

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT8017713

SUBMISSION TYPE:	NEW ASSIGNMENT		
NATURE OF CONVEYANCE:	ASSIGNMENT		
CONVEYING PARTY DATA			
Name			Execution Date
1372929 B.C. LTD.			08/03/2022
RECEIVING PARTY DATA			
Name:	1372934 B.C. LTD.		
Street Address:	3033 BETA AVENUE		
City:	BURNABY		
State/Country:	CANADA		
Postal Code:	V5G 4M9		
PROPERTY NUMBERS Total: 2			
Property Type	Number		
Application Number:	17399375		
Patent Number:	11127893		
CORRESPONDENCE DATA			
Fax Number:	(206)621-8783		
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>			
Phone:	(206) 340-1000		
Email:	SClayton@cozen.com		
Correspondent Name:	FRANK ABRAMONTE		
Address Line 1:	999 THIRD AVENUE		
Address Line 2:	SUITE 1900		
Address Line 4:	SEATTLE, WASHINGTON 98104		
ATTORNEY DOCKET NUMBER:	240105.57701C1/57701USPC		
NAME OF SUBMITTER:	FRANK ABRAMONTE		
SIGNATURE:	/Frank Abramonte/		
DATE SIGNED:	06/21/2023		
Total Attachments: 43			
source=Assignment_1372929_to_1372934#page1.tif			
source=Assignment_1372929_to_1372934#page2.tif			
source=Assignment_1372929_to_1372934#page3.tif			
source=Assignment_1372929_to_1372934#page4.tif			

source=Assignment_1372929_to_1372934#page5.tif
source=Assignment_1372929_to_1372934#page6.tif
source=Assignment_1372929_to_1372934#page7.tif
source=Assignment_1372929_to_1372934#page8.tif
source=Assignment_1372929_to_1372934#page9.tif
source=Assignment_1372929_to_1372934#page10.tif
source=Assignment_1372929_to_1372934#page11.tif
source=Assignment_1372929_to_1372934#page12.tif
source=Assignment_1372929_to_1372934#page13.tif
source=Assignment_1372929_to_1372934#page14.tif
source=Assignment_1372929_to_1372934#page15.tif
source=Assignment_1372929_to_1372934#page16.tif
source=Assignment_1372929_to_1372934#page17.tif
source=Assignment_1372929_to_1372934#page18.tif
source=Assignment_1372929_to_1372934#page19.tif
source=Assignment_1372929_to_1372934#page20.tif
source=Assignment_1372929_to_1372934#page21.tif
source=Assignment_1372929_to_1372934#page22.tif
source=Assignment_1372929_to_1372934#page23.tif
source=Assignment_1372929_to_1372934#page24.tif
source=Assignment_1372929_to_1372934#page25.tif
source=Assignment_1372929_to_1372934#page26.tif
source=Assignment_1372929_to_1372934#page27.tif
source=Assignment_1372929_to_1372934#page28.tif
source=Assignment_1372929_to_1372934#page29.tif
source=Assignment_1372929_to_1372934#page30.tif
source=Assignment_1372929_to_1372934#page31.tif
source=Assignment_1372929_to_1372934#page32.tif
source=Assignment_1372929_to_1372934#page33.tif
source=Assignment_1372929_to_1372934#page34.tif
source=Assignment_1372929_to_1372934#page35.tif
source=Assignment_1372929_to_1372934#page36.tif
source=Assignment_1372929_to_1372934#page37.tif
source=Assignment_1372929_to_1372934#page38.tif
source=Assignment_1372929_to_1372934#page39.tif
source=Assignment_1372929_to_1372934#page40.tif
source=Assignment_1372929_to_1372934#page41.tif
source=Assignment_1372929_to_1372934#page42.tif
source=Assignment_1372929_to_1372934#page43.tif

INTELLECTUAL PROPERTY ASSIGNMENT AGREEMENT

This INTELLECTUAL PROPERTY ASSIGNMENT AGREEMENT (this "**IP Assignment Agreement**") dated as of August 3, 2022 is made by 1372929 B.C. LTD. (the "**Vendor**") in favor of 1372934 B.C. LTD. (the "**Purchaser**"), the purchaser of certain assets pursuant to that certain Asset Purchase Agreement between the Vendor and the Purchaser dated as of the date hereof (the "**Purchase Agreement**").

RECITALS

A. Under the terms of the Purchase Agreement, the Vendor has conveyed, transferred, and assigned to the Purchaser, among other assets, certain intellectual property of the Vendor, and has agreed to execute and deliver this IP Assignment Agreement, for recording with the Canadian Intellectual Property Office and corresponding entities or agencies in any applicable jurisdictions.

B. This IP Assignment Agreement is delivered pursuant to Section 3.2(a) and 3.3(a) of the Purchase Agreement.

NOW THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged by each party, the parties agree as follows:

1. **Assignment.** The Vendor hereby irrevocably conveys, transfers, and assigns to the Purchaser, and the Purchaser hereby accepts, all of the Vendor's right, title, and interest in and to the following (the "**Assigned IP**"):

- (a) the patents set forth on Schedule 1 hereto and all issuances, divisions, continuations, continuations-in-part, reissues, extensions, reexaminations, and renewals thereof (the "**Patents**");
- (b) all rights of any kind whatsoever of the Vendor accruing under any of the foregoing provided by applicable law of any jurisdiction, by international treaties and conventions, and otherwise throughout the world;
- (c) any and all royalties, fees, income, payments, and other proceeds now or hereafter due or payable with respect to any and all of the foregoing; and
- (d) any and all claims and causes of action with respect to any of the foregoing, whether accruing before, on, or after the date hereof, including all rights to and claims for damages, restitution, and injunctive and other legal and equitable relief for past, present, and future infringement, dilution, misappropriation, violation, misuse, breach, or default, with the right but no obligation to sue for such legal and equitable relief and to collect, or otherwise recover, any such damages.

