

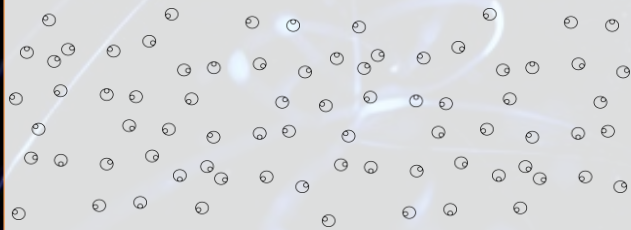
The Revolution of Electron-Spin Alignment



Feb 2026

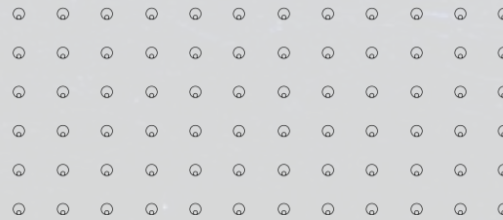
Long Story Short

**Random
Electron-spin
creates energy losses**



(in electrical interfaces,
chemical reactions, and
general conductors)

**Chiral aligns
electron spin to
solve this pain**



A unique, passive,
nanometric layer

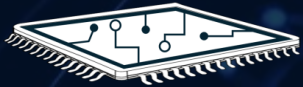
A single Nano-layer

**Driving dramatic impact
across multiple
applications**

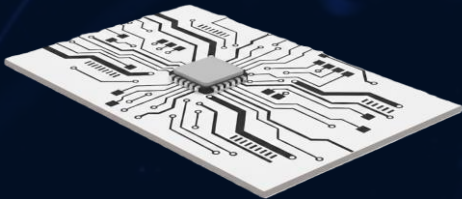
Chiral's Spin Alignment Nano-layers:

Reduce
Resistivity

AI & High-Performance
Computing chips



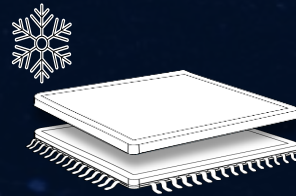
PCBs



And much more...

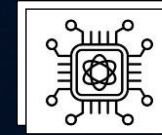
Solid-State Cooling

GPU cooling



Separate
Spin & Charge

Quantum Interconnects

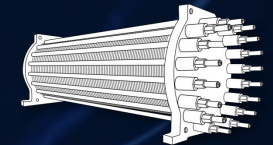


PV panels

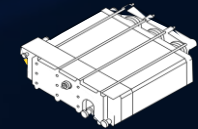


Increase Catalytic
Effects

Electrolyzers



Fuel cells



Batteries



Over the next few years, countless devices will rely on electron-spin alignment to boost their performance.

Chiral Energy is leading this revolution.

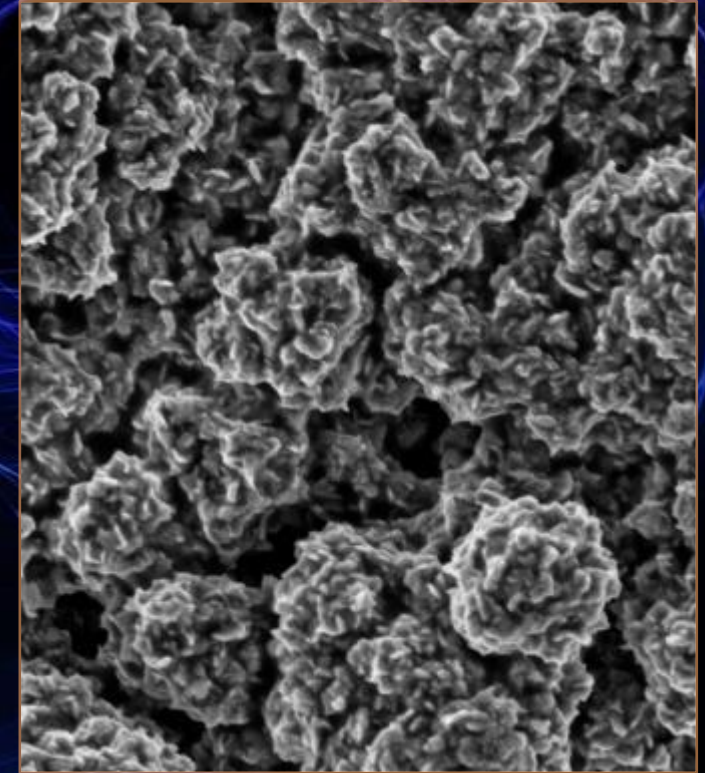
Our product: Spin-Aligning Nano Layer

High impact, low cost

10,000x thinner than a human hair

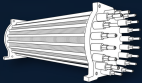
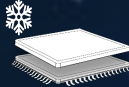
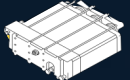
Fits existing technologies and form factors

