

sbmp

Patent- und Markenanwälte

# QUANTUM COMPUTING & PATENTS

## *TRENDS & INSIGHTS*

**TPW Innovation Kick**  
**4. April 2023, Theodore Choi**

# Sind hier Patente relevant?

**Forbes**  
FORBES > INNOVATION  
**How To Create And Protect Quantum Intellectual Property To Maintain Your Competitive Edge**  
Yehuda Naveh Forbes Councils Member  
Forbes Technology Council  
COUNCIL POST | Membership (Fee-Based)  
Jan 17, 2023, 07:45am EST

Journal of Intellectual Property Law & Practice, 2022, Vol. 17, No. 8

ARTICLE

613

Intellectual property in quantum computing and market power: a theoretical discussion and empirical analysis

Mauritz Kop<sup>ORCID</sup>, Mateo Aboy<sup>ORCID</sup> and Timo Minssen<sup>ORCID</sup>

**CHINA DAILY** 中国日报网  
Global Edition: AF  
中文 双语 Franq  
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China News Society Innovation HK/Macao Cross-Straits Cover Story Photo

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## Quantum computing patent filings surge in China

By ZHU LIXIN | chinadaily.com.cn | Updated: 2022-11-15 06:42



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**Equal Achieves Major Milestone as a Top Patent Holder In Silicon Quantum Computing**  
NEWS PROVIDED BY Equal  
January 24, 2023, 08:36 GMT  
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**GIZMOCHINA** NEWS REVIEWS DEALS PRODUCTS BEST PICKS OPINIONS  
Huawei News  
**Huawei Officially Patents a Quantum Computer**  
By Leo Wong DQ - Jun 12, 2022

- Indikator für Realisierungs-/Kommerzialisierungspotential
- First-Mover-Effekte können weitreichend sein
- Feld für Wettbewerbsanalyse