2. **Recordation and Further Actions.** The Vendor hereby authorizes the Registrar of Trademarks in the Canadian Intellectual Property Office, and the officials of corresponding entities or agencies in any applicable jurisdictions, to record and register this IP Assignment Agreement upon request by the Purchaser. Following the date hereof, the Vendor shall take such steps and actions, and provide such cooperation and assistance to the Purchaser and its successors, assigns, and legal representatives, including the execution and delivery of any affidavits, declarations, oaths, exhibits, assignments, powers of attorney, or other documents, as

may be reasonably necessary to effect, evidence, or perfect the assignment of the Assigned IP to the Purchaser, or any assignee or successor thereto.

3. **Terms of the Purchase Agreement.** The parties hereto acknowledge and agree that this IP Assignment Agreement is entered into pursuant to the Purchase Agreement, to which reference is made for a further statement of the rights and obligations of the Vendor and the Purchaser with respect to the Assigned IP. The representations, warranties, covenants, agreements, and indemnities contained in the Purchase Agreement shall not be superseded hereby but shall remain in full force and effect to the full extent provided therein. In the event of any conflict or inconsistency between the terms of the Purchase Agreement and the terms hereof, the terms of the Purchase Agreement shall govern.

4. **Counterparts.** This IP Assignment Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which together shall be deemed one and the same agreement. A signed copy of this IP Assignment Agreement delivered by facsimile, e-mail, or other means of electronic transmission shall be deemed to have the same legal effect as delivery of an original signed copy of this IP Assignment Agreement.

5. **Successors and Assigns.** This IP Assignment Agreement shall be binding upon and shall inure to the benefit of the parties hereto and their respective successors and assigns.

6. **Governing Law.** This IP Assignment Agreement and any claim, controversy, dispute, or cause of action (whether in contract, tort, or otherwise) based upon, arising out of, or relating to this IP Assignment Agreement and the transactions contemplated hereby shall be governed by, and construed in accordance with, the laws of Canada and the Province of British Columbia, without giving effect to any choice or conflict of law provision or rule (whether of the Province of British Columbia or any other jurisdiction).

[Signature Page Follows]

IN WITNESS WHEREOF, the Vendor has duly executed and delivered this IP Assignment Agreement as of the date first above written.

1372929 B.C. LTD.

By: 
Name: Alan Baratz
Title: President

AGREED TO AND ACCEPTED

1372934 B.C. LTD.

By: 
Name: Alan Baratz
Title: President

SCHEDULE 1
ASSIGNED PATENT REGISTRATIONS

Please see attached.

System Title	Country	Appl. No.	Issued Patent No.
Analog Processor Comprising Quantum Devices	AU	2005-318843	AU2005318843
Coupling Methods and Architectures for Information Processing	AU	2005-321780	AU2005321780
Systems, Methods and Apparatus for Local Programming of Quantum Processor Elements	AU	2007329156	AU2007329156
Superconducting Printed Circuit Board Related Systems, Methods, And Apparatus	CA	3045487	
Systems and Methods for Superconducting Flux Qubit Readout	CA	2814865	CA2814865
Systems and Methods for Superconducting Integrated Circuits	CA	2786281	CA2786281
Analog Processor Comprising Quantum Devices	CA	2592084	CA2592084
Analog Processor Comprising Quantum Devices	CA	2853583	CA2853583

System Title	Country	Appl. No.	Issued Patent No.
Systems, Methods and Apparatus For Measuring Magnetic Fields	CA	2738669	CA2738669
Qubit State Copying	CA	2606286	CA2606286
Systems and Methods For Fabrication of Superconducting Integrated Circuits	CA	2751897	CA2751897
Systems, Methods And Apparatus For Active Compensation Of Quantum Processor Elements	CA	3077980	
Systems, Methods And Apparatus For Active Compensation Of Quantum Processor Elements	CA	3029949	CA3029949
Systems, Methods And Apparatus For Active Compensation Of Quantum Processor Elements	CA	2976901	CA2976901
Superconducting Shield for use with an Integrated Circuit for Quantum Computing	CA	2667640	CA2667640
Systems, Methods And Apparatus For Active Compensation Of Quantum Processor Elements	CA	2736116	CA2736116
Systems, Methods and Apparatus for Local Programming of Quantum Processor Elements	CA	2669816	CA2669816