Easy integration with existing manufacturing processes



Example SEM microscope top view of coated electrode (in this view $\sim 2 \times 2 \mu\text{m}$)

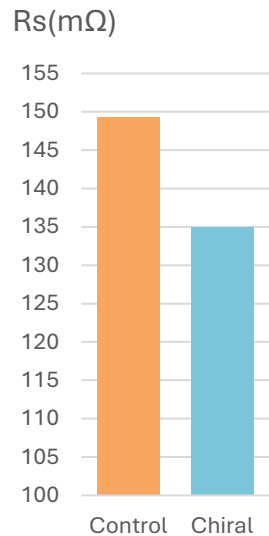
Countless Applications for Chiral's Nano-Layers

		Application	Location of the Chiral layer	CHIRAL INSIDE Impact
In Commercial pilots		Electrolyzers Industrial materials manufacturing: H ₂ , CO ₂ , Al ₂ O ₃ (Al), Chlorine, Fe and more	Chiral's nano-layers on electrolyzer electrodes	Improve efficiency and capacity (Lower CAPEX and OPEX)
In R&D		Reduced resistivity Chiral conductive component for electronic systems	Chiral's conductive materials replacing copper components on electric systems	Higher efficiency and lower waste heat
		GPU cooling Innovative Solid-State Cooling	Chiral's cooling layer on top of the GPU surface	Efficient cooling at the device level
		Batteries Energy storage and supply	Chiral's coating on battery components	Higher capacity per charge
Future		Fuel cells Hydrogen conversion to electricity	Chiral's nano-layers on fuel cell electrodes	Improve efficiency and capacity (Lower CAPEX and OPEX)
		PV panels Charge separation in PV panels	Chiral's materials create a charge-separating layer within the panel structure	Higher panel efficiency (Lower CAPEX) potentially new panel applications
		Quantum Interconnects Connectivity in quantum systems	Integrated into the interconnect component that links quantum memories to processors and to each other	Enables transmission of quantum information over relatively large distances, without the need for cryogenic cooling
		And More...		

Example results

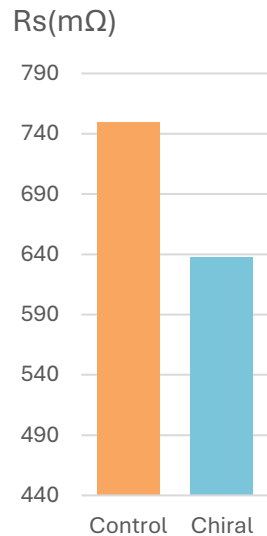
>10% Increased Conductivity for Advanced Chips

