

Curriculum Vitae of Dimitris G. Angelakis BSc, MSc, MA, PhD, DIC (Imperial College).

Address: Centre for Quantum Technologies, National University of Singapore, Singapore,

email: dimitris.angelakis@nus.edu.sg

Tel: +65 8370 9350; URL: <http://www.dimitrisangelakis.org>

CV SUMMARY

Dimitris G. Angelakis is a Principal Investigator at [Centre for Quantum Technologies](#), Singapore and tenured Assoc. Professor at [School of Electronic and Computer Engineering](#), Technical University of Crete. He is leading the [Quantum Simulators and Quantum Technologies Group](#).

Research interests and publications

D.G. Angelakis is known for his works in theoretical quantum optics and in implementations of quantum computation and quantum simulations. He is also one of the pioneers in a novel area merging quantum optics and quantum simulation and computation now known as “Quantum Simulations and Many-Body Physics with Light”.

In parallel to his research work, he also regularly delivers talks and workshops about quantum computing to non-specialist audiences and consults industry, banking and IT sectors about the upcoming revolution in quantum computing and possible commercial applications.

He has published more 55 papers, with a total of more than 2300 citations and h index=25, including papers in [Science](#) and several in Physical Review Letters. His works have attracted the interest of leading experimental groups and high-tech companies. Among his current collaborations are with the **Quantum Hardware Lab of Google** for [quantum simulations with interacting photons](#) in their superconducting qubits chips (Science 2017, Google Award 2018). He has written an invited review article for IOP [Reports in Progress in Physics](#), edited two [volumes for Springer](#) in the area of [Quantum Computing](#) and [Quantum Simulations](#) (2017), and edited three focus issues in the area of Quantum Simulations in [New Journal of Physics](#), in [EPJ: Quantum Technologies](#) and in [Physics Letters A](#).

International visibility and awards

DGA has been invited to deliver more 55 talks including several keynotes in international meetings including the annual American Physical Society meeting, the [KITP workshops](#) in theoretical physics, the [ICTP workshops](#) and the [Fermi Schools of Physics](#) in Lake Como. He has also delivered more than 80 invited seminars in universities and research institutions worldwide. He has received various awards including the 2018 Google Quantum Innovation Award, the Valerie Myerscough Award from University of London 2000, as well as the Institute of Physics Quantum Electronics Thesis Prize 2002.

His work has been highlighted in numerous science news articles and in TV interviews in Singapore (the [Straits Times](#)), Greece ([SKY Greece](#), [Crete TV](#) in Greek) and worldwide including [Eurekalert](#), [Sciencedaily](#), [tuc.gr](#) (Greek), [asian scientist](#), and [New Scientist](#), [Nature](#)

[Research Highlights](#), [The Innovation Magazine](#), [Physics World](#) and [BIMA Science](#) among others.

He has organised several international conferences as chairman or member of the organizing and program committee.

Research funding and service

For his research activities, he has raised the equivalent of more than 4 million Euros in UK, Greece and Singapore from competitive grants. His funding sources include national research councils, the National Research Foundation and MOE Singapore, and more recently the Monetary Authority of Singapore to promote quantum computing and quantum AI in the finance industry.

He is the coordinator of the recently announced National Quantum Technology Network in his native country Greece (2 million Euros) and also serving in the Singapore Quantum Vision Group preparing a roadmap for quantum technologies in Singapore for the next 10 years. In the latter he is in charge of the Quantum Computing section.

He has served as evaluator of research proposals for the ERC Starting and Consolidator Grant scheme, European Young Investigator Award Scheme, the Netherlands Organization for Scientific Research, the Polish Research Council and the Swiss Research Council among others. He has also served in various faculty committees in St Catharine's College, -University of Cambridge, the Technical University of Crete and the Centre for Quantum Technologies Singapore.

DGA is also currently serving at the National Quantum Network for the European [Flagship in Quantum Technologies](#) representing Greece (One scientist per country). He is also in the Core group and the Management Committee of the of the EU COST Action "[Nanoscale Quantum Optics](#)".

He has refereed for most physics journals including PRL, Nature, Science and currently serves in the [editorial board of Springer EPJ Quantum Technology](#) and [Advanced Quantum Technologies](#). In the former he has also been the lead guest editor of a special issue on "[Quantum Simulations](#)" published in 2014. He has also edited a focus issue of [New Journal of Physics in Many body physics with Photons and Polaritons](#)".