Patent Title	Country	Appl. No.	Issued Patent No.
Systems, Devices and Methods for Analog Processing	CA	2719343	CA2719343
Systems, Methods and Apparatus for Calibrating, Controlling and Operating a Quantum Processor	CA	2724617	CA2724617
Physical Realization Of A Universal Adiabatic Quantum Computer	CA	2681138	CA2681138
Systems, Methods and Apparatus for Qubit State Readout	CA	2698132	CA2698132
Systems and Methods for Superconducting Flux Qubit Readout	CH	11839080.6	EP2638448
Systems and Methods for Fabrication of Superconducting Integrated Circuits	CH	16179696.6	EP3098865
Systems and Methods for Fabrication of Superconducting Integrated Circuits	CH	10746830.8	EP2401776
Systems, Methods and Apparatus for Calibrating, Controlling and Operating a Quantum Processor	CH	09751394.9	EP2324444
Systems And Methods For Improving Performance Of An Analog Processor	CN	2019800166898	
Systems And Methods For Coupling Qubits In A Quantum Processor	CN	2018800897210	
Single Flux Quantum Source For Projective Measurements	CN	2019800460294	
Superconducting Printed Circuit Board Related Systems, Methods, And Apparatus	CN	2017800761199	

Patent Title	Country	Appl. No.	Issued Patent No.
Systems and Methods For Fabrication Of Superconducting Integrated Circuits	CN	201880021010X	
Systems And Methods For Degeneracy Mitigation In A Quantum Processor	CN	2016800763698	CN108475352B
Systems And Methods For Creating And Using Higher Degree Interactions Between Quantum Devices	CN	2016800586867	
Systems And Methods For Quantum Processor Topology	CN	2017800416714	
Quantum Flux Parametron Based Structures (E.G. Muxes, Demuxes, Shift Registers), Addressing Lines And Related Methods	CN	2018800772357	
Systems And Methods For Superconducting Devices Used In Superconducting Circuits And Scalable Computing	CN	2017800268619	

Patent Title	Country	Appl. No.	Issued Patent No.
Frequency Multiplexed Resonator Input And/or Output For A Superconducting Device	CN	2016800263610	
Method Of Forming Superconducting Wiring Layers With Low Magnetic Noise	CN	2015800557164	CN107004755B
Systems and Methods for Cryogenic Refrigeration	CN	201480062479X	CN105765320
Methods of Adiabatic Quantum Computing	CN	200780003666.0	CN101375302
Systems and Methods for Superconducting Integrated Circuits	CN	201180006131.5	CN102714272
Analog Processor Comprising Quantum Devices	CN	200580044348.X	CN100585629
Coupling Methods and Architectures for Information Processing	CN	200580045676.1	CN101095245
Qubit State Copying	CN	200680016776.6	CN101176110
Systems and Methods For Fabrication of Superconducting Integrated Circuits	CN	2018112611803	CN109626323

System Title	Country	Appl. No.	Issued Patent No.
Systems and Methods For Fabrication of Superconducting Integrated Circuits	CN	2016104483819	CN105914219
Systems and Methods For Fabrication of Superconducting Integrated Circuits	CN	201080009224.9	CN102334206
Systems, Methods And Apparatus For Active Compensation Of Quantum Processor Elements	CN	2009801141676.X	CN102187489
Systems, Methods and Apparatus for Local Programming of Quantum Processor Elements	CN	200780044687.7	CN101548288
Systems, Methods and Apparatus for Calibrating, Controlling and Operating a Quantum Processor	CN	200980117971.1	CN102037475
Systems, Methods and Apparatus for Qubit Readout	CN	200880117254.4	CN101868802
Systems and Methods for Fabrication Of Superconducting Integrated Circuits	DE	18747998.5	EP3577700
Systems And Methods For Creating And Using Higher Degree Interactions Between Quantum Devices	DE	16835932.1	EP3335161

Patent Title	Country	Appl. No.	Issued Patent No.
Frequency Multiplexed Resonator Input And/or Output For A Superconducting Device	DE	16793459.5	EP3266063
Method Of Forming Superconducting Wiring Layers With Low Magnetic Noise	DE	15832064.8	EP3195377
Systems and Methods for Cryogenic Refrigeration	DE	14845860.7	EP3049736
Systems and Methods for Error Correction in Quantum Computation	DE	14749223.5	EP2954416
Systems and Methods for Cryogenic Refrigeration	DE	13856929.8	EP2923160
Systems and Methods for Superconducting Flux Qubit Readout	DE	11839080.6	EP2638448
Analog Processor Comprising Quantum Devices	DE	5849198.6	EP1851093
Coupling Methods and Architectures for Information Processing	DE	05823448.5	EP1831935
Systems and Methods for Fabrication of Superconducting Integrated Circuits	DE	16179696.6	EP3098865
Qubit State Copying	DE	6741429.2	EP1875413

System Title	Country	Appl. No.	Issued Patent No.
Systems and Methods For Fabrication of Superconducting Integrated Circuits	DE	10746830.8	EP2401776
Systems, Methods And Apparatus For Active Compensation Of Quantum Processor Elements	DE	09812240.1	EP2340572
Systems, Devices and Methods for Analog Processing	DE	09726328.9	EP2263166
Systems, Methods and Apparatus for Calibrating, Controlling and Operating a Quantum Processor	DE	09751394.9	EP2324444
Systems, Methods, And Apparatus For Qubit State Readout	DE	08800375	EP2206078
Single Flux Quantum Source For Projective Measurements	EP	19799196.1	
Systems and Methods for Fabrication Of Superconducting Integrated Circuits	EP	22163959.4	

