

BraneCell

A black and white photograph of a large flock of birds in flight over a body of water. The birds are concentrated in a horizontal band across the middle of the frame, creating a dense, textured shape. The water in the foreground is calm, reflecting the sky and the flock. The background shows a distant shoreline with some trees and a cloudy sky. The title 'BraneCell' is overlaid in large, white, sans-serif font at the top right.

Quantum AI Chip by new Molecular Photonics Technology

Copyright BraneCell,-2025

Chris Papile proprietary

One@BraneCell.com

Executive Summary

BraneCell

1st invented new Qubit Class	\$ >400 Billion Market (at 19 % CAGR)	10⁻² decreased AI power consumption	10⁻² lower Fab invest and nature footprint.
Patent portfolio and experienced team enables world-class QML positioning.	AI Chips (2030) plus quantum-enabled properties and accelerator markets.	-10 ² increased IT density -Some applications exponential speedup. -Possible no chip heat-up	Decentralizes APM Fab, ASIC, gentler on the environment--more common metals, biomimetic basis.

BraneCell is pioneering next level AI chip hardware: denser information, exponentially faster in some applications, private (decentralized) fabrication, secure processing. Quantum machine learning (QML) is early stage. We have invented a new trichromatic qubit, and application to QML is early TRL. We welcome seed investors, now..

Snapshot

BraneCell

Ambient temperature, strongly-correlated many body nanomaterials
used in quantum neural networks, as the foundation for chips for:

Quantum AI

Fits with a new decentralized; a private chip fabrication.
Uses a natural quantum biomimetic, never before productized.
Entangled trichromatic emitters and receivers.

Proprietary Chris Papile

BraneCell experimental results image

One@BraneCell.com

The Problems with today's AI and Quantum Chips

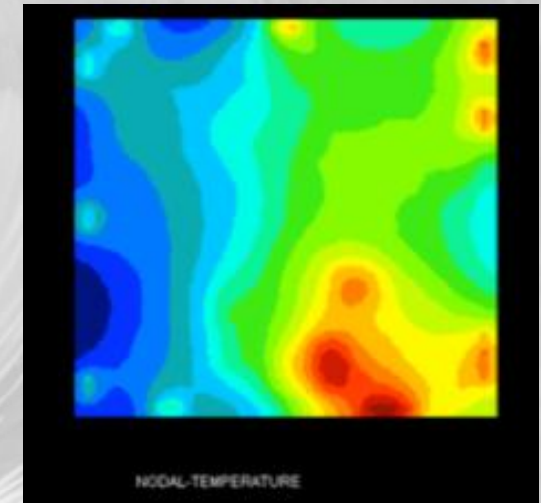


AI

- 1. Excessive heat up and internal temperature gradients lowering (40 %) chip life in 24/7 cloud use
- 2. Excessive cost to invest in a new fabrication facility
- 3. Oligopoly of manufacturers
- 4. Energy consumption while in use, ultimately injures environment
- 5. Data compression strategy

Quantum Chips

- 1. Single photon gate operations are delicate
- 2. Cold temperatures or large footprints are often needed
- 3. Only very specific applications provide exponential speedup





Smaller than Classical Warmer than Quantum

BraneCell Approx. 110 X smaller Node + Interconnect Feature Size		
	Interconnect + Node (nm ²)	BraneCell shrinkage (improved density)
BraneCell	9	1
3 nm, Samsung	1,010	1/112
5nm, Classical	1,530	1/171

We can fit our complete quantum network on their chip replacing only 2 of their transistors.

Quantum Machine Learning & BraneCell

A blue circular logo with the text "BraneCell" in white.

