PATENTPULSE AI · DAILY PATENT ALPHA

Sample Brief: Materials

November 13, 2026 · 6 newly published USPTO applications, ranked by Signal Score

Real USPTO applications published in the last 60 days. Analysis is AI-generated opinion, not legal or investment advice.

AT A GLANCE

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#2 **New Crystal Forms for Solid Battery…**

Watch competitor · Samsung Electronics…

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#3 **Electrolyte mix for lithium metal…**

Early-stage bet · LG ENERGY SOLUTION…

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#4 **Microwave speeds up battery cathode making**

Early-stage bet · THE REGENTS OF THE…

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#5 **Room-temperature superconducting films on…**

Early-stage bet · Quantum Designed…

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#6 **Ferrosilicon particles for solid battery…**

Watch competitor · GM GLOBAL TECHNOLOGY…

TOP PICK

66 SIGNAL

#1 Reversible crosslink photoresist for chip patterning

POLYMER CROSSLINK DE-CROSSLINK PROCESSES FOR RESIST PATTERNING

Watch competitor | Other | **#1 of 1170 screened in sample window**

Applicant: Taiwan Semiconductor Manufacturing Co., Ltd. • **Inventor:** Yu-Chung SU +3 • **Entity:** Regular Undiscounted • **CPC:** G03F 7/039, G03F 7/30, H10P 50/73 +9

Pub. No. US20260349346A1 • App. No. 19728124 • Filed 2026-07-01 • Published 2026-11-05

Market pull 25%	71
Defensibility 20%	68
Timing 15%	65

Broad composition claims on new crosslink de-crosslink by TSMC leader in chip patterning

WHY THIS ONE STANDS OUT

The problem it solves: Forming precise patterns in photoresist by controlled crosslinking then de-crosslinking

Who would pay for it: Chip makers pay via higher yields or licensing fees in advanced semiconductor production

Likely buyers & why: Intel: needs resist tech for its chip processes; Samsung: direct rival in foundry market

What makes it hard to copy: Broad formula for the crosslinker with cleavable linker and functional groups covers many variants

WHAT TO DO NEXT

1. Track TSMC's related patent filings for continuations or new claims
2. Compare the claimed crosslinker structure against your own resist formulations

View USPTO publication (PDF) →

Source: USPTO Open Data Portal (published applications). Scores and analysis generated by Grok. Not legal or investment advice.

THE FULL RANKING

PatentPulse Signal Score (0–100): market pull 25% · acquisition interest 25% · defensibility 20% · innovation 15% · timing 15%, each scored by Grok from the application's abstract and independent claims. Honest absolute scale: a typical published application scores lower; 65+ is strong; 75+ is exceptional. Published applications are not granted patents; claims may change.

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#2 New Crystal Forms for Solid Battery Electrolytes

SOLID STATE Li2CaCl4 AND Li3Ca2Cl7 ELECTROLYTE MATERIALS WITH HIGH IONIC CONDUCTIVITY

Watch competitor | Energy | #2 of 1170 screened in sample window

Applicant: Samsung Electronics Co., Ltd. • **Inventor:** Chuhong Wang +3 • **Entity:** Regular Undiscounted • **CPC:** B60L 50/64, B60L 58/12, B60L 53/16 +19

Pub. No. US20260326579A1 • App. No. 19364335 • Filed 2025-10-21 • Published 2026-10-22



Broad composition claims on new electrolyte formulas by Samsung in very large battery market

WHY THIS ONE STANDS OUT

The problem it solves: Need for solid electrolyte materials with high ionic conductivity in batteries

Who would pay for it: Battery manufacturers seeking solid-state cell designs

Likely buyers & why: LG Energy Solution: needs access to these electrolyte formulas; Panasonic: would require license for these compositions

What makes it hard to copy: Exact formulas and listed crystal space groups are hard to design around without new materials

WHAT TO DO NEXT

1. VCs should monitor Samsung's related battery filings for the next 12 months
2. IP counsel should compare these formulas against their client's electrolyte research

Key risks: Claims may narrow during prosecution; Method claim contains internal inconsistencies • **Alice/§101:** Low – physical chemistry compositions and devices

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#3 Electrolyte mix for lithium metal batteries

ELECTROLYTE COPOSITION AND LITHIUM METAL BATTERY COMPRISING THE SAME

Early-stage bet | Energy | #3 of 1170 screened in sample window

Applicant: LG ENERGY SOLUTION, LTD.; KOREA ADVANCED INSTITUTE OF SCIENCE AND TECHNOLOGY • **Inventor:** Hong Sin KIM +2 • **Entity:** Regular Undiscounted • **CPC:** H01M 10/052, H01M 10/4235, H01M 10/0525 +7

Pub. No. US20260331598A1 • App. No. 19105028 • Filed 2025-02-19 • Published 2026-10-22



broad composition claim 1 in lithium metal battery electrolyte

WHY THIS ONE STANDS OUT

The problem it solves: corrosivity to lithium metal anode and non-uniform coating film

Who would pay for it: makers of lithium metal batteries seeking lower anode damage

Likely buyers & why: LG Energy Solution: needs electrolyte compositions for lithium metal cells; Samsung SDI: works on similar battery chemistries

What makes it hard to copy: any ether solvent with the listed salts forming the complex would infringe

WHAT TO DO NEXT

1. VC: monitor the applicant's related battery filings for the next 12 months
2. IP counsel: compare the solvent-salt complex elements against your client's electrolyte products

Key risks: claims may narrow during prosecution; no record of working examples or performance data • **Alice/§101:** Low – physical chemistry composition claim

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#4 Microwave speeds up battery cathode making

