

# Materials don't fail in the lab. They fail at the interface.

Nobody built the intelligence layer  
to predict it before commitment.

**\$1.3B+**

VC into materials  
discovery (2023–2025)

**0**

Funded companies in  
integration intelligence

**5**

Provisional patents  
filed

**\$2.5M**

Pre-seed raise

# Materials integration failures are invisible—until they're catastrophic.

## Misattributed Failures

Integration failures get blamed on process variation or equipment drift. The real cause — materials incompatibility — goes undiagnosed.

## \$1–5B per node ramp failure

A single materials integration failure at advanced nodes costs billions in ramp delays and redesigns. Intel's cobalt interconnect is one public example. These failures repeat across every node, every fab, every program.

## No Diagnostic Framework

There is no platform that encodes stack-level integration constraints. The people responsible for materials-to-production make commitment decisions without decision intelligence.

*"I spent 12 years at Intel watching this problem destroy yield targets. The diagnostic category didn't exist. — Melissa Fortuna"*

# \$1.3B+ funded the discovery layer. Nobody funded what comes next.

LAYER	DESCRIPTION	FUNDED PLAYERS
1	<p>Physical Infrastructure</p> <p><i>Fabs · cryostats · growth equipment</i></p>	<i>Applied Materials · Lam Research · Oxford Instruments</i>
2	<p>Synthesis &amp; Characterization</p> <p><i>Deposition · measurement · imaging</i></p>	<i>Bruker · Thermo Fisher · Rigaku · ASML</i>
3	<p>Materials Discovery &amp; Prediction</p> <p><i>GNNs · foundation models · generative AI</i></p>	<p><b>\$1.3B+ (2023–2025)</b></p> <p><i>Citrine (\$81M) · Lila Sciences (\$550M) · Periodic (\$300M) Kebotix (\$24M) · Edison Scientific (\$70M) · Radical AI (\$65M)</i></p>
4	<p>Decision Intelligence</p> <p><i>Integration readiness · SIR scores · deployment decisions</i></p>	<b>Materis Labs ← Defines this layer.</b>

**PitchBook (March 2026):** "AI companies are selling investors on shiny new materials. But commercializing them is another matter." **Materis is the commercialization layer.**

# Materis: Decision intelligence for materials integration.

## INGEST

20,900+ curated materials graphs  
Multi-source provenance  
Public sources + proprietary curation

## REASON

Multi-manifold GNNs  
Stack coupling engine  
Cross-scale integration analysis

## SCORE

SIR Score — living ledger  
Interface risk flagging  
Alternative material recommendations

### Stack Coupling Engine

Encodes vertical constraints between material layers — 12 years of HVM experience codified

### Scientific Memory Layer

Every decision feeds the platform. Institutional knowledge compounds with each customer

### Constraint-Aware Reasoning

Bidirectional observability across atomic → system scale. Provisionals #6–#10 protect this

**Entry:** the engineer who owns materials-to-production.  
**Expansion:** every role in the lifecycle gets a decision view.

Decisions made before \$50M+ spend. The person who gets called when materials meet reality. Urgent, funded, underserved.

# Engineering risk, not scientific risk.

## Core GNN — Proven

Three-view fusion architecture predicting 15 properties across 20,900+ materials. Live, deployed, producing SIR scores. Next: retrain on 21 property targets with expanded dataset.

## Stack Coupling — Proven

Interface physics reasoning across material pairs. CTE mismatch, interdiffusion, void nucleation. Validated against published failure cases. Next: extend to 50+ material pair coverage.

## Data Foundation — Scaling

20,900+ curated graphs from AFLOW, OQMD, Materials Project. Multi-source provenance. Next: customer HVM outcome data closes the lab-to-fab gap.

*The architecture works. The remaining risk is coverage — more materials, more failure modes, more customer data. Every customer engagement expands the model.*

# Intel 10nm: The cobalt interconnect ramp.

*Publicly documented. The integration failure that cost billions — and the decision intelligence that didn't exist.*

## WITHOUT MATERIS

**Material databases:** "Cobalt barrier — good properties. Copper — good conductivity."

**Stack-level integration risk:** Undetected

**Result:** Co/Cu interdiffusion discovered after fabrication. Yield impact. Billions in ramp delay.



## WITH MATERIS

**SIR Score: 43.5 — REJECT**

**Risk flagged:** Co/Cu interface — CTE mismatch exceeds threshold, void nucleation predicted at 2,400 hrs

**Diagnostic Risk:** Early resistance drift likely misattributed to process variation — actual root cause is interface incompatibility

**Result:** Decision made before fabrication. Ramp protected.

# The credit score for materials deployment.

## The decision is never one decision.

Every new node, supplier qualification, yield excursion, and spec change requires a new SIR score. One customer generates 40+ scored decisions per year. Like a credit bureau, the history is the asset. Annual platform license: \$150K–\$300K/yr.

## Verdicts have a half-life.

Supplier processes change. New failure modes emerge. Regulations shift. Yesterday's safe material stack can fail tomorrow. The platform keeps decisions current — not a static report.

## Why they can't cancel.

After 12 months, the platform holds their specific fab context, failure history, and recalibrated predictions. The SIR score history is a compliance and audit record — a liability journal. Canceling means losing institutional memory they cannot rebuild. Nobody cancels their credit bureau.

