Christopher Thomas Chubb

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HIGHLIGHTS

- PhD and BSc. (Adv. Math) (Hons.) from University of Sydney
- Total of 10 papers, including 6 peer-reviewed journal articles, and 4 preprints, including:
    - Total citations of 102 and h-index of 4
    - Publications in Nature Communications and Communications in Mathematical Physics
    - A JPA topical review with 60 citations, selected for the JPA Highlights of 2017, and in the top 10 most viewed JPA articles
    - 6 first-author papers, and 2 papers independent of doctoral supervisors
- Total of 19 talks (8 invited, 11 contributed) including:
    - QIP talks: 1
    - TQC talks: 3

EDUCATION

2015–present **Doctor of Philosophy**
- University of Sydney, NSW, Australia
- Supervisors: A/Prof. Steven T. Flammia, Dr. Marco Tomamichel
- Auxiliary Supervisor: Prof. Andrew C. Doherty
- Australian Postgraduate Award Scholarship (2015–2018)
- University of Sydney Merit Award (2015–2018)
- Australian Institute for Nanoscale Science and Technology Postgraduate Scholarship (John Makepeace Bennett Gift) (2017–2018)

2011–2014 **Bachelor of Science (Advanced Mathematics) (Honours)**
- University of Sydney, NSW, Australia
- Majors: Physics and Mathematics
- First Class Honours with University Medal
- School of Physics Honours Scholarship (2014)
- Physics Foundation Scholarship No. 3 (2014)
- School of Physics Summer Vacation Scholarship (2014).
- Academic Merit Prize (2013, 2014)
- Dean's List of Academic Excellence (2011, 2012, 2013)
- Talented Student Program (2012, 2013)
- Mathematics Special Student Programs (2011)
- Chemistry Special Student Programs (2011)

2010/01 **Australian Science Physics Olympiad Summer School**
- Monash University, Victoria, Australia

THESES

- **Efficient approximation of degenerate ground states of gapped spin chains: The unfrustrated case**
  Honours thesis, awarded first-class honours, supervised by Dr. Steven T. Flammia

PAPERS

Papers numbered by appearance on the arXiv

UNPUBLISHED PREPRINTS

10) **Tailoring surface codes for highly biased noise**
D.K. Tuckett, **C.T. Chubb**, S. Bravyi, S.D. Bartlett, and S.T. Flammia
arXiv:1812.08186

9) **Avoiding irreversibility: engineering resonant conversions of quantum resources**
K. Korzekwa, **C.T. Chubb**, and M. Tomamichel
arXiv:1810.02366

8) **Statistical mechanical models for quantum codes with correlated noise**
C.T. Chubb and S.T. Flammia
arXiv:1809.10704

7) **Moderate deviation analysis of majorisation-based resource interconversion**
C.T. Chubb, M. Tomamichel, and K. Korzekwa
arXiv:1809.07778

TOPICAL REVIEWS

2) **Hand-waving and Interpretive Dance: An Introductory Course on Tensor Networks**
J.C. Bridgeman and **C.T. Chubb**
Journal of Physics A: Mathematical and Theoretical **50**, 223001 (2017)
Highlights of 2017
arXiv:1603.03039

PEER-REVIEWED JOURNAL ARTICLES

6) **Energy cost of entanglement extraction in complex quantum systems**
C. Bény, **C.T. Chubb**, T. Farrelly, and T.J. Osborne
Nature Communications **9**, 3792 (2018)
arXiv:1711.06658

5) **Beyond the thermodynamic limit: finite-size corrections to state interconversion rates**
C.T. Chubb, M. Tomamichel, and K. Korzekwa
Quantum **2**, 108 (2018)
arXiv:1711.01193

4) **Moderate deviation analysis for classical communication over quantum channels**
C.T. Chubb, V.Y.F. Tan, and M. Tomamichel
Communications in Mathematical Physics **355**, 3 (2017)
arXiv:1701.03114

3) **Approximate symmetries of Hamiltonians**
C.T. Chubb and S.T. Flammia
Journal of Mathematical Physics **58**, 082202 (2017)
arXiv:1608.02600

1) **Computing the Degenerate Ground Space of Gapped Spin Chains in Polynomial Time**
C.T. Chubb and S.T. Flammia
Chicago Journal of Theoretical Computer Science **2016**, 9 (2016)
arXiv:1502.06967

CONFERENCE PROCEEDINGS

• **Moderate deviation analysis for classical communication over quantum channels**
C.T. Chubb, V.Y.F. Tan, and M. Tomamichel
Proceedings of the 2017 IEEE International Symposium on Information Theory (ISIT), 1544–1548
(2017)

TALKS

TEACHING

2017, 2018   **Senior Statistical Mechanics**
Computational lab tutor

2016, 2017   **Hand-waving and Interpretive Dance: An Introduction to Tensor Networks**
Informal seven lecture course presented with Jacob C. Bridgeman

STUDENTS SUPERVISED

2016   **Doriane Drolet**
Exchange student from Université de Sherbrooke

2016   **David M. Long**
        Senior Project student

2016   **Eric Huang**
        Talented Students Programme project student

Refereeing

Journals:

- – Quantum Information and Computing (QIC)
- – Communications in Mathematical Physics (CMP)
- – Journal of Mathematical Physics (JMP)
- – IEEE Transactions on Information Theory (TIT)
- – Quantum Journal

Conferences:

- – Annual Conference on Quantum Information Processing (QIP)
- – IEEE Symposium on Information Theory (ISIT)
- – International Conference on Quantum Cryptography (QCrypt)
- – International Conference on Information Technology and Science (ICITS)

Miscellaneous

- Nationality: Australian
- Languages: English (mother tongue), German (ein bisschen)
- Erdős number: 4 (C.T. Chubb → S.T. Flammia → A.W. Harrow → M. Szegedy → P. Erdős)

References

A/Prof. Steven T. Flammia
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