SOLID-STATE MICROWAVE ROUTE TO CATION-DISORDERED ROCKSALT OXIDE AND OXYFLUORIDE CATHODES

Early-stage bet | Energy | #4 of 1170 screened in sample window

Applicant: THE REGENTS OF THE UNIVERSITY OF CALIFORNIA • **Inventor:** Raphaële CLÉMENT +1 • **Entity:** Regular Undiscounted • **CPC:** C01G 45/1228, H01M 4/505, C01G 45/22 +15

Pub. No. US20260351586A1 • App. No. 19123669 • Filed 2025-04-23 • Published 2026-11-05



Broad method claims for fast microwave DRX synthesis in very large battery market

WHY THIS ONE STANDS OUT

The problem it solves: Conventional solid-state synthesis of disordered rocksalt cathodes takes too long and uses too much energy

Who would pay for it: Battery makers seeking lower-cost cathode production

Likely buyers & why: LG Energy Solution: operates in Li-ion cathode space and would need to license or avoid the method; Samsung SDI: operates in Li-ion cathode space and would need to license or avoid the method

What makes it hard to copy: Any microwave exposure plus quench step to retain the disordered rocksalt structure would infringe

WHAT TO DO NEXT

1. VCs should monitor the university's related filings on battery materials
2. IP counsel should compare the microwave parameters in claim 1 against client processes

Key risks: University applicant with no recorded product plans; Claims may narrow during prosecution • **Alice/§101:** Low – physical chemistry method with no abstract idea

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#5 Room-temperature superconducting films on substrates

SUPERCONDUCTING COMPOUNDS AND METHODS FOR MAKING THE SAME

Early-stage bet | Quantum | #5 of 1170 screened in sample window

Applicant: Quantum Designed Materials Ltd. • **Inventor:** Refael Gatt • **Entity:** Small • **CPC:** H10N 60/85, H01B 1/08, H10N 60/01 +14

Pub. No. US20260344299A1 • App. No. 19730238 • Filed 2026-07-02 • Published 2026-10-29



Broad claims on room-temp superconducting film; small applicant; continuation of patented parent

WHY THIS ONE STANDS OUT

The problem it solves: Need for superconducting metal oxide films with critical temperature above 250 K

Who would pay for it: Electronics or quantum device makers seeking room-temperature operation

Likely buyers & why: Companies making superconducting electronics would need the claimed ion combinations

What makes it hard to copy: Broad ion combination and Tc threshold in claim 1 are hard to avoid if using similar films

WHAT TO DO NEXT

1. Track the applicant's related filings for any new claims
2. Compare the claimed ion combinations against your own oxide film products

Key risks: No office action yet so claims may narrow; Small applicant with no recorded market traction • **Alice/§101:** Low – physical chemistry device claims

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#6 Ferrosilicon particles for solid battery anodes

SOLID-STATE BATTERY CELLS INCLUDING ANODE ELECTRODES WITH FERROSILICON MICROPARTICLES

Watch competitor | Energy | #6 of 1170 screened in sample window

Applicant: GM GLOBAL TECHNOLOGY OPERATIONS LLC • **Inventor:** Qili SU +2 • **Entity:** Regular Undiscounted • **CPC:** H01M 4/134, H01M 4/386, H01M 10/0525 +21

Pub. No. US20260321612A1 • App. No. 19467233 • Filed 2026-02-02 • Published 2026-10-15



Broad claim 1 on ferrosilicon microparticle anode in solid-state cells drives market pull and defensibility.

WHY THIS ONE STANDS OUT

The problem it solves: Need for anode materials in solid-state battery cells using ferrosilicon microparticles.

Who would pay for it: Battery cell makers and EV companies seeking improved anode compositions.

Likely buyers & why: Samsung SDI: needs to design around or license the ferrosilicon anode claims; Panasonic: must avoid the claimed silicon framework structure

What makes it hard to copy: Competitors must avoid using ferrosilicon microparticles with the exact silicon framework and embedded domains in anodes.

WHAT TO DO NEXT

1. VCs should monitor GM's future filings on battery anodes this quarter
2. IP counsel should compare the ferrosilicon claims against their client's anode materials

Key risks: Claims may narrow during prosecution; No allowance yet so scope is uncertain • **Alice/§101:** Low – physical battery cell and manufacturing method with no abstract idea.

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Pick to Act On: diligence plan

One-page plan for the top-ranked application in this brief.

What it claims	Photoresist with polymer, photoacid generator and crosslinker of formula R1-(R2-L-R3-Z)m that crosslinks then de-crosslinks on acid exposure
For investors	Broad claims on a new resist approach from the leading foundry could block or license to others in advanced nodes
For IP counsel	Continuation of already-patented parent with broad independent composition claims covering the crosslinker structure
Alice / §101 risk	Low – chemistry composition claims with specific structural elements
Acquirers to watch	• Intel: needs access to resist tech for advanced chips • Samsung: direct competitor in leading-edge nodes

DILIGENCE CHECKLIST (3–5 DAYS)

1. Review the parent patent claims for overlap
2. Search for similar crosslinker structures in published resist literature
3. What is the priority date, and how many independent claims are likely to survive Alice/Mayo analysis?
4. Are continuation or divisional applications pending?
5. What is the filing footprint beyond the USPTO (PCT, EP, CN, JP)?

KEY RISKS

- Claims may narrow during prosecution
- Existing resist chemistry prior art could limit scope

PLAYBOOK BY ROLE

VCs / founders: identify the assignee; if it is a startup, explore licensing or an early investment conversation.

IP counsel: pull the published claims and file wrapper; assess freedom-to-operate and continuation strategy.

Strategic buyers: add to the watchlist and track prosecution; claims may change before grant.

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