System Title	Country	Appl. No.	Issued Patent No.
Systems And Methods For Degeneracy Mitigation In A Quantum Processor	EP	16860808.1	
Systems And Methods For Creating And Using Higher Degree Interactions Between Quantum Devices	EP	21198672.4	
Systems And Methods For Quantum Processor Topology	EP	17810979.9	
Quantum Flux Parametron Based Structures (E.G. Muxes, Demuxes, Shift Registers), Addressing Lines And Related Methods	EP	18864813.3	
Systems and Methods for Cryogenic Refrigeration	FI	14845860.7	EP3049736
Systems and Methods for Cryogenic Refrigeration	FI	13856929.8	EP2923160
Systems, Devices and Methods for Analog Processing	FI	09726328.9	EP2263166
Systems and Methods For Fabrication Of Superconducting Integrated Circuits	FR	18747998.5	EP3577700
Systems And Methods For Creating And Using Higher Degree Interactions Between Quantum Devices	FR	16835932.1	EP3335161

Patent Title	Country	Appl. No.	Issued Patent No.
Frequency Multiplexed Resonator Input And/or Output For A Superconducting Device	FR	16793459.5	EP3266063
Method Of Forming Superconducting Wiring Layers With Low Magnetic Noise	FR	15832064.8	EP3195377
Systems and Methods for Cryogenic Refrigeration	FR	14845860.7	EP3049736
Systems and Methods for Error Correction in Quantum Computation	FR	14749223.5	EP2954416
Systems and Methods for Cryogenic Refrigeration	FR	13856929.8	EP2923160
Systems and Methods for Superconducting Flux Qubit Readout	FR	11839080.6	EP2638448
Analog Processor Comprising Quantum Devices	FR	5849198.6	EP1851093
Coupling Methods and Architectures for Information Processing	FR	05823448.5	EP1831935
Systems and Methods for Fabrication of Superconducting Integrated Circuits	FR	16179696.6	EP3098865
Qubit State Copying	FR	6741429.2	EP1875413

System Title	Country	Appl. No.	Issued Patent No.
Systems and Methods For Fabrication of Superconducting Integrated Circuits	FR	10746830.8	EP2401776
Systems, Methods And Apparatus For Active Compensation Of Quantum Processor Elements	FR	09812240.1	EP2340572
Systems, Devices and Methods for Analog Processing	FR	09726328.9	EP2263166
Systems, Methods and Apparatus for Calibrating, Controlling and Operating a Quantum Processor	FR	09751394.9	EP2324444
Systems, Methods, And Apparatus For Qubit State Readout	FR	08800375	EP2206078
Systems and Methods For Fabrication Of Superconducting Integrated Circuits	GB	18747998.5	EP3577700
Systems And Methods For Creating And Using Higher Degree Interactions Between Quantum Devices	GB	16835932.1	EP3335161
Systems And Methods For Superconducting Devices Used In Superconducting Circuits And Scalable Computing	GB	1820299.4	GB2570989

System Title	Country	Appl. No.	Issued Patent No.
Systems And Methods For Superconducting Devices Used In Superconducting Circuits And Scalable Computing	GB	1820297.8	GB2570988
Systems And Methods For Superconducting Devices Used In Superconducting Circuits And Scalable Computing	GB	1819409.2	GB2566189
Frequency Multiplexed Resonator Input And/or Output For A Superconducting Device	GB	16793459.5	EP3266063
Method Of Forming Superconducting Wiring Layers With Low Magnetic Noise	GB	15832064.8	EP3195377
Systems and Methods for Cryogenic Refrigeration	GB	14845860.7	EP3049736
Systems and Methods for Error Correction in Quantum Computation	GB	14749223.5	EP2954416
Systems and Methods for Cryogenic Refrigeration	GB	13856929.8	EP2923160
Systems and Methods for Superconducting Flux Qubit Readout	GB	11839080.6	EP2638448

System Title	Country	Appl. No.	Issued Patent No.
Analog Processor Comprising Quantum Devices	GB	5849198.6	EP1851693
Systems and Methods For Fabrication of Superconducting Integrated Circuits	GB	16179696.6	EP3098865
Coupling Methods and Architectures for Information Processing	GB	05823448.5	EP1831935
Systems and Methods For Fabrication of Superconducting Integrated Circuits	GB	10746830.8	EP2401776
Qubit State Copying	GB	6741429.2	EP1875413
Systems, Methods And Apparatus For Active Compensation Of Quantum Processor Elements	GB	09812240.1	EP2340572
Systems, Devices and Methods for Analog Processing	GB	09726328.9	EP2263166
Systems, Methods and Apparatus for Calibrating, Controlling and Operating a Quantum Processor	GB	09751394.9	EP2324444
Systems, Methods, And Apparatus For Qubit State Readout	GB	08800375	EP2206678
Method Of Forming Superconducting Wiring Layers With Low Magnetic Noise	IE	15832064.8	EP3195377
Systems And Methods For Improving Performance Of An Analog Processor	JP	2020-540756	

Patent Title	Country	Appl. No.	Issued Patent No.
Single Flux Quantum Source For Projective Measurements	JP	2021-513362	
Systems and Methods For Degeneracy Mitigation In A Quantum Processor	JP	2021-070787	
Systems and Methods For Fabrication Of Superconducting Integrated Circuits	JP	2019-562235	
Systems And Methods For Degeneracy Mitigation In A Quantum Processor	JP	2018-521356	JP6873120
Systems And Methods For Creating And Using Higher Degree Interactions Between Quantum Devices	JP	2018-507016	JP6833817