50nm Copper

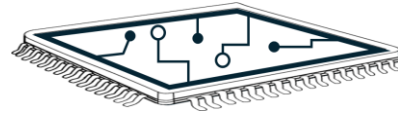


-9.5% Resistivity =
+10.6% Conductivity

20nm Gold



-15.0% Resistivity =
+17.6% Conductivity

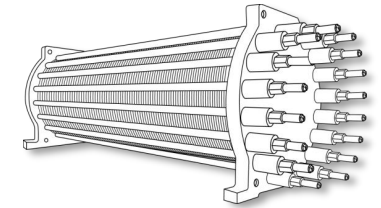
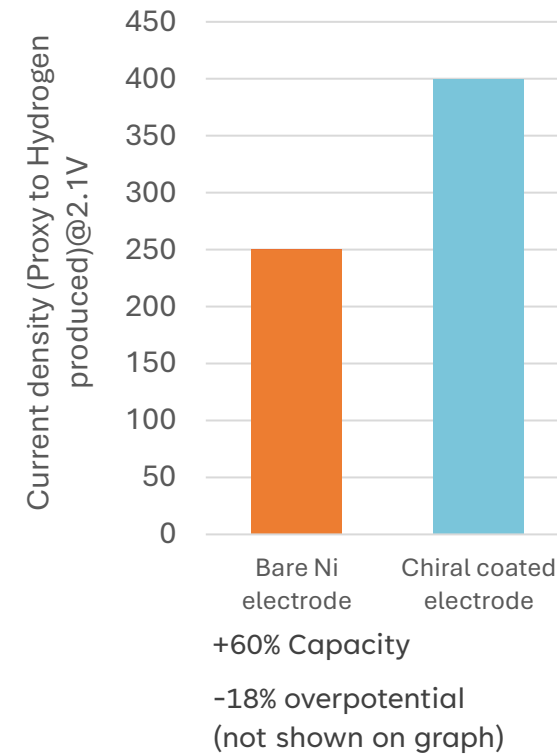


Interconnect and power line benefits:

- Lower IR drops
- Reduced heating
- Lower RC delays (increased clock speed)
- Lower electromigration (EM) issues

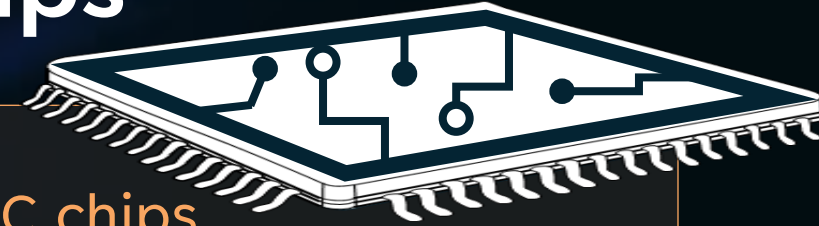
60% Increased electrolyzer electrode capacity

Alkaline electrolyzer



- Higher electrolyzer capacity – Lower CAPEX
- Smaller form factors
- Lower overpotential – Lower OPEX

Example use case 1 – Advanced Chips



Example use case (one of many):

On-chip power delivery (PDN) and interconnect in AI/HPC chips

Application: Reducing resistivity in on-chip wires and vias that deliver power and signals to billions of transistors. Their electrical performance directly limits achievable voltage, frequency, and power efficiency in high-current, high-performance AI and HPC processors.

Impact: ~10% increase in metal conductivity.

Rational: Dynamic and static IR drops in the PDN directly limit (a) achievable frequency bins, (b) usable voltage guardbands, and (c) thermal headroom and ultimately power efficiency.

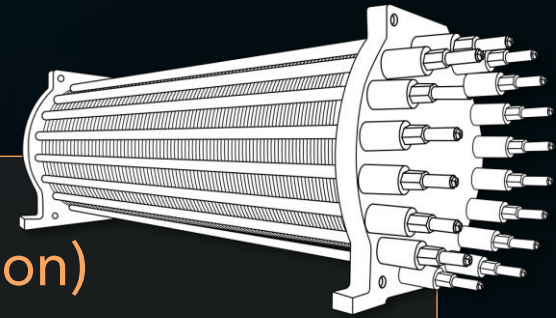
In parallel, reduced resistance in logic interconnect lowers RC delay and wire power, improving timing margin and energy efficiency on critical global nets. All directly monetized in premium compute.

Market size: ~\$200B (leading-edge AI/HPC chips with sub-100 nm metal pitches).

Estimated impact: **\$Billions** value creation per year.

Lower PDN resistance → lower IR drops → smaller V_{dd} guardbands and/or higher sustained frequency → better bins/yield and better performance/W (paid for directly in premium compute), with additional secondary benefits from reduced logic interconnect delay and power.

Example use case 2 – Electrolyzers



Example use case (one of many):

100MW utility scale electrolyzer project (and industry extrapolation)

Application:	Reducing overpotential and interfacial losses at electrolyzer electrodes through spin aligning coatings in industrial-scale hydrogen electrolyzers.
Impact:	>30% increased capacity (More hydrogen on same electrode) or >10% increased efficiency (Less energy for same amount of Hydrogen)
Rational:	Electrode overpotential and interfacial resistance directly limit (a) achievable operating current density (capacity), (b) system efficiency (kWh/kg H₂). Increased capacity and/or efficiency will reduce CAPEX and OPEX for green hydrogen production.
Project size:	~\$100m
Market size:	~\$50–100B (global electrolyzer systems deployed and planned over the next decade)
Estimated project impact:	\$15-20m capacity and efficiency gains plus unquantified indirect value (smaller form factor, ease of maintenance etc).
Estimated industry impact:	\$Billions (same value as above, extrapolated to full industry)

