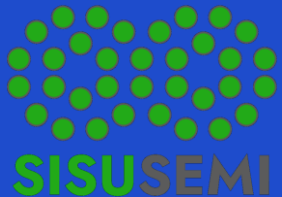
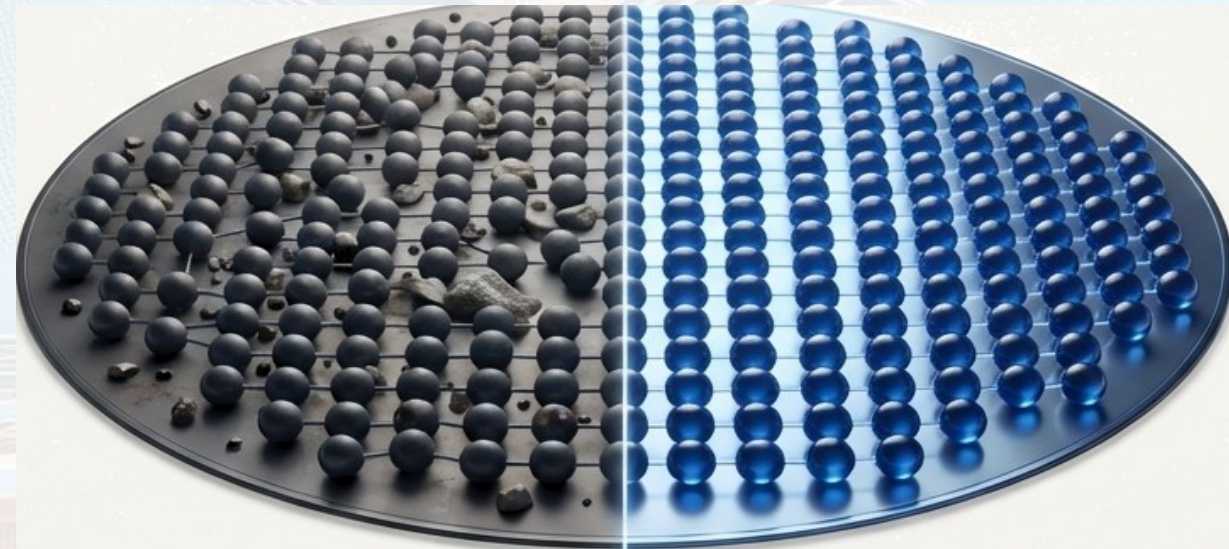


# SisuSemi

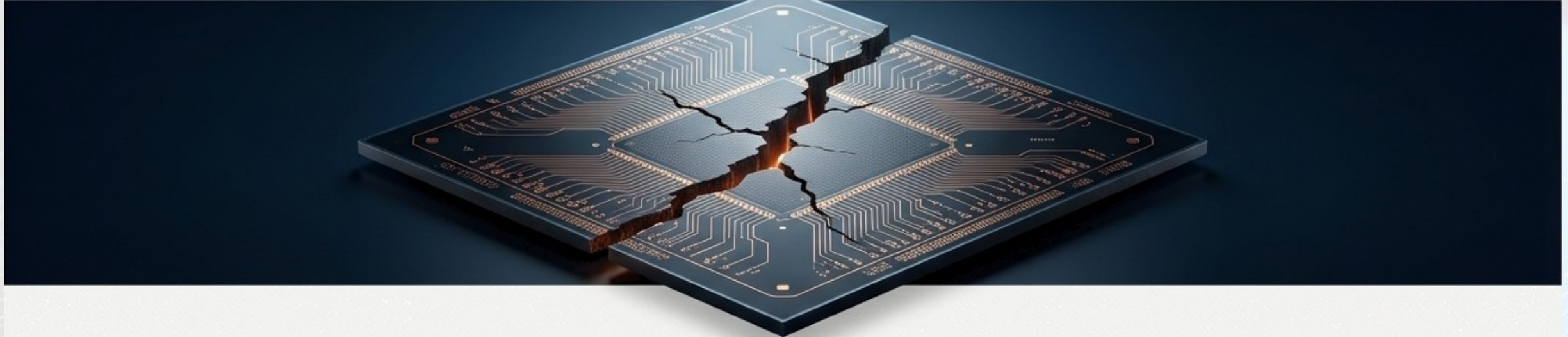
Moore's Law is hitting an atomic wall –

–

SisuSemi atomic-level purification  
removes the wall and solves billions of  
USD yield loss.