# Insights vom Europäischen Patentamt (EPA)

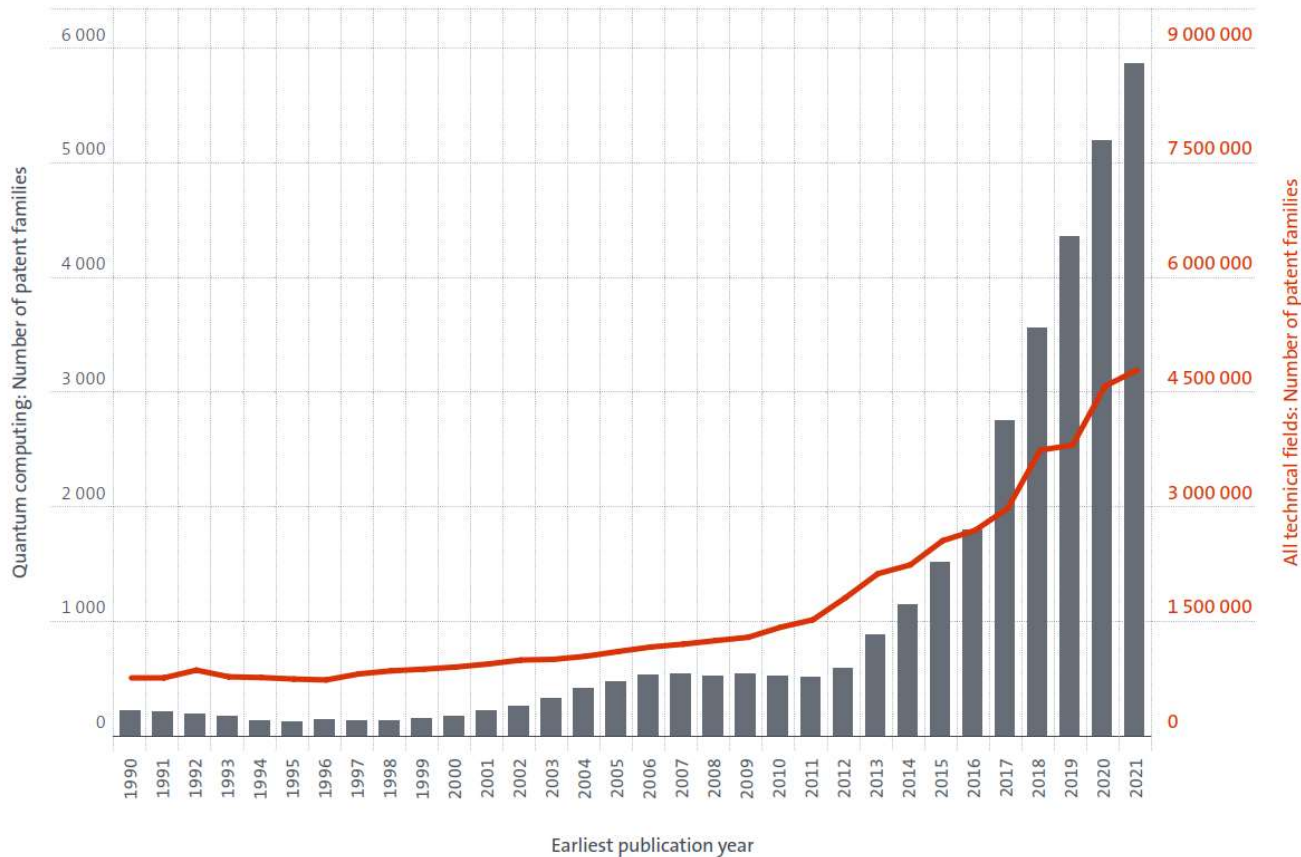


- EPA: Zentrale Patenterteilung für 39 Mitgliedstaaten inkl. CH
- Analyse der globalen Patentaktivitäten im Gebiet Quantum Computing (QC)
- Unterteilung in
  - Quantum Computing in general
  - Physical realisations of quantum computing
  - Quantum error correction/mitigation
  - Quantum computing and AI/ML

# Dynamik der QC-Patentanmeldungen

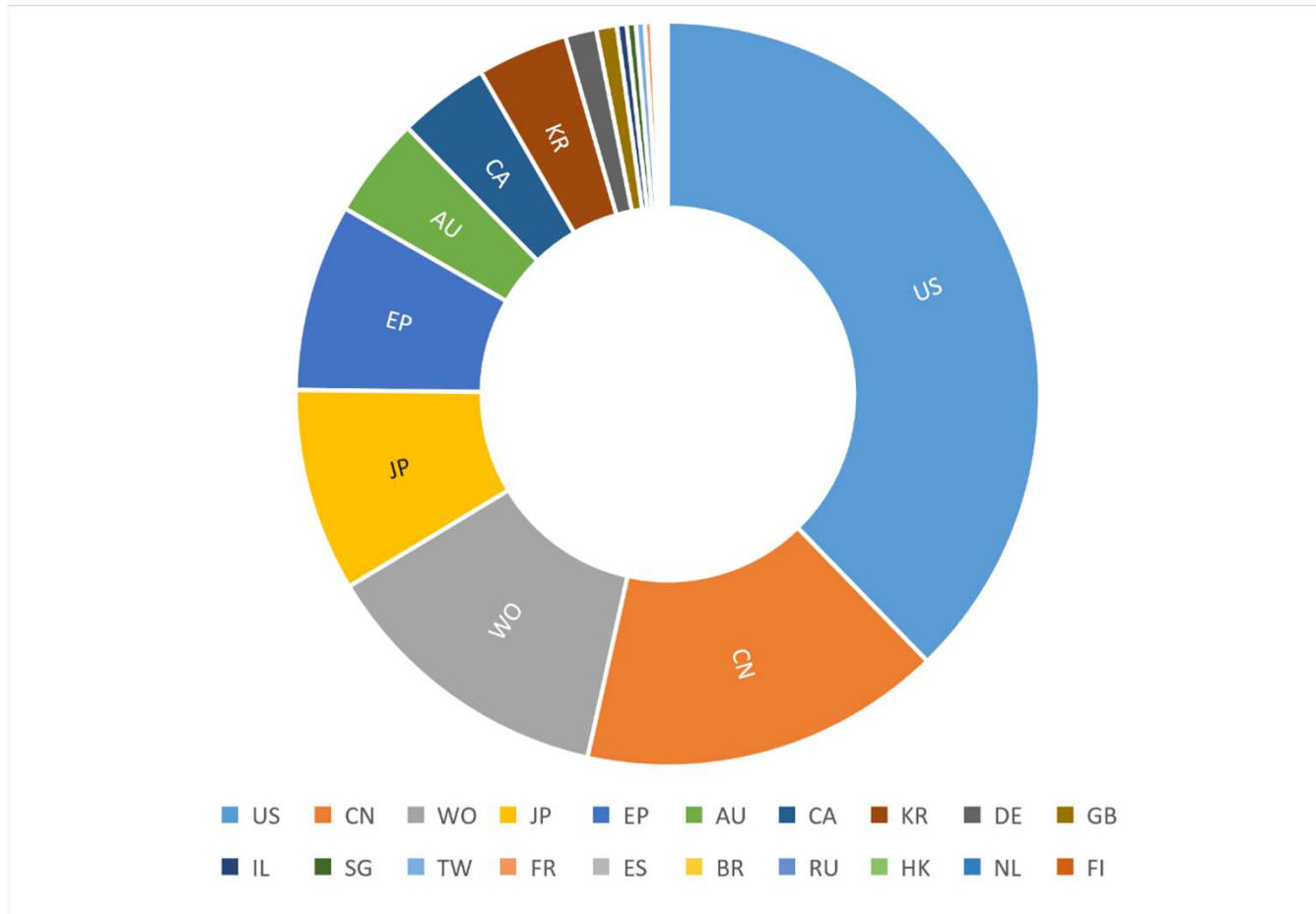
Figure 2

Number of DOCDB patent families per earliest publication year in the field of quantum computing