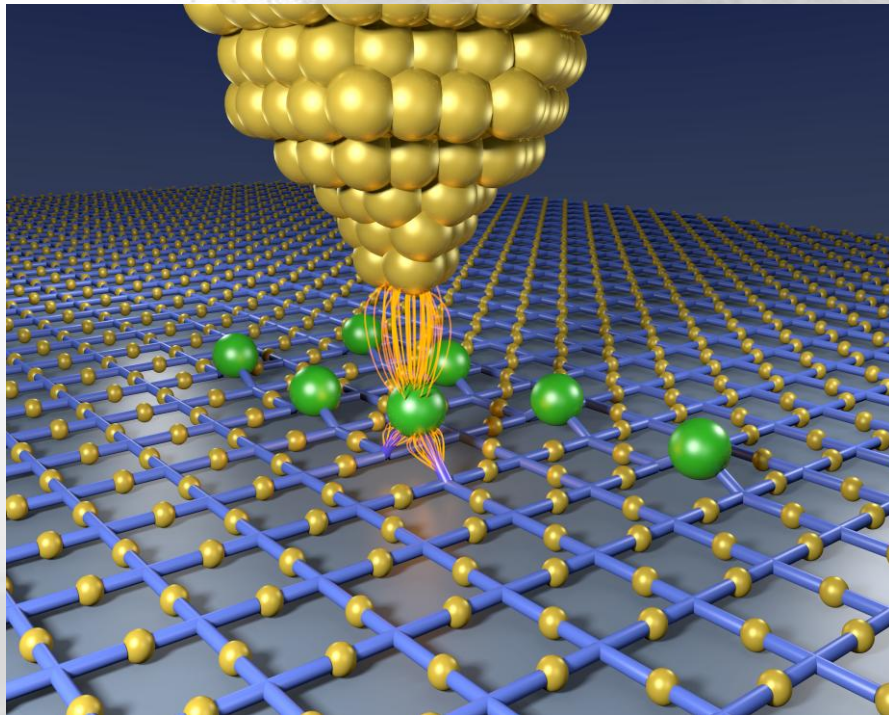
Unlike semiconductor-based AI, BraneCell's QNN AI (QML):

- Better information density [1]
- Our photon-induced operations are a non-self-heating QNN [4]
- Potentially much lower power consumption
- May train quicker [2]
- Our approach may circumvent vanishing gradient [3]
- Low investment for a Fab facility
- Inter Quantum AI chip communication unhackable (QSDC)

We have met with some debate about quantum machine learning. But just talk with us, and you will see the new qubit and the promise it holds. We are not new to this theme, we have been doing the science for > 10 years.

We will Onshore the Neural Network Fab at 1/100th CAPEX

BraneCell



Copyright CFEL 2022

Surface of molecular placement

Development of the newest methods in Atomically Precise Manufacturing (APM) changes the game of chip fabrication, from a > \$ 8 Billion CAPEX to a < \$ 80 Million Fab facility (at same \$/chip, lower throughput per facility). Such Fabs can be distributed/decentralized and application-specific, tailor-made quantum AI chips. This is the frontier of AI chip manufacturing.

Intellectual Property Portfolio



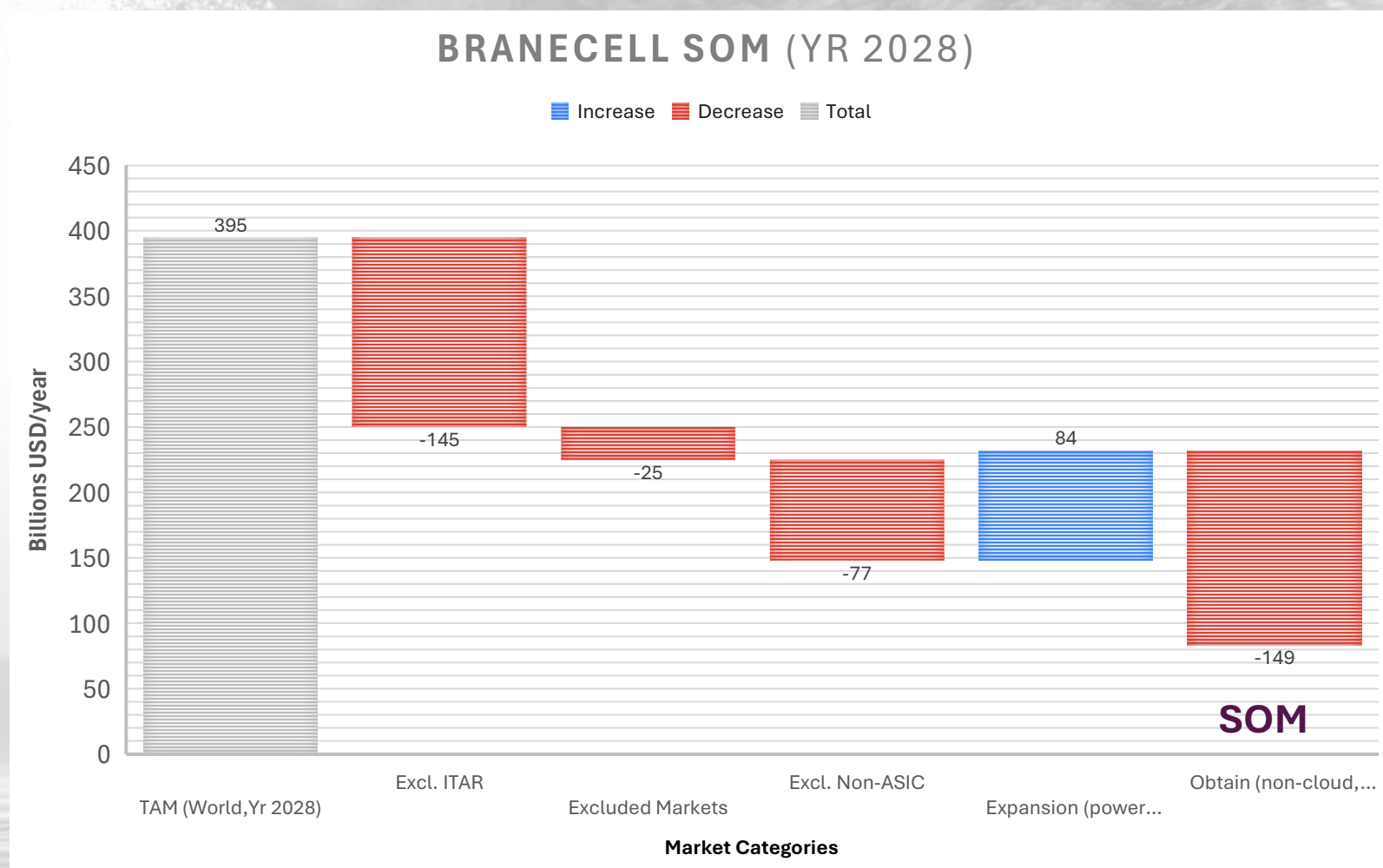
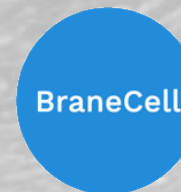
2 granted patents:

[US20160189054A1 - Isothermal Quantum Computing Apparatus and Materials](#) - [US9231707B2 - Methods and materials for integer quantum computing](#) –

Several applied and provisional patents on hardware.

Next funds increase patent portfolio in hardware, algorithms

SOM from TAM



USA & EU Established Principal Investigators

BraneCell



Christopher Papile, Ph.D.

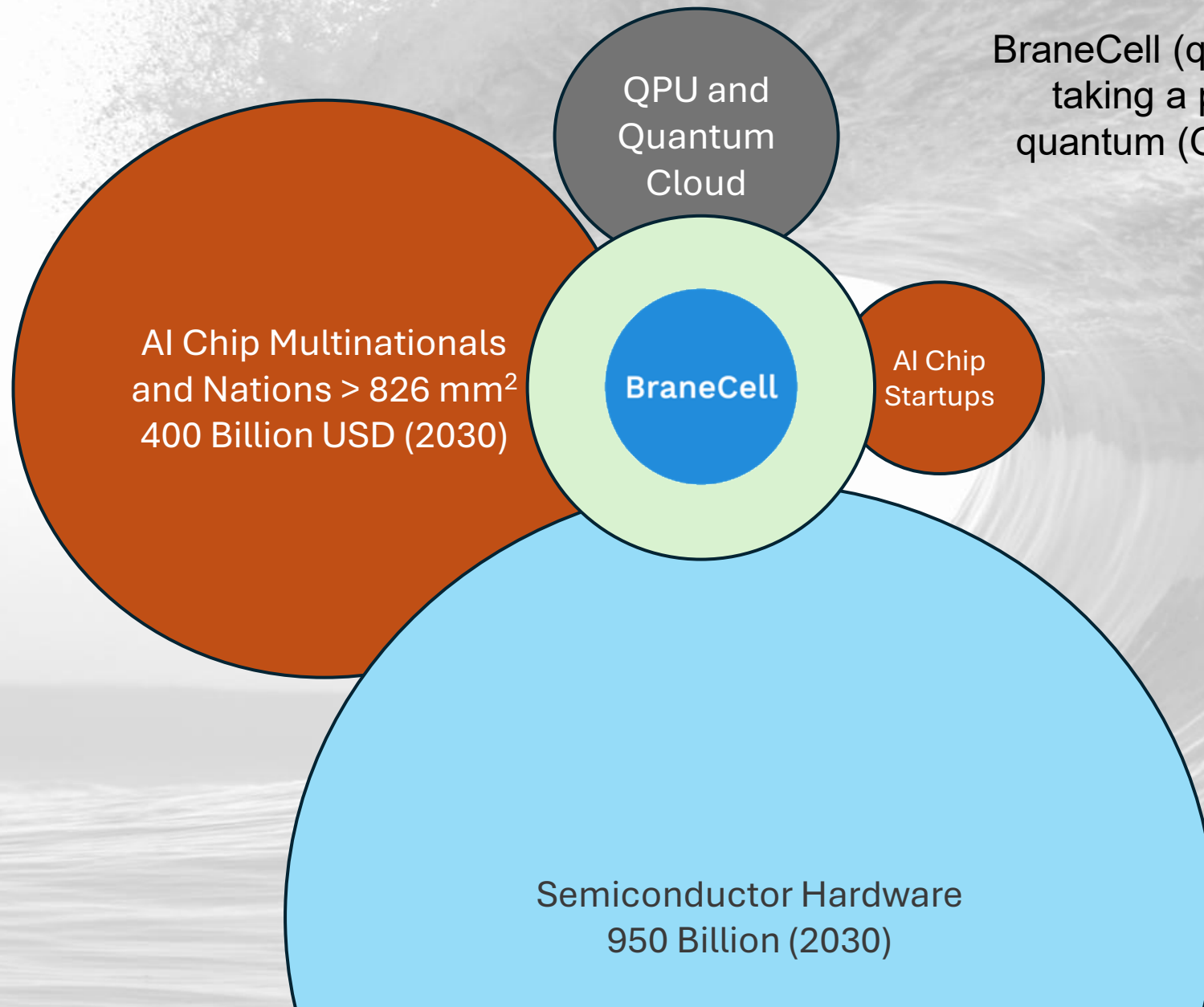
- Ludwig-Maximilians-Universität München (Prof. Helmut Knözinger) & University of Delaware Ph.D. Chem. Engineering, USA
- Global Head at a ThyssenKrupp Task Force (obtained \$ 1 B qualified leads which became > \$ 2 B by spin-out; IPO of my Task Force became **Nucera**)
- Leader of portion R&D at ExxonMobil/Technip licensing 50/50 JV
- Co-started Arthur D. Little's Epyx Fuel Cells (now **Nuvera** Fuel Cells)
- Co-started, out of **Novartis**, Solvias AG (*supramolecular R&D*)
- Won & P.I. for > \$ 28 Million in USA + EU grants; > 50 PCT, national stage, granted, applied patents and publications in peer-reviewed journals.