# 5 BUSD\* Annual Yield Problem To Be Answered



**Atomic wall limits the progress – At 2 nm we deal with 20 atoms.**

**Leakage due to atomic-level defects is the key root-cause to yield loss.**

**An industry-wide problem, with price of Billions USD across all the fabs.**

Semiconductors run at such massive volumes that even a 1%-unit yield improvement creates huge economic value.

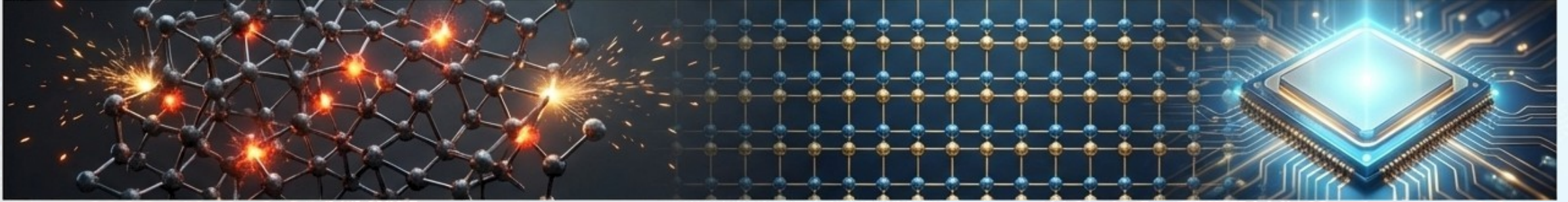
- Conservative volume of 100 000 wafers\*\* / month → 1 200 000 Wafers / Year.
- Cost of processed 2 nm wafer ~ 30 000 USD\*\*\* → 1% yield gain saves 360 MUSD / Year.

*\*) Foundry segment, recorded losses of \$5.8 billion. Intel's foundry division has difficulties in hitting yield targets.*

*\*\*\*) TSMC 3nm Production to Hit 160,000 Wafers Per Month by 2025.*

*\*\*\*\*) FinancialContent - TSMC's Price Hikes Signal a New Era for AI and Advanced Semiconductors.*

# Atomic-Level Purification – The Dawn of Moore’s Law 2.0



## Current state: A symptom treatment

- Cleaning particles
- Design workarounds

*From “Theoretically possible but painful”...*

## The future: A science of Purification

- Fixes the defect problem at the source
- Improved yield and performance

*...to “Scalable, manufacturable & profitable.”*

These atomic level defects and impurities are exactly what conventional cleaning and process steps cannot remove or repair.

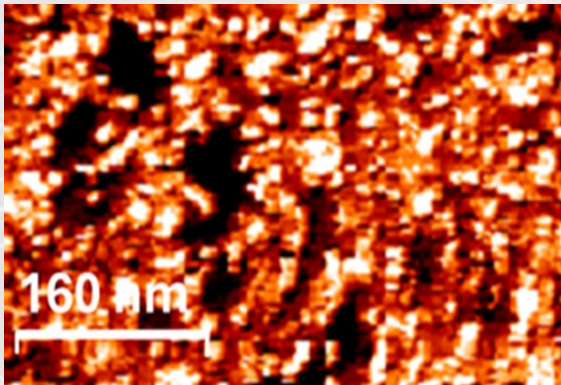
## **The dawn of ‘Moore’s Law 2.0’:**

SisuSemi’s – ALP, Atomic-Level Purification

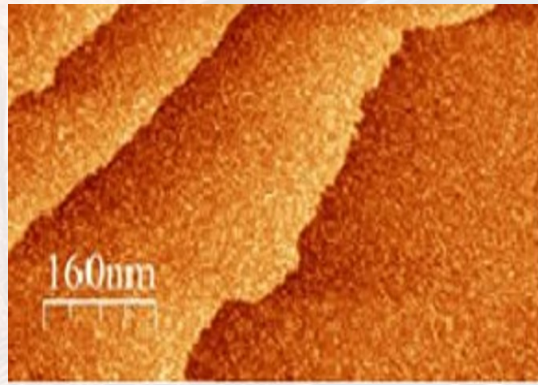
# ALP Has a Verified Impact

## THE EVIDENCE

**BEFORE:**  
Atomic chaos



**AFTER:**  
Crystalline perfection



What Industry thinks as  
“Clean”