Revenue model and commercial status

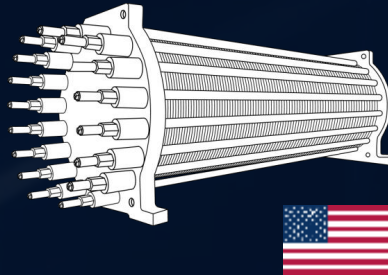
Revenue model

We sell spin alignment nano-coatings

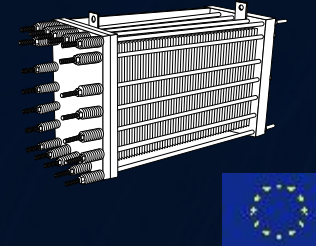
Our customers use them to enhance their systems (electrolyzers, batteries, GPUs, etc.)

POCs and Pilots as of Q1 2026

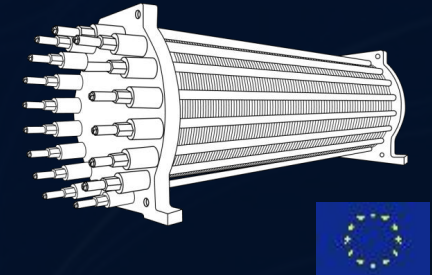
Advanced Alkaline
Electrolyzer
manufacturer



PEM
Electrolyzer
electrode
manufacturer



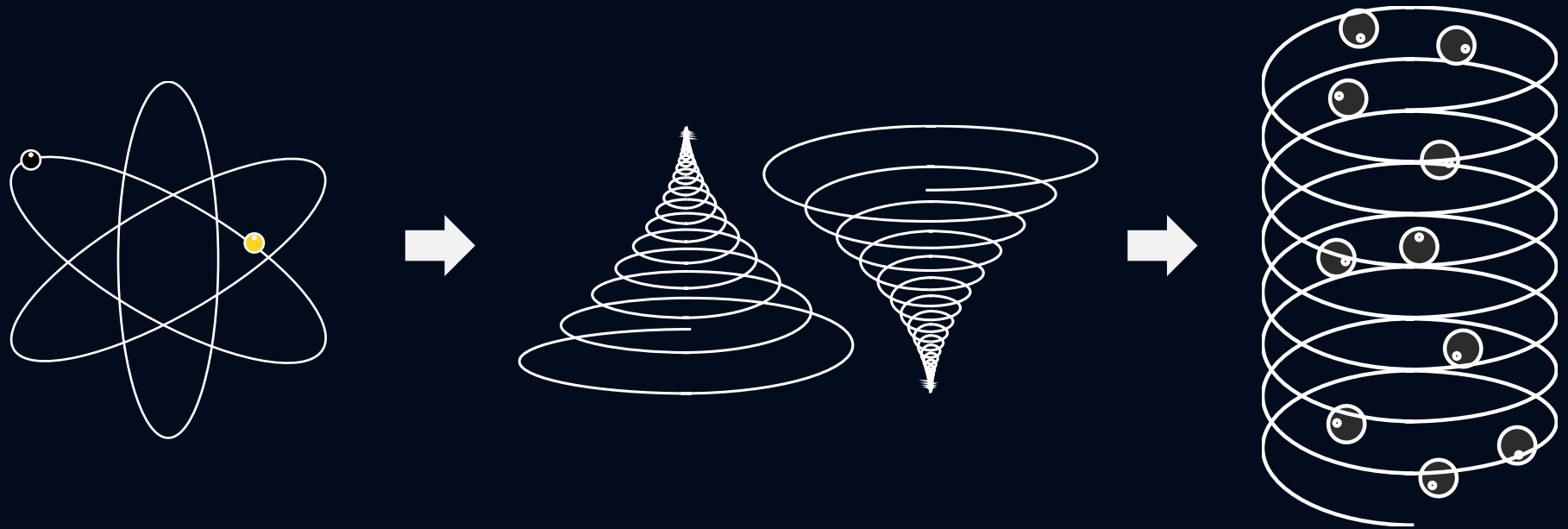
Alkaline
Electrolyzer
manufacturer



To learn about the underlying science, visit the Technology section of our website*

<https://www.chiral.energy/technology>

- Electron Spin
- What is Chirality?
- The CISS effect
- A Homo-chiral layer will reduce resistivity
- What does this have to do with the origins of life?