He has successfully supervised a number of MSc students, several postdoctoral scholars, three PhD students and currently advising three more PhDs and three postdocs. DGA has been teaching for 15 years a variety of undergraduate and postgraduate physics and engineering courses in Cambridge and Crete, including courses with 200 hundred students enrolled and parallel labs.

DETAILED CV OF DIMITRIS G. ANGELAKIS

EDUCATION & QUALIFICATIONS

September, 1998 –October 2001: PhD, Theoretical Quantum Optics, Imperial College, Supervisor: Prof. Sir P.L. Knight, FRS, supported by the State Scholarship Foundation of Greece. Thesis received the Institute of Physics UK Quantum Electronics Theses Award 2002

September, 1997 - August, 1998: M.Sc., Theoretical Physics with specialization in Atomic and Molecular Physics, University of Crete. Supervisor of MSc thesis: Prof. Peter Lambropoulos

September, 1993 -September, 1997: B.Sc. Physics, University of Crete.

RESEARCH INTERESTS

Quantum simulation and quantum computation, quantum optics, quantum many-body systems, applications of quantum computing to industry and financial sectors

EMPLOYMENT HISTORY

- Jan 2008-present: Principal Investigator and visiting Research Associate Professor, Centre for Quantum Technologies, National University of Singapore.
- January 2008 - present: Lecturer, Assistant Professor and now tenured Associate Professor (since Jan 2016), Electrical Engineering and Computer Science School, Technical University of Crete, Greece. On part time appointment since 2012.
- October 2001 – November 2007: Research Associate to 2004 and Senior Research Associate 2004-07, Department of Applied Mathematics and Theoretical Physics, University of Cambridge.
- October 2002-November 2007: Research associate of the Centre for Quantum Computation, Director Prof. Artur Ekert, University of Cambridge
- October, 2001 – September 2004: Junior Research Fellow, St Catharine’s College, University of Cambridge. Research and undergraduate teaching and tutoring Part I and Part II Physics of the Cambridge NS Tripos .

Visiting professor positions

- October to December 2015, Kavli Institute of Theoretical Physics (KITP), University of California in Santa Barbara, Invited professor and “key participant” in “Many-body physics with light” program
- December 2017, Physics and Astronomy Department, Macquarie University, Sydney Australia
- December 2018, Physics Department, Shanghai New York University

SCHOLARSHIPS & AWARDS

- **Google Quantum Innovation Awards 2018** for “Quantum Simulations of exotic physics in driven quantum hardware architectures and for “Spectroscopic signatures of localization with interacting photons in superconducting chips ”.
- **Greek Ministry of Defense, Distinguished Young Greek Scientist Award 2004.**
- **Institute of Physics UK, Quantum Electronics and Photonics Thesis Prize 2002:** First prize for all theses examined in 2001-2002 in the UK in the field of Quantum Electronics and Photonics.
- **St Catharine’s College Cambridge, University of Cambridge.** Stipendiary Junior Research Fellowship in Physics 2001-2004 (one position 100+ applicants).
- **Valerie Myerscough PhD Prize 2000** (second year in PhD): Awarded from the University of London to PhD students who show outstanding ability and potential for original work in Astronomy, Mathematics or Physics. One award per year throughout the University
- **Greek State Graduate Scholarship for PhD** studies abroad, 1998-2001: Position 1st at the corresponding national scholarship exams at the field "Lasers and Applications".
- **Foundation of Research and Technology Greece (F.O.R.T.H.) Graduate Scholarship** 1997-1998.
- **University of Crete and Greek State Scholarship Foundation (SSF)** for graduating 2nd in a class of 100 students in 1997
- **3 undergraduate SSF scholarship awards for being in the top three students** of the year for 1993, 1994 and 1996 (1st, 2nd and 4th year of studies).
- **University Entry Exams National Scholarship Award 1993**, for securing the highest overall grade, among all the applicants nationally (a few thousand) at the Physics Department, University of Crete.



