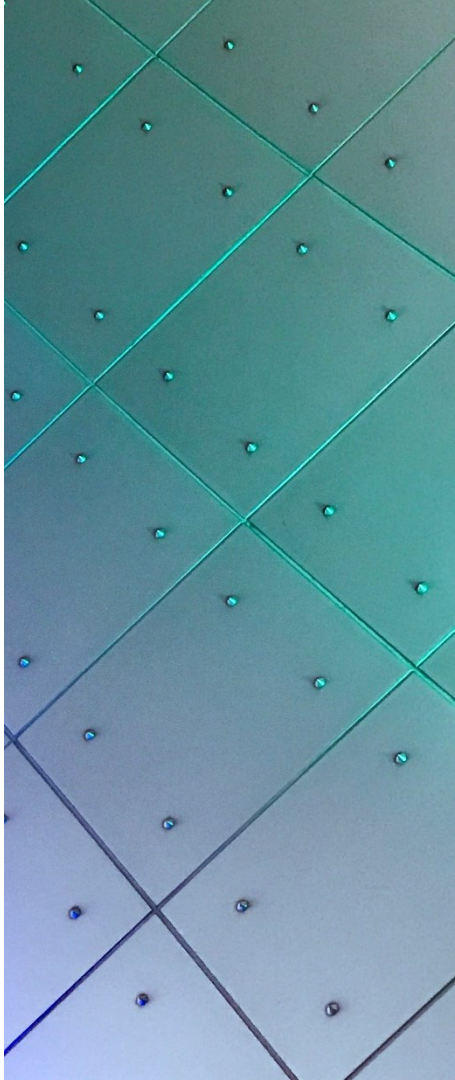
	Power Electronics	Quantum Computing	Quantum Sensing	High-Perf Sensors
Tipping point	2028	2028	2025	2025
CAGR	40%	30%	20%	<10%
2040 market	>10B$	~10B$	>5B$	>1B$

Future markets with potential outstanding growth and huge potential

Emerging market with solid growth and significant potential

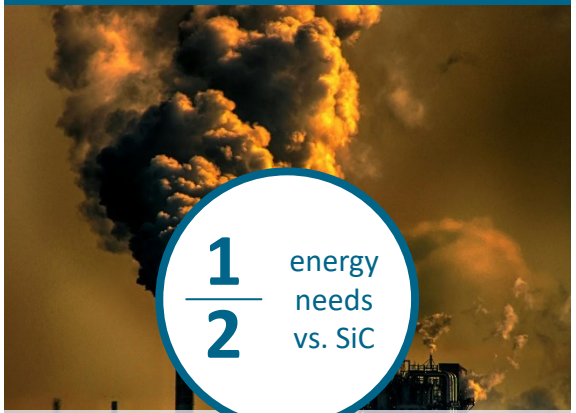
Incremental market with standard growth and limited potential

Source : McKinsey & Company Quantum Technology Monitor, Bosch Startup Mines Diamond Flaws for Magnetic-Field Quantum Sensors, Yole Power electronics: meeting the shift towards electrification and renewable energy trends



On top, our product portfolio **enables a sustainable revolution**

Reduced GHG emissions of **wafers manufacturing**



Diamond CVD process has reduced energy consumption

Lower GHS emissions **across the whole value chain**

Efficient electronic devices reduces energy consumption & cooling needs of EV, Data centers or Communications infrastructures

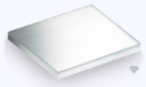
Efficient **resources management** beyond GHG

Diamond enables a reduction in reliance on critical materials, providing a local and sustainable alternative

Our foundry is already addressing these markets with **3 product ranges and preparing key technological enablers**

