

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
03 October 2019 (03.10.2019)



(10) International Publication Number
WO 2019/183687 A1

(51) International Patent Classification:
G01R 33/035 (2006.01)

(21) International Application Number:
PCT/AU2019/050286

(22) International Filing Date:
29 March 2019 (29.03.2019)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2018901053 29 March 2018 (29.03.2018) AU

(71) Applicant: **COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION**
[AU/AU]; Clunies Ross St, Acton, Australian Capital Territory 2601 (AU).

(72) Inventors: **MITCHELL, Emma**; c/- Clunies Ross St, Acton, Australian Capital Territory 2601 (AU). **LEWIS,**

Chris; c/- Clunies Ross St, Acton, Australian Capital Territory 2601 (AU).

(74) Agent: **FB RICE PTY LTD**; Level 23, 44 Market St, Sydney, New South Wales 2000 (AU).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ,

(54) Title: SUPERCONDUCTING QUANTUM INTERFERENCE APPARATUS

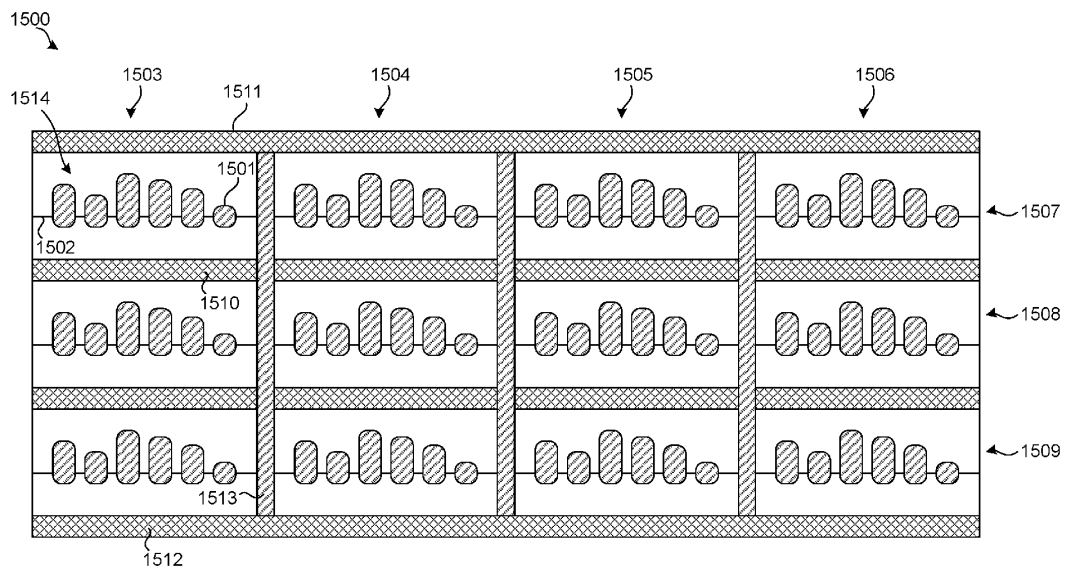


Fig. 10

(57) Abstract: This disclosure relates to Superconducting Quantum Interference Apparatuses, such as SQUID arrays and SQUIFs. A superconducting quantum interference apparatus comprises an array of loops each loop constituting a superconducting quantum interference device. The array comprises multiple columns, each of the columns comprises multiple rows connected in series, each of the multiple rows comprises a number of loops connected in parallel, and the number of loops connected in parallel in each row is more than two and less than 20 to improve a performance of the apparatus. It is an advantage that keeping the number of loops in parallel below 20 improves the performance of the apparatus. This is contrary to existing knowledge where it is commonly assumed that a larger number of parallel loops would increase performance.

[Continued on next page]

UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report (Art. 21(3))*