*What a credit score did for lending decisions, the SIR score does for materials commitments. The history compounds. The switching cost is real. The data moat is permanent.*

# Working demo live. Federal validation secured. IP protected.

**5 filed**

path to 10

Provisional  
Patents

**20,900+**

curated graphs

Materials  
Graph Bank

**3**

validated threads

Federal  
Funding

**Live**

on Railway

Platform  
Deployed

## PATENT TIMELINE

Oct '25



#1

Ingestion + provenance

Dec '25



#2-#4

Multi-manifold GNN +  
cross-scale reasoning

Jan '26



#5

Stack + path  
intelligence

Path →



#6-10

Next filings

## FEDERAL THREADS

DLA BAA SP8000-26-B-BAA0

Active Pursuit

DOE Genesis Mission (DE-FOA-0003612)

Active Pursuit

AFRL FA8650-22-S-5002

Technical interest  
confirmed

# Large market. Defensible wedge. Venture-scale ceiling.

## DEFENSIBLE WEDGE

### Advanced Node / Leading Edge

~20 enterprises · TSMC, Intel, Samsung, GlobalFoundries, Micron + supply chain

**20 × \$300K = \$6M initial contract value**

### Defense Primes + Gov Programs

~25 organizations · Northrop, Raytheon, L3Harris, Lockheed, BAE + federal programs

**25 × \$250K = \$6.25M initial contract value**

### Expansion · Years 3–5

~75 customers · suppliers, second-tier fabs, national labs, materials companies

**75 × \$150K = \$11.25M initial contract value**

**120 customers × \$175K avg = \$23.5M initial contract value\***

\*\$175k avg paid pilot -> converts to \$150k-\$300k annual platform license. Expansion comes from additional programs, decisions surfaces, and enterprise deployment.

## VENTURE-SCALE EXPANSION

### Quantum Hardware

Qubit substrates, photonic integration, neutral atom systems

### Defense & Aerospace

Hypersonics, thermal protection, radar-absorbing coatings

### Energy

Batteries, fuel cells, nuclear materials qualification

### Medical Devices

Implant biocompatibility, FDA qualification gates

### Critical Minerals

Ga/Ge substitution, rare earth alternative evaluation

Same architecture. Different stack. Every industry where materials commitment decisions are made under uncertainty.

## TAILWINDS

CHIPS Act: \$52B domestic fab buildout creates integration urgency

DoD critical materials policy: China export controls on gallium/germanium accelerating domestic qualification

AI discovery boom: \$1.3B+ into finding new materials — none of it solves what happens at commitment

# Discovery companies find materials. Materis qualifies integration.

## Discovery Players

Citrine (\$81M), Lila (\$550M), Periodic (\$300M) optimize single-material properties. They don't model what happens when Material A meets Material B in a stack. Discovery is not integration.

## Simulation / Equipment

Ansys/Synopsys TCAD simulates manufacturing steps, not material compatibility. Applied/Lam data is proprietary to their tools — not a cross-vendor decision layer. No incentive to flag failures.

## Materis Defensibility

5 provisionals covering the full architecture. Compounding data moat: every customer decision feeds the model. Integration is a different problem — you can't bolt it onto a discovery platform.

*Materis isn't a feature for discovery companies. It's a separate layer — different data structures, different physics models, different reasoning architecture.*

# Land with the engineer. Expand with every new decision.

## The Buying Committee

Champion: the engineer who owns what happens when materials meet production. Different title at every company. Same 3am phone call. Economic buyer: their manager, who owns the yield metric and approves the pilot. Sponsor: VP Engineering — signs the enterprise contract.

## Entry Motion

Paid pilot tied to one active integration problem — one layer, one material pair, one excursion they're investigating now. Not a broad platform sale. After 90 days, 40+ queued decisions make the production license obvious.

## Target Customers

Advanced node fabs: TSMC, Intel, Samsung supply chain. Defense primes: Northrop, Raytheon, L3Harris materials teams. National labs: Sandia, NIST qualification mandates. Active conversations with defense prime engineering and national lab beamline teams.

# The only founder who lived this problem at scale.

## 12 Years · Intel HVM

Back-End Defect Reduction Manager across 22nm, 14nm, and 10nm node ramps. Led supplier qualification for photoresist and wet chemistry vendors — discovered that raw material impurities propagating through the stack were a hidden driver of yield loss, misattributed to process variation. Built the founding insight from the inside.

## PhD · Materials Science

Vanderbilt University. NSF IGERT Fellow. Fisk-Vanderbilt Bridge Program. Quantum materials specialization. The scientific depth behind the platform architecture.

## Senior Supply Chain · Amazon

Current role while building Materis. Deep expertise in materials supply chain at scale.

## Builder · Hiring Post-Close

5 provisionals filed (path to 11+). Platform live on Railway. 20,900+ graph bank. First hires post-close: Materials Scientist, ML Engineer, Product Engineer.

# \$2.5M pre-seed

## USE OF FUNDS

35%

### Platform & IP

Patent prosecution · GNN retraining · infrastructure · security hardening

30%

### Federal Proposals

DLA BAA white paper · DOE Genesis · AFRL follow-on

25%

### First Hires

Materials Scientist · ML Engineer · Product Engineer

10%

### Operations

Legal · finance · compliance

## 18-MONTH MILESTONES

M3

Defense Prime LOI + DLA BAA submitted · GNN retrained on expanded dataset

M6

First federal contract · failure registry covers 50+ material pairs

M9

First enterprise pilot signed · copilot beta with pilot customer

M12

Genesis co-PI · first proprietary outcome data ingested

M18

Seed round · \$300k+ ARR · model accuracy validated against customer HVM data

One customer generates 40+ decisions per year. We don't need millions of customers — we need the right ones. 10% dilution. Clean cap table. Room to run.

**Innovation isn't limited by what we can discover.  
It's limited by what we trust enough to commit to.**

**Materis is the trust infrastructure for materials deployment.**

**Melissa Fortuna, PhD · Founder & CEO**

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