System Title	Country	Appln. No.	Issued Patent No.
Systems And Methods For Quantum Processor Topology	JP	2018-562963	JP7002477
Quantum Flux Parametron Based Structures (E.G. Muxes, Demuxes, Shift Registers), Addressing Lines And Related Methods	JP	2020-519439	
Systems And Methods For Superconducting Devices Used In Superconducting Circuits And Scalable Computing	JP	2021-149531	
Systems And Methods For Superconducting Devices Used In Superconducting Circuits And Scalable Computing	JP	2018-557325	JP6945553
Method Of Forming Superconducting Wiring Layers With Low Magnetic Noise	JP	2017-507750	JP6785219
Systems and Methods for Calibrating the Elements of a Quantum Processor	JP	2015-557134	JP6300830
Systems and Methods for Fabrication of Superconducting Integrated Circuits	JP	2020073654	
Systems and Methods for Fabrication of Superconducting Integrated Circuits	JP	2014561117	JP6326379
Systems and Methods for Superconducting Integrated Circuits	JP	2012549120	JP5676648

Section Title	Country	Appl. No.	Issued Patent No.
Systems, Methods and Apparatus for Measuring Magnetic Fields	JP	2011531176	JP5584691
Analog Processor Comprising Quantum Devices	JP	2007547127	JP5072603
Coupling Methods and Architectures for Information Processing Qubit State Copying	JP	2007-548651	JP5103189
	JP	2008508038	JP5039028
Systems, Methods And Apparatus For Active Compensation Of Quantum Processor Elements	JP	2011-526207	JP5513507
Systems, Devices and Methods for Analog Processing	JP	2011-501018	JP5296189
Systems, Methods and Apparatus for Local Programming of Quantum Processor Elements	JP	2009539579	JP5313912
Systems, Methods and Apparatus for Calibrating, Controlling and Operating a Quantum Processor	JP	2011510652	JP5400872
Systems, Methods and Apparatus for Qubit Readout	JP	2010525175	JP5351893
Systems And Methods For Quantum Processor Topology	KR	20197000422	KR2393472
Methods of Adiabatic Quantum Computing	KR	2008-7020947	KR1309677

System Title	Country	Appl. No.	Issued Patent No.
Analog Processor Comprising Quantum Devices	KR	20077014632	KR1250514
Systems, Methods and Apparatus for Local Programming of Quantum Processor Elements	KR	20097011585	KR1446943
Systems and Methods for Cryogenic Refrigeration	NL	14845860.7	EP3049736
Systems and Methods for Cryogenic Refrigeration	NL	13856929.8	EP2923160
Systems and Methods for Superconducting Flux Qubit Readout	NL	11839080.6	EP2638448
Systems and Methods for Fabrication of Superconducting Integrated Circuits	NL	16179696.6	EP3098865
Systems and Methods for Fabrication of Superconducting Integrated Circuits	NL	10746830.8	EP2401776
Systems and Methods for Superconducting Flux Qubit Readout	SE	11839080.6	EP2638448
Analog Processor Comprising Quantum Devices	SG	200704685-7	SG133719

Patent Title	Country	Appl. No.	Issued Patent No.
Coupling Methods and Architectures for Information Processing Qubit State Copying	SG	200704709-5	SG133730
	SG	200717146-5	SG136711
Systems, Methods and Apparatus for Local Programming of Quantum Processor Elements	SG	200903790-4	SG 152869
Systems, Methods and Apparatus for Calibrating, Controlling and Operating a Quantum Processor	SG	201008053-9	SG166290
Physical Realizations of a Universal Adiabatic Quantum Computer	SG	200906256-3	SG155592
Systems And Methods For Surface Code Based Quantum Computing	US	63/390185	
Systems And Methods For Scalable Control Of Superconducting Qubits	US	63/356663	
Systems And Methods For Tunable Parametric Amplification	US	63/265131	
Systems And Methods For Qubit Control	US	63/265605	
Topologically Protected Qubits, Processors With Topologically Protected Qubits, And Methods For Use Of Topologically Protected Qubits	US	63/240675	
Systems And Methods For Duty Cycle Compensation Of A Digital To Analog Converter (DAC)	US	63/275068	
Systems And Methods For Variable Bandwidth Annealing	US	17/148850	
Systems And Methods For Assembling Processor Systems	US	17/026740	
Systems And Methods For Tuning Capacitance In Quantum Devices	US	63/225022	
Tunable Superconducting Filters	US	63/354564	
Systems And Methods For Coupling A Superconducting Transmission Line To An Array Of Resonators	US	17/862605	
Systems And Methods For Improving Performance Of An Analog Processor	US	16/934790	

System Title	Country	Appl. No.	Issued Patent No.
Quantum Bit with a Multi-Terminal Junction and Loop with a Phase Shift	US	09/839636	US6987282
Quantum Bit with a Multi-Terminal Junction and Loop with a Phase Shift	US	09/839637	US6919579
Systems And Methods For Coupling Qubits In A Quantum Processor	US	16/955526	
Superconducting Quantum Processor And Method Of Operating Same	US	16/029026	US11295225
Single Flux Quantum Source For Projective Measurements	US	17/054284	
Systems And Devices For Filtering Electrical Signals	US	16/134592	US10897068
Systems And Methods For Magnetic Shielding For A Superconducting Computing System	US	16/218150	US11064637
Superconducting Printed Circuit Board Related Systems, Methods, And Apparatus	US	16/465765	