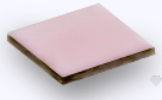
BLEU

Thick, heavily boron-doped single crystal plates



BLANC

Ultra pure diamond plates grown with ^{12}C isotope



ROUGE

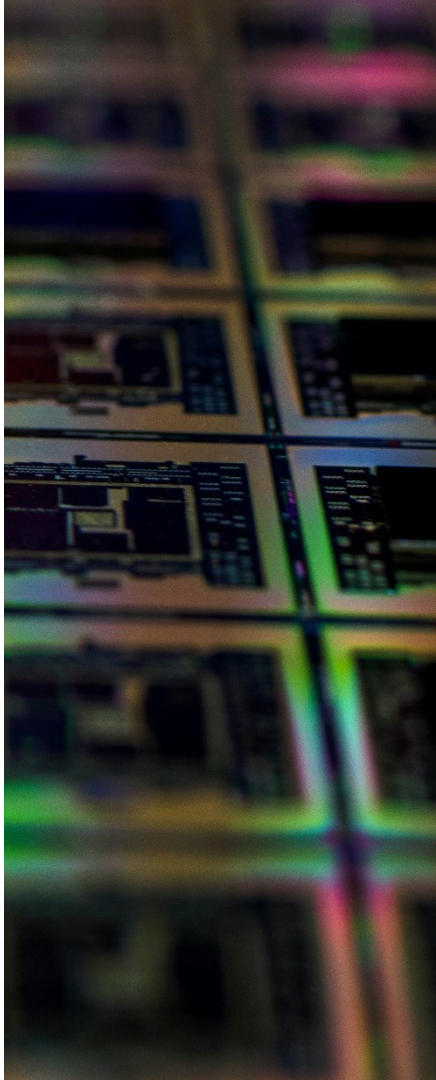
Nitrogen doped diamond plates with ^{12}C isotope

Semi-conductor (Bleu) & electrically insulating (Blanc) for next gen power electronics

Quantum core elements (Rouge) with sensitivity & stability optimizers (Blanc) for quantum computing & sensing

Optimized sensing & extreme durability for high-perf. sensors

Larger dimension wafers → Higher quality wafers → More selectively doped wafers



We already offer **high quality diamonds** to our clients with **attractive unit economics**

TARGET CLIENTS

Design & Assembly components (OEMs)

Device Manufacturers & Integrators

UNIT ECONOMICS

Example for Blue diamond 4x4mm wafer, €

Figures disclosed under NDA

Our go-to-market strategy is already supported by key clients' LOI and sales

Sales goal

Lock multi-year contracts to provide standardized products

GO-TO-MARKET STRATEGY

- **Codevelop tailor made products with customers** via Material Transfer Agreement & direct sales for emerging markets
- **Unlock technological roadblocks with key partners** via R&D projects for high potential markets

CURRENT MARKET TRACTION

- **5 LOI** received to date that demonstrate customer needs and strong interest

Partners disclosed under NDA

- **6 MTA signed to date**

Partners disclosed under NDA

- **250k€ of revenue** in 1.5 years (80+ plates to 20+ customers worldwide)