Prof. Lauren Sammes, Ph.D.

- Ph.D. Imperial College, London
- Former Distinguished Prof. Colorado School of Mines
- Former chaired professor University of Connecticut
- Adjunct professor Husson University
- Former CTO, LERC, the start-up raised \$ 43 Million
- Previous Max Planck Alexander von-Humboldt Fellow
- Frequently USA Grant Principal Investigator
- > 200 peer reviewed scientific publications





BraneCell (quantum-properties AI Chip) =
taking a portion and expanding the
quantum (QPU), AI and semiconductor
chip markets.

*Our neural network designs are a biological mimetic.
(to discuss with qualified investors)*



Extras

Whatever Politics, this Topic will Only Grow

BraneCell



CYBERSCOOP



GOVERNMENT

Trump administration planning expansion of U.S. quantum strategy

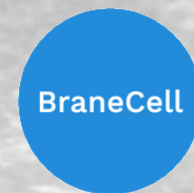
Multiple sources tell CyberScoop that options under consideration include executive orders or a national action plan, similar to the one the administration released for AI in July.

BY DEREK B. JOHNSON • SEPTEMBER 19, 2025



Listen to this article 7:03 Learn more.

Business Postulate



Unlike the “quantum community’s” focus on materials modeling, we believe applications paid from client revenue streams, namely:

- (1) waste classical chip energy (improvement),
- (2) security,
- (3) provenance
- (4) business functions

are larger, more urgent, more willingness to pay.

A Couple Citations



1. *Nat Comput Sci* 1, 403–409 (2021); Woerner
2. *Nature Comput Sci* (2021); Cole
3. *AAAI Conference on Artificial Intelligence*, 2024
4. *20th International Symposium on Quality Electronic Design (ISQED)*. IEEE, 2019
5. How a Chinese team used quantum tech to follow electrons on the superconductor trail
| South China Morning Post (scmp.com)
6. <https://www.linkedin.com/feed/update/urn:li:activity:7297084554664701952>

Just samples: we can provide more citations to sincere investors and those who wish to join BraneCell

BraneCell

Quantum AI Chip Reduced Power Increased Performance

One@BraneCell.com | +1 857 529 7151

HUDZone and WV Disadvantaged Company

Dr. Lauren Sammes
Dr. Christopher Papile .
and BraneCells (team)

***Proprietary
Starter PDF***

[Quantum and AI
Den Haag
Award-1
Award-2](#)

Introduction.

[Links-1](#)
[Links-2](#)
[Links-3](#)
[Links-4](#)

[Seminar series Universität Düsseldorf](#)

Copyright BraneCell,-2025

www.BraneCell.com