Patent Title	Country	Appl. No.	Issued Patent No.
Error Reduction And, Or, Correction In Analog Computing Including Quantum Processor-based Computing	US	17/387654	
Error Reduction And, Or, Correction In Analog Computing Including Quantum Processor-based Computing	US	16/275816	US11100418
Systems And Methods For Increasing Analog Processor Connectivity	US	15/418497	US10268622
Systems and Methods For Fabrication Of Superconducting Integrated Circuits	US	17/321819	

System Title	Country	Appl'n No.	Issued Patent No.
Systems and Methods For Fabrication Of Superconducting Integrated Circuits	US	16/481788	US11038095
Systems And Methods For Degeneracy Mitigation In A Quantum Processor	US	17/379172	
Quantum Processing System For a Superconducting Qubit	US	09/872495	US6803599
Systems And Methods For Degeneracy Mitigation In A Quantum Processor	US	15/771606	US1100416
Superconducting Low Inductance Qubit	US	10/232136	US6979836
Systems And Methods For Creating And Using Higher Degree Interactions Between Quantum Devices	US	15/752102	US10467545
Systems And Methods For Quantum Processor Topology	US	16/307382	
Method For Use With Superconducting Devices	US	16/930512	

Patent Title	Country	Appl. No.	Issued Patent No.
Finger Squid Qubit Device	US	10/025818	US6791109
Method Of Fabricating An Electrical Filter For Use With Superconducting-Based Computer Systems	US	15/382278	US10755190
Method Of Operation In A System Including Quantum Flux Parametron Based Structures	US	16/694693	US10748079
Quantum Flux Parametron Based Structures (E.G. Muxes, Demuxes, Shift Registers), Addressing Lines And Related Methods	US	15/726239	US10528886
Systems And Methods For Superconducting Devices Used In Superconducting Circuits And Scalable Computing	US	17/399375	

Patent Title	Country	Appl. No.	Issued Patent No.
Characterization And Measurement Of Superconducting Structures	US	10/321065	US7002174
Systems And Methods For Superconducting Devices Used In Superconducting Circuits And Scalable Computing	US	16/098801	US11127893
Frequency Multiplexed Resonator Input And/or Output For A Superconducting Device	US	17/158484	
Frequency Multiplexed Resonator Input And/or Output For A Superconducting Device	US	15/572731	US10938346
Method Of Forming Superconducting Wiring Layers With Low Magnetic Noise	US	15/503367	US10454015
Systems And Methods For Improving The Performance Of A Quantum Processor To Reduce Intrinsic/Control Errors	US	14/829342	US10552755
Multi-Junction Phase Qubit	US	10/321941	US6784451
Systems and Methods for Electrostatic Trapping of Contaminants in Cryogenic Refrigeration Systems	US	15/502165	US10378803

System Title	Country	Appl. No.	Issued Patent No.
Systems And Methods For Removing Unwanted Interactions In Quantum Devices	US	17/007395	
Systems And Methods For Removing Unwanted Interactions In Quantum Devices	US	16/673478	US10789329
Extra Substrate Control System	US	10/134665	US6911664
Systems And Methods For Removing Unwanted Interactions In Quantum Devices	US	15/984074	US10489477
Systems And Methods For Removing Unwanted Interactions In Quantum Devices	US	14/643180	US10002107
Sub-Flux Quantum Generator	US	10/445096	US6885325
Systems And Methods For Fabrication of Superconducting Circuits	US	14/600962	US9634224
Universal Adiabatic Quantum Computing With Superconducting Qubits	US	16/029040	US11348024

Patent Title	Country	Appl. No.	Issued Patent No.
Universal Adiabatic Quantum Computing With Superconducting Qubits	US	14/520139	US10037493
Resonant Controlled Qubit System	US	10/419024	US6900454
Resonant Controlled Qubit System	US	10/801335	US6897468
Resonant Controlled Qubit System	US	10/801340	US6900456
Resonant Controlled Qubit System	US	10/798737	US6930320
Resonant Controlled Qubit System	US	10/801336	US6960780
Quantum Processor with Instance Programmable Qubit Connectivity	US	16/258082	US10891554

System Title	Country	Appl. No.	Issued Patent No.
Quantum Processor with Instance Programmable Qubit Connectivity	US	14/691268	US9710758
Systems and Devices for Quantum Processor Architectures	US	15/373910	US9875444
Systems and Devices for Quantum Processor Architectures	US	14/863045	US9547826
Systems and Devices for Quantum Processor Architectures	US	14/453883	US9183508
Quantum Logic Using Three Energy Levels	US	10/719925	US6943368
Systems And Methods For Improving The Performance Of A Quantum Processor By Reducing Errors	US	14/340303	US9495644
Systems and Methods for Error Correction in Quantum Computation	US	14/778478	US9870277
Systems and Methods for Error Correction in Quantum Computation	US	14/173101	US9361169
Systems And Methods For Increasing The Energy Scale Of A Quantum Processor	US	14/340291	US9129224
Systems And Methods For Operating A Quantum Processor To Determine Energy Eigenvalues Of A Hamiltonian	US	16/057500	US10552757