Partners disclosed under NDA

- **800k€** of R&D contracts secured for 2025-2026 with 10+ partners

DARPA Orbray LSM elementsix DE BEERS GROUP

We rely on **Key Differentiators** to capture the market

KEY COMPETITORS

element six DE BEERS GROUP

DIAMOND FOUNDRY

DUTCH DIAMOND GROUP

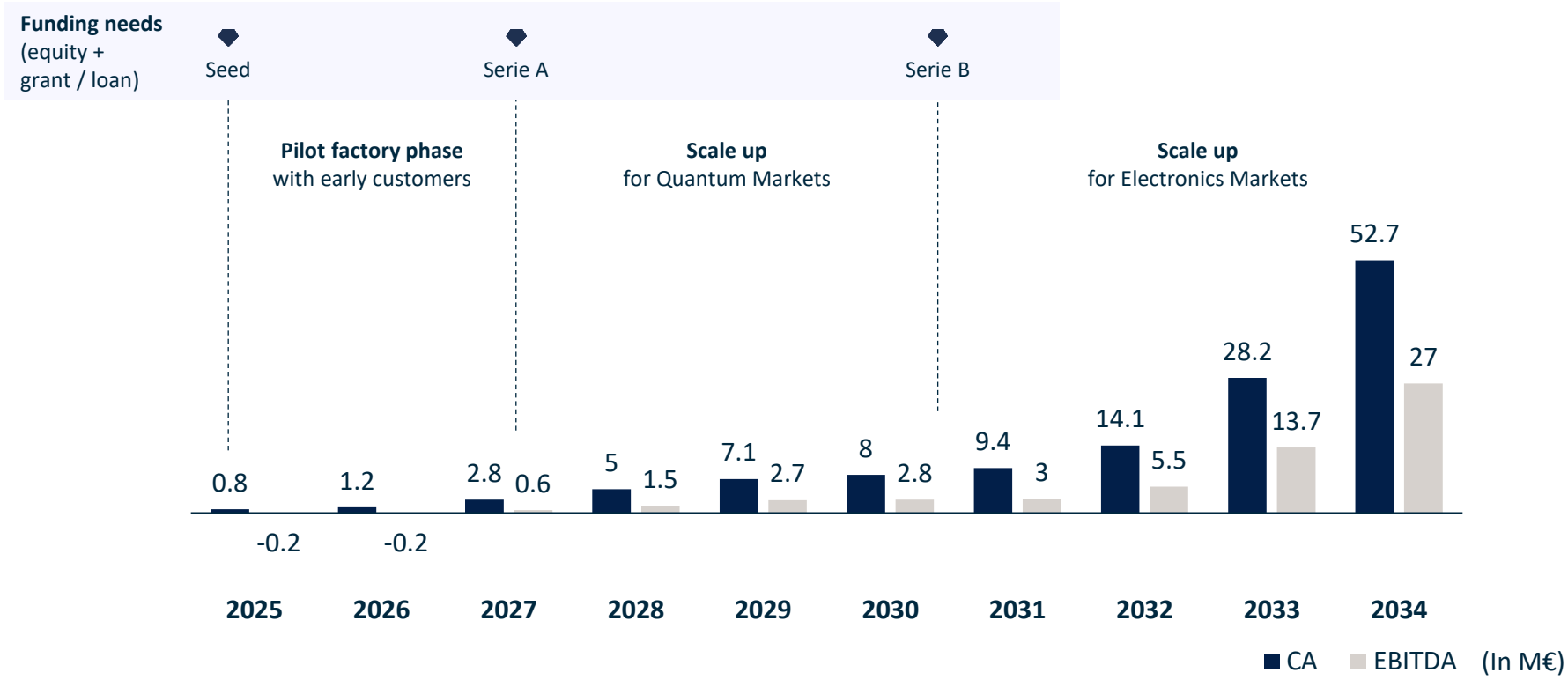
APPSILON ENTERPRISE

EDP

OUR KEY DIFFERENTIATORS

- **Cutting-Edge Innovation** – Leveraging 30 years of groundbreaking research from the world-renowned LPSM – CNRS to drive technological advancements
  - *Specific expertise in Reactor customization*
  - *Recognized patent on defect reduction*
  - *Unique worldwide boron-doped diamond supplier*
- **European Independence** – Committed to enhancing European sovereignty by offering locally sourced alternatives
- **Tailored Solutions** – Offering customizable products to address specific client needs unmet by competitors

Our ambition



We identify 3 technological challenges to consolidate IP / know-how & **unlock strong market growth from now on**

	Quantum sensing & high-perf. sensors	Quantum computing	Power electronics
Tipping point	**2025**	**2026**	**2027**
Larger dimension wafers	Source **large dimension seeds** & adapt production to 2” (by 2026) then **4” wafers** requirements DARPA elementsix DE BEERS GROUP		
Higher Quality wafers	Reduce **defects** to a very low level *Partners disclosed under NDA*	Adapt production to **others orientations** *Partners disclosed under NDA*	
More selectively doped wafers	Improve **quantum properties** *Partners disclosed under NDA*	Industrialize with a low amount of **impurities** *Partners disclosed under NDA*	

On top of technological challenges, **our 24 months roadmap** is to grow sale contracts and scale-up our production capacity

Grow sale contracts

- **Enlarge our prospect base** (from 15 customers in 2024 we target to identify 30 additional by end of 2026)
- **Develop our sales** (increase of our yearly turnover reaching 1+M€ sales per year by 2026)
- **Sign key multi year contracts** with a target 80% of our 2027-29 sales (~10M€)

Scale production capacity

- **Enable the Pilot factory** (3 reactors + processing equipment investments & installation)
- **Stabilize our production & our processes** (ensure technical reproducibility & task automation)
- **Transfer continuously the production** from the LSPM to the pilot factory securing supply of our customers