The Future of atomic-clean

## THE IMPACT

Measurable, high-value outcomes

**Up to 80%**

REDUCTION IN LEAKAGE CURRENT



**Up to 25%**

LOWER POWER CONSUMPTION



**Even Up to 20%**

HIGHER MANUFACTURING YIELD



Even 1%-unit yield increase can mean 360 MUSD annually.

# Solution is The ALP – Atomic Level Purification

## THE ALP-PROCESS

- Patented method to provide atomic-scale Purification.
- Based on decade long academic research.
- Scalable solution to volumes.
- Integration through new process equipment.



## IPR MOAT

- 4 patent families, 25+ patents.
- Global coverage.
- 1 new family pending.
- + trade secrets.

**Knowhow build over the years of deep-tech research – Years of learning adapted into the team.**



INPUT:  
Standard  
wafers/chips



## SISUSEMI ALP PROCESS

**Cleans:** Removes defects and contamination at Ultra-high-Vacuum with slightly elevated temperatures.

**Restores:** Repairs the crystalline structure of surface atoms.

**Passivates:** Forms a thin, protective, crystalline SiO<sub>2</sub> layer.



OUTPUT:  
Atomically  
perfect  
wafers/chips

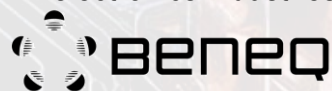
# Go-To-Market – From Chips to Fabs

	2025 – Chip	2026 – Wafer	2027-2028 – Automate	2029+ - Penetrate
	Gen0 ✓	AtomSeal ✓	AtomSeal2	AtomSeal3
Focus	Case study with commercial samples ✓	<b>Wafer level</b> Yield boost case-study	<b>Scalability and process control</b>	<b>Tier1 readiness via partnership</b>
Demonstrate	Leakage current reduction > 70% ✓	Yield gain with wafer process > 10%	Path to 10wafers / hour	Yield gain > 10% at Fab Throughput > 20 wafer / hr.
Customer Value	Increased calibration Yield ~ 80k\$ Annually	Penetration to new markets ~ 100M\$ Annually	COGS reductions ~ 500M\$ annually	COGS reduction at HVM ~ 5 000M\$ annually
Customer Type	Customers: R&D institutes & Tier3 ✓	Tier 2 R&D Tier3	Tier 2 Plotlines & Low volume fabs	Tier 1
Typical Sales	Feasibility testing (2-20 k€ / Case) ✓	Engineering studies, Early Piloting (50-200 k€ / case)	Solution Sales to Tier3/2 (1-3 M€ / case)	Solution Sales (1-3 M€), Customer Success (200-400 k€ / annually)
Sales Method	Founder led tech sales		Sales Managers and Application Eng.	
				Partner led sales

# Team – Deep-Tech Builders with Execution Muscle



**CEO - Erkki Seppäläinen**  
30 years in semiconductor and electronics industries.



**CTO - Elmira Jahanshah Rad**  
PhD in physics, Co-inventor of the technology.



**COO - Pasi Pietilä**  
20+ years in scaling deep-tech.



**Professor Pekka Laukkanen**  
Scientific advisor, Co-inventor of the technology



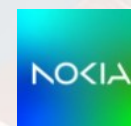
**SrR&D Eng - Mikko Miettinen**  
PhD in physics.



**CMO - Markku Lamassaari**  
30+ years in sales at Semiconductor field.



**CBDO - Raimo Malila**  
30+ years in tech, commercialization and sales.



**PhD Thorsten Lill**  
Technology and Business advisor



Confidential

[www.sisusemi.com](http://www.sisusemi.com)

# Let's remove the atomic wall together

We have excellent results in testing. We are tracking pilots to start.

SisuSemi Atomic-Level Purification™ enables smaller nodes, higher yields, and lower power consumption for the entire industry.

**SisuSemi**

**The dawn of Moore Law 2.0,  
with help of atomic-level cleanliness.**

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+358 40 768 7591



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