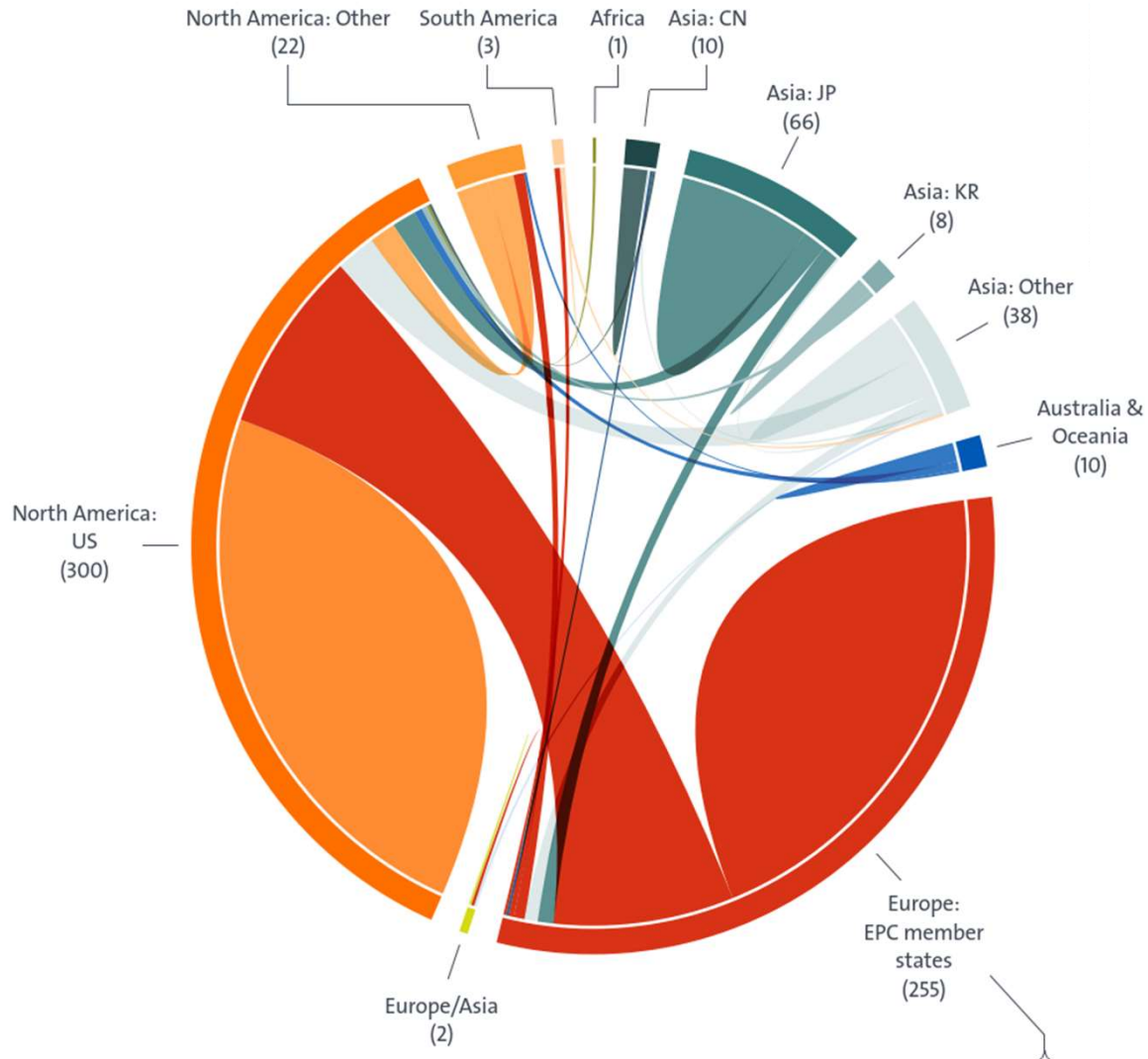
- Steiler Anstieg der QC-Patentanmeldungen im letzten Jahrzehnt
- Übertrifft deutlich die Dynamik der generellen Patentanmeldungen
- Dynamik noch deutlicher für internationale Patentfamilien