Current funding round

PROPOSED OPERATION

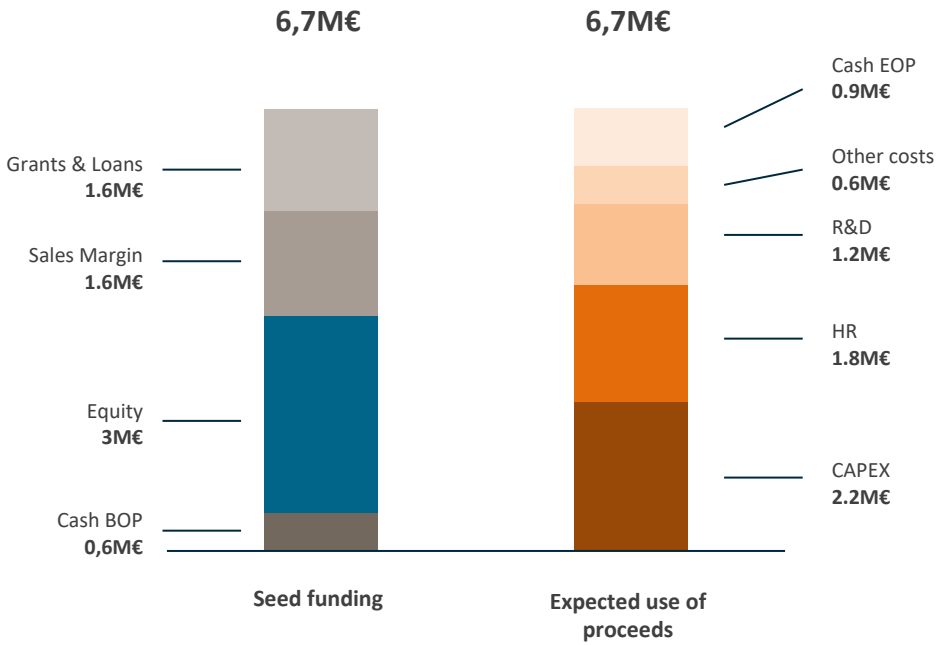
We currently seek an **equity investment of 3M€**

1.8 M€ already secured

We are looking for **additional investors** to join our team and **bring expertise** to our Advisory team with a **closing objective in February 2025**

USE OF PROCEEDS

24 months cash usage base on business plan



Our team

Management team

Florent Alzetto
CEO

- 4 years in strategy consulting @ BCG
- 8 years in R&D / NPD @ Saint-Gobain
- PhD in quantum physics @ LPS-ENS

Riadh Issaoui
CTO & Cofounder

- 10 years in diamond research @ LSPM
- 4 years in process eng. / mgt @ Altis
- PhD in diamond growth @ LSPM

Strategic & Scientific advisory

Y. Matton x Technofounders
Strategic advisor & Cofounder

- 14 high-tech ventures built in 8 years
- 80% company survival rate
- 70M€ investment attracted

TECHNOFOUNDERS

J. Achard, F. Bénédic, O. Brinza & A. Tallaire - Scientific Advisors & Cofounders

100 years of combined exp. in diamonds (pioneers in NV centers & heavily boron doped, expertise in reactor design & dislocation control)

LSPM cnrs

Appendices

Disruptive innovations in technology can be enabled by synthetic diamonds

Power Electronics

- **Ultra fast** EV **charging**
- **Higher** EV **autonomy**
- **Efficient** energy storage
- **Faster** communications

Quantum Computing

- **New** drug **developments**
- **Efficient transportations**
- **Faster AI** model trainings

Quantum Sensing

- **Critical** diseases **detection**
- **“Everywhere”** navigation & detection
- Electronics **manufacturing costs reduction**

High-Perf Sensors

- **Extreme conditions** sensing
- **High-energy** particles monitoring

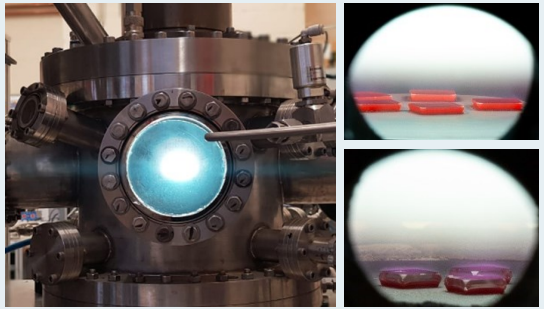
We offer a **unique integrated diamond production**, from tailor made growth to comprehensive quality analysis

Pioneering Diamond Growth

Custom In-House Diamond Reactors

- **Precise control** over crystalline quality and growth speed
- **Flexible recipes** for custom specifications

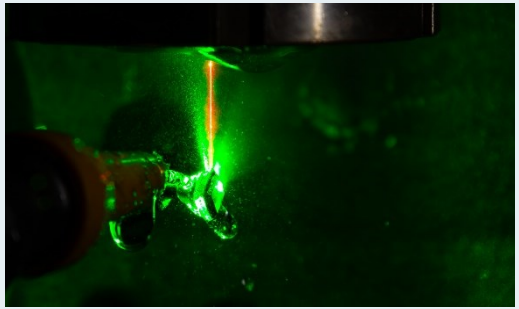
100 cumulated Years of Expertise: Dislocation reduction, reactor optimization, isotopic enrichment (12C), seed autosourcing



