PATENTPULSE AI · DAILY PATENT ALPHA

Sample Brief: Quantum computing

October 20, 2026 · 4 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



#2 **Avoided-crossing cooling for mixed-mass Coulomb…**

Early-stage bet · Oxford Ionics Limited



#3 **JJ top-to-step edge ratio tunes dispersion**

Watch competitor · Samsung Electronics…



#4 **On-Chip Defect Qubit Entanglement via EM Tuning**

Early-stage bet · The MITRE Corporation

TOP PICK



#1 Hybrid GBS resource states for photonic clusters

SCALABLE PHOTONIC QUANTUM COMPUTING WITH HYBRID RESOURCE STATES

Early-stage bet | **Quantum** | **#1 of 100 screened in sample window**

Applicant: Xanadu Quantum Technologies Holdings ULC • **Inventor:** Joseph Eli BOURASSA +10 • **Entity:** Small • **CPC:** G06N 10/20, G06N 10/70, G06N 10/40

Pub. No. US20260320468A1 • App. No. 19710251 • Filed 2026-06-16 • Published 2026-10-15



GBS output states plus PNR multiplexing into hybrid resources for cluster entanglement

WHY THIS ONE STANDS OUT

The problem it solves: Generating and multiplexing GBS-derived qubit clusters into hybrid resource states for entanglement

What makes it hard to copy: Easy to copy via alternate state preparation avoiding GBS-PNR chain

WHAT TO DO NEXT

1. Search USPTO for cited references on GBS cluster generation
2. Map independent claim 1 elements against known photonic foundry processes

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.



#2 Avoided-crossing cooling for mixed-mass Coulomb crystals

SYSTEM AND METHOD FOR COOLING A COULOMB CRYSTAL

Early-stage bet | Quantum | #2 of 100 screened in sample window

Applicant: Oxford Ionics Limited • **Inventor:** Robert Tyler Sutherland • **Entity:** Small • **CPC:** G06N 10/40, G21K 1/00

Pub. No. US20260321452A1 • App. No. 19175337 • Filed 2025-04-10 • Published 2026-10-15



Niche mixed-mass ion cooling via avoided crossing; record lacks prior art or adoption data

WHY THIS ONE STANDS OUT

The problem it solves: Cooling a Coulomb crystal with first and second ions of different masses

Who would pay for it: Ion-trap quantum computing developers seeking better motional-mode control

Likely buyers & why: IonQ: needs advanced cooling for trapped-ion qubits; Quantinuum: similar mixed-species ion requirements

What makes it hard to copy: Requires electric-field tuning to avoided crossing; straightforward to design around with other coupling methods

WHAT TO DO NEXT

1. Search USPTO for Oxford Ionics related filings on ion cooling
2. Review ion-trap literature for sympathetic cooling alternatives

Key risks: Claims likely narrow during prosecution; No record evidence of commercial implementation • **Alice/§101:** Low – physical method claim on electric-field control of ion modes

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



#3 JJ top-to-step edge ratio tunes dispersion

QUANTUM APPARATUS AND METHOD BASED ON A JOSEPHSON JUNCTION RESISTANCE DISPERSION

Watch competitor | Quantum | #3 of 100 screened in sample window

Applicant: Samsung Electronics Co., Ltd. • **Inventor:** Daeyun KIM +5 • **Entity:** Regular Undiscounted • **CPC:** H10N 60/12, G06N 10/40, H10N 60/805 +5

Pub. No. US20260324298A1 • App. No. 19465206 • Filed 2026-01-30 • Published 2026-10-15



Geometric JJ edge ratio for dispersion; no performance data or metrics in record

WHY THIS ONE STANDS OUT

The problem it solves: Defining Josephson junction resistance dispersion via top-edge to step-edge length ratio

Who would pay for it: Firms scaling superconducting qubit arrays seeking geometric dispersion control

Likely buyers & why: IBM for qubit uniformity, Google for fabrication consistency, Rigetti for JJ process control

What makes it hard to copy: Must replicate exact top and step edge lengths in overlapping electrode structure

WHAT TO DO NEXT

1. IP counsel: run targeted prior-art search on electrode-overlap JJ ratios
2. Analyst: request full file history and any continuation filings from Samsung

Key risks: Claims likely narrow during prosecution; No experimental dispersion data in record • **Alice/§101:** Low – physical apparatus with defined electrode geometry

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



#4 On-Chip Defect Qubit Entanglement via EM Tuning

SYSTEMS AND METHODS FOR ON-CHIP ENTANGLEMENT HARVESTING

Early-stage bet | Quantum | #4 of 100 screened in sample window

Applicant: The MITRE Corporation • **Inventor:** Gerald GILBERT +1 • **Entity:** Small • **CPC:** G06N 10/40, H10N 39/00, H10N 30/2042

Pub. No. US20260320462A1 • App. No. 19647418 • Filed 2026-04-14 • Published 2026-10-15



Broad method claims on defect-based entanglement; no commercialization details in record.

WHY THIS ONE STANDS OUT

The problem it solves: Entangling separate point-defect qubits on a PIC using a shared background electromagnetic field.

Who would pay for it: quantum hardware developers might pay for licensing if claims grant broadly.

Likely buyers & why: IBM: to cover sequential tuning in their quantum PIC efforts; Intel: risk of infringement on defect-based control

What makes it hard to copy: Easy to copy; claims describe a general sequence of initialization and resonance tuning without unique parameters.

WHAT TO DO NEXT

1. Patent counsel: review cited prior art and prepare design-around memo for sequential vs parallel tuning
2. VC analyst: search for MITRE licensing announcements on quantum PIC patents

Key risks: Claims may narrow substantially in prosecution; No data on fidelity or scalability in record • **Alice/§101:** High – method claims recite abstract quantum state manipulation steps without sufficient hardware integration details

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Pick to Act On: diligence plan

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

What it claims	Optical sources produce GBS output states; PNR detectors create qubit clusters; multiplexer generates resource states; IC entangles them into higher-dimensional cluster state
For investors	Continuation filing on photonic hybrid states with no commercial timeline in record
For IP counsel	Broad independent claims on GBS-PNR-multiplexer-IC chain face design-around via alternate state prep
Alice / §101 risk	High – abstract quantum state generation and entanglement steps

DILIGENCE CHECKLIST (3–5 DAYS)

1. Does record show any working hybrid resource state fidelity?
2. What prior art on GBS multiplexing is cited?
3. How does IC stitching avoid known cluster-state loss channels?
4. What is the priority date, and how many independent claims are likely to survive Alice/Mayo analysis?
5. Are continuation or divisional applications pending?
6. What is the filing footprint beyond the USPTO (PCT, EP, CN, JP)?

KEY RISKS

- Continuation may narrow claims
- No demonstrated fault-tolerance metrics
- GBS known in prior art

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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