Raised \$4.5m Pre-seed & \$1.8m grants, Raising \$8m (Seed)

- Raised \$4.5m in equity & \$1.8m in grants
- Team of 17, with significant experience in R&D, startups, and commercialization
- Electrolyzer coatings in pilots with potential clients
- Cooling, Conductivity improvement, and Battery coatings in development
- Raising ~\$8m Seed round to achieve:
 - Sales (coatings for electrolyzers)
 - Pilots in 2-3 additional applications
 - Move new applications up the TRL ladder









Chiral's Leadership in the space

Knowledge Leadership

Chiral's co-founders discovered the CISS effect and Considered leaders of the space to this day



Prof. Ron Naaman (Chemical Physics)

Discovered the CISS effect

https://en.wikipedia.org/wiki/Ron_Naaman

Multiple awards including Horizon Prize of the Royal Society of Chemistry, Humboldt-Meitner award, Fellow of the American Physical Society, Fellow of the Royal Society of Chemistry, Member of Academia Europaea



Prof. Yossi Paltiel (Applied Physics)

Pioneer and leader of CISS for over 15 years

2024- present - Dean of Science

2022- 2024 - Applied Physics Institute chair



Leading CISS commercialization

Chiral is the first commercializing CISS applications

IP and know how

Chiral developed and owns significant IP and know how in the space



The Right Team

Founding Team



Nir Marom, CEO

MBA

Serial energy-tech entrepreneur & investor, leading large-scale solar projects and early-stage clean-tech ventures worldwide



Prof. Yossi Paltiel, CTO

Ph.D. Applied Physics

Professor of Applied Physics and Dean of Sciences at the Hebrew University. Over 180 publications, CISS focused



Prof. Ron Naaman, Chief Scientist

Ph.D. Chemistry

Professor of Chemical Physics at the Weizmann Institute, The first one to identify the CISS effect, author of 325+ papers



Dr. Uri Weinheber, Chairman

Ph.D. Science, Technology, and Society

seasoned entrepreneur, VC investor, executive, and board member in global deep-tech fields.

Advisory



Prof. Freddy Gabbay

Advisory board

Prof. of Electrical Engineering
Previously VP Chip Design at Mellanox (sold to Nvidia for \$7B)



Dan Corfas

VP R&D

ME Systems Engineering



Dr. Leora Shapiro

Head of Electrochemistry

Ph.D. Materials Chemistry

Management Team

R&D Team



Hadas Tadmor

Head of BD

Practical Engineer Industrial Design



Sagiv Ben Arie

COO

MBA Natural Resources & Environmental Management

A seasoned team of experts with advanced degrees and deep industry experience in electrochemistry, materials engineering, and product development, combining scientific excellence with hands-on industrial know-how.



Further Reading

General: <https://www.chiral.energy/technology>

Selected Scientific papers (thousands exists from top institutions):

- The CISS Effect in General: [Chiral Induced Spin Selectivity Gives a New Twist on Spin-Control in Chemistry.pdf](#)
- The CISS Effect in General: [Using chiral-induced spin selectivity as a tool.pdf](#)
- Water Splitting: [Chiral electrocatalysts eclipse water splitting.pdf](#)
- CISS as an important part of the origins of life: [Origin of biological homochirality.pdf](#)



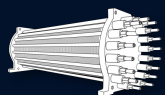
**Join us in building the
commercial future of quantum
electron-spin alignment**

Thank you

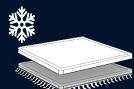
Multiple uses across segments

Energy

Electrolyzers



GPU cooling



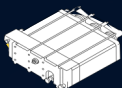
Reduced resistivity



Batteries



Fuel cells

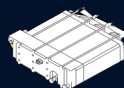


PV panels

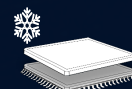


Defense-tech

Fuel cells



GPU cooling



Reduced resistivity



Batteries



Quantum

Quantum Interconnects



Reduced resistivity



GPU cooling