Advanced Tailored Processing

State-of-the-Art Finishing Equipment

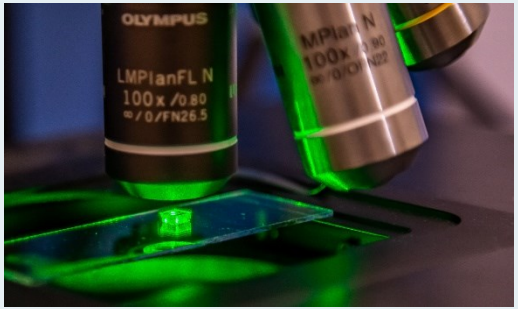
- **Color center engineering:** Irradiation, annealing, implantation
- **Precision polishing:** Surface finishing
- **Laser cutting:** Custom diamond shaping
- **Specialized network:** Access to tailored processing services



Cutting-Edge Quality analysis

Comprehensive Analytical Tools

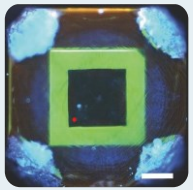
- **AFM:** Precise surface measurements
- **Raman:** Material and stress analysis
- **DiamondView:** High-resolution diamond imaging
- **Additional resources:** In-house and partner labs (GEMAC, IRCP, etc)



HiQuTe Diamond **rely on strong IP foundations** based on 30 years of R&D in LSPM Lab

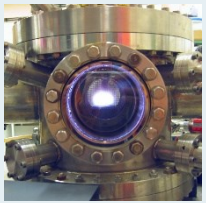
Technological asset

« Elimination des dislocations dans un monocristal »



Active patent 2015

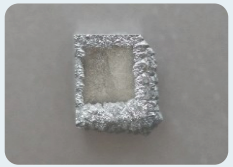
« Reactor design for microwave plasma-assisted deposition »



Active know how

Technological and scientific know how

« Method for forming a single-crystal Diamond for particle detection »

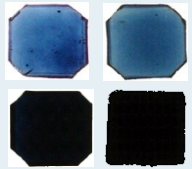


Active know how

Isotopic ^{12}C bulk diamond with NV centers

Active know how

Unique know how to faricate heavily boron doped signle crystal diamond



Active know how

Our core team **combines industrial excellence experience** and **100+ years of** cumulated **research on diamonds**

Florent Alzetto, CEO of HiQuTe Diamond, has 4 years of experience in strategic consulting at BCG and 8 years in R&D at Saint-Gobain. He holds a PhD in Quantum Physics from ENS.

- Business strategy
- R&D and industrial innovation
- Leadership and team management

Riadh Issaoui, CTO and co-founder of HiQuTe Diamond, has 10 years of experience in diamond research at LSPM and 4 years in process engineering and management at Altis. He holds a PhD in diamond growth from LSPM.

- Process engineering and management
- Diamond growth and engineering processes
- Innovation in advanced materials

Jocelyn Achard, co-founder of HiQuTe Diamond and professor at Université Sorbonne Paris Nord, is an expert in diamond growth and electronic applications, and has worked at LSPM since 1998.

- 27 years of experience in diamonds
- Diamond growth and electronic applications
- Support on scientific development

Fabien Bénédic, co-founder of HiQuTe Diamond and associate professor at Université Sorbonne Paris Nord, is a specialist in plasma modeling and diagnostics. He has worked at LSPM since 2001.

- 27 years of experience in diamonds
- Plasma modeling and diagnostics
- Support on advanced materials applications

Ovidiu Brinza, co-founder of HiQuTe Diamond and research engineer at CNRS, is an expert in process development and reactor engineering. He has worked at LSPM since 2009.

- 19 years of experience in diamonds
- Development of innovative processes
- Reactor engineering and diamond technologies

Alexandre Tallaire, co-founder of HiQuTe Diamond, is a research director at CNRS and an expert in diamond defects and quantum applications. He has worked at IRCP since 2017.

- 22 years of experience in diamonds
- Diamond defects and quantum applications
- Support for R&D strategy

Our technology already offers **competivite performances on key metrics**

4” wafers

Size up to 10 x 10 mm²
Custom growth reactor allowing to grow 2 and more inches diamonds

$8x10^{20}/cm^3$

Boron concentration
Unique worldwide boron-doped diamond supplier

[All] < 1ppb

Purity [N] & [B] < 5 ppb
“Electronic grade” quality (ultrapure & low defects)

T2* > 3µs

Coherence time > 2µs
Unique NV “recipe” know-how allowing diamonds with best quantum properties

$10^3/cm^2$

< $10^5/cm^2$ Dislocation
1 patent to reduce dislocations

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