System Title	Country	Appl. No.	Issued Patent No.
Systems And Methods For Operating A Quantum Processor To Determine Energy Eigenvalues Of A Hamiltonian	US	14/896259	US10068180
Systems and Methods for Cryogenic Refrigeration	US	16/663723	
Conditional Rabi Oscillation Readout for Quantum Computing	US	10/845638	US7230266
Systems and Methods for Testing and Packaging a Superconducting Chip	US	14/109604	US9865648
A Quantum Processor Comprising A Second Set Of Inter-Cell Coupling Devices Where A Respective Pair Of Qubits In Proximity Adjacent Unit Cells Crossed One Another	US	14/050062	US9178154
Systems and Methods for Fabrication of Superconducting Integrated Circuits	US	16/870537	
Superconducting Phase-Charge Qubits	US	10/934049	US7335909
Systems and Methods for Fabrication of Superconducting Integrated Circuits	US	15/679963	US10700256
Systems and Methods for Fabrication of Superconducting Integrated Circuits	US	14/383837	US9768371
Systems, Methods and Apparatus for Planar Expulsion Shields	US	13/615075	US9192085

System Title	Country	Appl. No.	Issued Patent No.
Systems and Methods for Superconducting Flux Qubit Readout	US	13/808006	US8854074
Adiabatic Quantum Computation with Superconducting Qubits	US	12/845352	US8504497
Adiabatic Quantum Computation with Superconducting Qubits	US	11/092953	US7418283
Adiabatic Quantum Computation with Superconducting Qubits	US	11/093205	US7135701
Systems and Methods for Magnetic Shielding	US	15/272268	US10326071
Methods of Adiabatic Quantum Computation comprising of Hamiltonian scaling	US	11/625702	US7788192
Systems and Methods for Magnetic Shielding	US	13/863962	US9465401
Systems and Methods for Magnetic Shielding	US	13/050742	US8441330
Systems and Devices for Electrical Filters	US	13/707210	US8670809
Systems and Devices for Electrical Filters	US	13/011697	US8346325

System Title	Country	Appl. No.	Issued Patent No.
Methods For Quantum Processing	US	11/089650	US7613764
Bus Architectures For Quantum Processing	US	11/089653	US7613765
Systems and Methods for Superconducting Integrated Circuits	US	14/255561	US9355365
Systems and Methods for Superconducting Integrated Circuits	US	12/944518	US8738105
Systems, Methods and Apparatus for Measuring Magnetic Fields	US	14/462200	US9335385
Systems, Methods and Apparatus for Measuring Magnetic Fields	US	12/991893	US8812066
Superconducting Qubits Having a Plurality of Capacitive Couplings	US	11/267459	US7253654
A Superconducting Qubit With a Plurality of Capacitive Couplings	US	11/267478	US7268576
Systems and Methods for Fabrication of Superconducting Integrated Circuits	US	16/569221	US10991755

Patent Title	Country	Appl. No.	Issued Patent No.
Analog Processor Comprising Quantum Devices	US	15/635735	US10140248
Analog Processor Comprising Quantum Devices	US	16/173846	US10346349
Analog Processor Comprising Quantum Devices	US	16/421211	US10691633
Analog Processor Comprising Quantum Devices	US	16/859672	US11093440
Analog Processor Comprising Quantum Devices	US	17/355458	

Patent Title	Country	Appl. No.	Issued Patent No.
Systems and Methods for Fabrication of Superconducting Integrated Circuits	US	15/956404	US10453894
Analog Processor Comprising Quantum Devices	US	11/317838	US7533068
Analog Processor Comprising Quantum Devices	US	11/608214	US7624088
Analog Processor Comprising Quantum Devices	US	12/397999	US8008942
Analog Processor Comprising Quantum Devices	US	13/210169	US8283943
Systems and Methods for Fabrication of Superconducting Integrated Circuits	US	15/289782	US9978809
Systems and Methods for Fabrication of Superconducting Integrated Circuits	US	14/589574	US9490296

Section Title	Country	Appl. No.	Issued Patent No.
Analog Processor Comprising Quantum Devices	US	14/727521	US9727527
Systems and Methods for Fabrication of Superconducting Integrated Circuits	US	12/992049	US8951808
Coupling Methods and Architectures for Information Processing	US	11/247857	US7619437
Coupling Methods and Architectures for Information Processing	US	12/575345	US7969805
Qubit State Copying	US	11/411051	US7639035
Systems, devices, and methods for controllably coupling qubits	US	12/618554	US7898282
Input/Output Systems And Devices For Use With Superconducting Devices	US	16/124767	US10468793
Input/Output Systems And Devices For Use With Superconducting Devices	US	15/672506	US10097151

Patent Title	Country	Appl. No.	Issued Patent No.
Input/Output Systems And Devices For Use With Superconducting Devices	US	14/959846	US9762200
Input/Output Systems And Devices For Use With Superconducting Devices	US	13/596801	US9231181
Input/Output Systems and Devices for use with superconducting Devices	US	12/503671	US8279022
Systems, Methods and Apparatus for Superconducting Demultiplexer Circuits	US	12/991889	US8611974
Systems, Methods And Apparatus For Active Compensation Of Quantum Processor Elements	US	17/30037	
Systems, Methods And Apparatus For Active Compensation Of Quantum Processor Elements	US	16/380751	US11031537
Systems, Methods And Apparatus For Active Compensation Of Quantum Processor Elements	US	15/438296	US10290798