# Territorien der QC-Patentanmeldungen I



- Weitaus meiste Veröffentlichungen in den USA
- China und internationale Anmeldungen vergleichbar

# Territorien der QC-Patentanmeldungen II



- Aufschlüsselung von EP-QC-Patentanmeldungen mit mehreren Anmeldern
- Stärkste Kooperation Europa mit USA

# QC-Anmelder

Applicant	Country of residence	Sector	Number of International Patent Families
IBM	US	Company	401
Toshiba/Nuflare Technology	JP	Company	312
Intel	US	Company	254
Microsoft	US	Company	246
Nokia/Here Global	FI/NL	Company	230
Harvard University	US	University	185
Hitachi	JP	Company	178
Google	US	Company	165
MIT (Massachusetts Institute Of Technology)	US	University	163
NEC	JP	Company	158
Samsung	KR	Company	151
Sony	JP	Company	139
Fujitsu	JP	Company	131
Northrop Grumman	US	Company	129
University of California	US	University	122
D-Wave Systems	CA	Company	113
Qualcomm	US	Company	109
Philips	NL	Company	108
Alibaba Group	CN	Company	89

# Wie sehen solche QC-Patente aus?

(12) **United States Patent**  
Jock et al.

(10) **Patent No.:** US 10,482,388 B1  
(45) **Date of Patent:** Nov. 19, 2019

(54) **SPIN-ORBIT QUBIT USING QUANTUM DOTS**

(58) **Field of Classification Search**  
CPC ..... H01L 39/025; H01L 39/12; H01L 39/223;  
H01L 39/225; H01L 39/18; H01L 39/24;  
B82Y 10/00; B82Y 40/00; G06N 10/00  
See application file for complete search history.

(71) Applicant: **National Technology & Engineering Solutions of Sandia, LLC,**  
Albuquerque, NM (US)

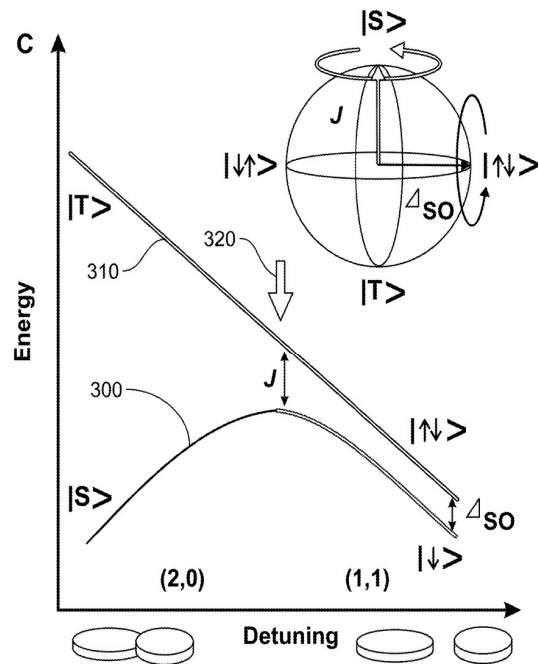


FIG. 3

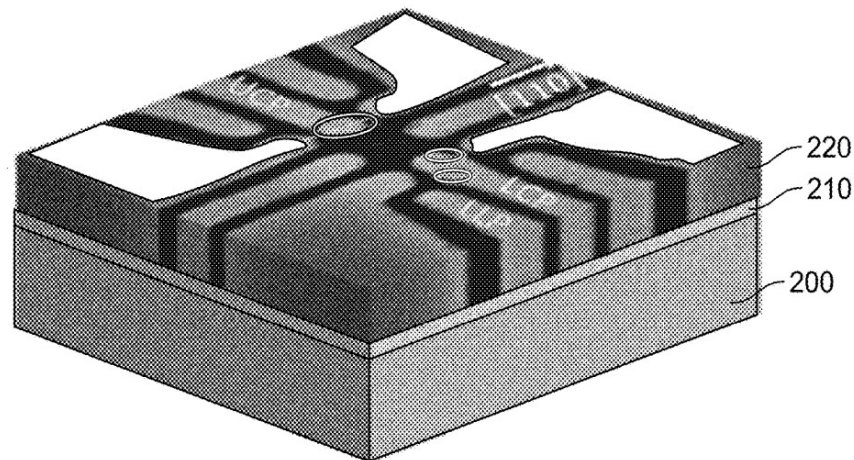


FIG. 2B



# Take-home messages

IDEAZ™

Is my idea patentable?

yes..... and then again, no



- QC-Innovationen sind patentierbar
  - Hardware/Software
- Überdurchschnittliche Dynamik bei QC-Patentanmeldungen
- Kommerziell relevante Lösungen in Patentschriften

**VIELEN DANK FÜR IHRE  
AUFMERKSAMKEIT !**