System Title	Country	Appl. No.	Issued Patent No.
Systems, Methods And Apparatus For Active Compensation Of Quantum Processor Elements	US	14/846334	US9607270
Systems, Methods And Apparatus For Active Compensation Of Quantum Processor Elements	US	13/958339	US9152923
Systems, Methods and Apparatus for Active Compensation of Quantum Processor Elements	US	12/991891	US8536566
Systems, Methods and Apparatus for Quasi-Adiabatic Quantum Computation	US	11/777910	US7899852
Systems, Devices and Methods for Controllably Coupling Qubits	US	12/238147	US7880529
Quantum Processor	US	15/199532	US9779360
Systems, Devices And Methods For Analog Processing	US	14/868019	US9406026
Superconducting Shielding for use with an Integrated Circuit for Quantum Computing	US	11/948817	US7687938
Superconducting Shielding for use with an Integrated Circuit for Quantum Computing	US	12/703534	US8547799

Section Title	Country	Appl. No.	Issued Patent No.
Superconducting Probe Card	US	14/273200	US9170278
Systems, Devices and Methods for Analog Processing	US	13/611672	US8772759
Quantum Processor	US	12/194282	US7932515
Systems, Devices and Methods for Analog Processing	US	12/934254	US8421053
Systems, Methods and Apparatus for Digital-to-Analog Conversion of Superconducting Magnetic Flux Signals	US	12/120354	US8098179
Systems, Methods and Apparatus for Digital-to-Analog Conversion of Superconducting Magnetic Flux Signals	US	13/325785	US8786476
Systems, Methods and Apparatus for Programming Quantum Processor Elements	US	11/950276	US7876248
Systems Methods and Apparatus for Local Programming of Quantum Processor Elements	US	12/944509	US8035540
Systems Methods and Apparatus for Local Programming of Quantum Processor Elements	US	13/228219	US8604944
Architecture for Local Programming of Quantum Processor Elements using Latching Qubits	US	12/109847	US7843209
Adiabatic Superconducting Qubit Logic Devices and Methods	US	12/909682	US8018244

System Title	Country	Appl. No.	Issued Patent No.
System, Devices and Methods for Coupling Qubits	US	12/922626	US8174305
Systems, Devices and Methods for Interconnected Processor Topology	US	12/013192	US8195596
Systems and Devices for Quantum Processor Architecture	US	12/483971	US8063657
Systems, Methods and Apparatus for Calibrating, Controlling and Operating a Quantum Processor	US	12/991888	US9015215
Input/Output System and Devices for use with Superconducting Devices	US	12/016801	US8441329
Electrical Filter Having A Dielectric Substrate With Wide And Narrow Regions For Supporting Capacitors And Conductive Windings	US	12/016709	US8008991
Systems, Devices and Methods for Controllably Coupling Qubits	US	12/242133	US8102185
Systems, Methods and Apparatus for Cryogenic Refrigeration	US	13/863218	US9134047
Systems, Methods and Apparatus for Cryogenic Refrigeration	US	12/811067	US8464542

Patent Title	Country	Appl. No.	Issued Patent No.
Systems, Methods, And Apparatus For Combined Superconducting Magnetic Shielding And Radiation Shielding	US	12/262417	US8228688
Magnetic Vacuum Systems and Devices for use with Superconducting Based Computing Systems	US	12/865341	US8355765
Systems, Devices and Methods for Analog Processing	US	12/266378	US8190548
Systems, Methods, And Apparatus For Multilayer Superconducting Printed Circuit Boards	US	12/247475	US8315678
Method and Apparatus for Evolving a Quantum System Using a Mixed Initial Hamiltonian Comprising Both Diagonal and Off-Diagonal Terms	US	13/529664	US8560470
Systems, Devices, and Methods for Controllably Coupling Qubits	US	12/113753	US7800395
Systems, Methods And Apparatus for Adiabatic Quantum Computation and Quantum Annealing	US	12/473970	US8229863
Systems, Methods, And Apparatus For Qubit State Readout	US	12/236040	US8169231
Physical Realizations of a Universal Adiabatic Quantum Computer	US	12/098348	US8234103
Systems, Methods and Apparatus for Anti-Symmetric Qubit-Coupling	US	12/098347	US7605600
Physical Realizations of a Universal Adiabatic Quantum Computer	US	13/539039	US9162881

Patent Title	Country	Appl. No.	Issued Patent No.
Physical Realizations of a Universal Adiabatic Quantum Computer	US	14/860087	US9984333
Physical Realizations of a Universal Adiabatic Quantum Computer	US	15/962729	US1085459
Physical Realizations of a Universal Adiabatic Quantum Computer	US	17/113847	
Systems, Methods, And Apparatus For Electrical Filters And Input/Output Systems	US	13/416794	US8405468
Systems, Methods, And Apparatus For Electrical Filters And Input/Output Systems	US	12/256332	US8159313
Systems, Methods, And Apparatus For Superconducting Magnetic Shielding	US	12/256330	US7990662
Systems And Methods For Quantum Computing Using Fluxonium Qubits With Kinetic Inductors	WO	US2022/037457	
Systems And Methods For Controlling Quantum Components	WO	US2022/12000	
Kinetic Inductance Devices And Systems And Methods For Fabricating Kinetic Inductance Devices	WO	US2021/031373	

PATENT

REEL: 064049 FRAME: 0520

RECORDED: 06/21/2023