RESEARCH GRANTS

1. **Monetary Authority of Singapore, “Explainable Quantum A.I. in the Finance Industry”**, 240.000 S\$ 2019-2020. To promote and explain AI and quantum computing in the finance industry
2. **Google Quantum Innovation Research Awards 2018**, for research in the area of quantum simulations
3. **Centre for Quantum Technologies core funding for project « Many-body physics and quantum simulations with light»**. NRF and MOE Singapore, 2008-present. Leading PI, total funds awarded so far ~S\$ 3 million
4. **Ministry of Education Singapore Tier 3 Competitive Funding** for project « **Random Numbers from Quantum Processes**» 2013-2018, total budget 10M S\$. Participating PI with personal budget 425K S\$, project is led by CQT PI Prof. V. Scarani
5. **Ministry of Education, Greece, The Greek on Quantum Technology Program 2019-2021. Coordinator of the Program** and PI of the Technical University of Crete (TUC) Node PI. Total grant budget 2 million Euros, TUC 350K Euros.
6. **Ministry of Education, Greece, Funding for Greek-Russia Bilateral Collaboration in Quantum Technologies**, 2017-2020. Participating PI, grant budget 496K Euros.
7. **EU COST Action “Nanoscale Quantum Optics”**. National representative, member of the core and management committee for Greece and deputy WG4 leader for 2015-2018. Receiving travel support and conference organizing support. Total budget allocated ~150K Euros per year, ~30K for a conference to be organized by in Crete, June 4-11, 2016. Website: <http://www.cost-nqo.eu/>
8. **Support of postdoctoral researchers, EU and National Greek Funding Program 2010-13**, Euros 150K towards hosting a postdoc coming from abroad in TUC (awarded but not taken up by the postdoctoral researcher due to salary cuts imposed by financial crisis).
9. **NATO Science for Peace and Security Program, 2005**. Principal applicant and administrator of a grant towards the organization of two week NATO Advanced Study Institute in Quantum Information and Quantum Computation in Crete, May 2-13, 2006. Grant size 55K Euros
10. **European Union, SIQS-EU Integrated Project on “Simulators and Interfaces with Quantum Systems”** 2013-2016, external partner representing CQT Singapore (total budget ~10M Euro)
11. **Technical University of Crete starting grants** for newly appointed faculty, scholarship for PhD student 5K.
12. Herakleitos program in Quantum Computing (**Greek Secretariat for Research 2003-06**), co-PI. PI was the Physics Department, Aristotelian University of Greece. External collaborator. Total grant size: 30K Euros.
13. Interdisciplinary Research Collaboration in Quantum Information Processing UK: **UK EPSRC funded research** and travel support. Cambridge node member and administrator for the node in 2005-07. Grant size 200K GBP.
14. **The Cambridge-MIT Institute** program on Quantum Information. Cambridge node member and co Scalable Quantum Information Processing and Computing. EU funded research support. Cambridge node member 2005-07. Research (support of my RF salary) and travel support for 2005-07.

15. **Resources for Quantum Information (RESQ)**. Cambridge node member. Research and travel support for 2003-06

PUBLIC & PROFESSIONAL SERVICE

- Member of the core committee of the **Singapore Quantum Vision Initiative**, preparing a future roadmap for the quantum science and technology in Singapore. In charge of the quantum computing section. Other members: A. Ling (chair), C. Kurstiefer, H. Loh, C. Lim, M. Mukherjee, R. Dumke
- Coordinator of the **Greek Quantum Technology Program**. Invited by the MOE Greece to prepare the roadmap and research proposal which includes 7 nodes and the relevant participating institutions
- Member of **EU Quantum Network Governing Board** for the European Flagship in Quantum Technologies, representing Greece (one scientist per EU country).
- Referee for research proposals submitted to: the EU ERC Starting Grant scheme, the EU ERC Consolidator Grant scheme, Synergy Grants, the European Young Investigators Award Scheme, the Netherlands Organization for Scientific Research, Swiss Research Council, Polish Research Council, Austrian Research Council, the FET open Proactive Call H2020
- Member of **the editorial board** of European Physical Journal: Quantum Technology, Springer, since 2014
- Member of the **editorial board** of Advanced Quantum Technology, Wiley, since 2018
- **Main guest editor** of two special issues on “Many-body physics with light” for New Journal of Physics, IOP, 2017 and on “Quantum Simulations” for European Physical Journal: Quantum Technology, 2015
- **Member of the Management Committee**, the Core group and WG4 deputy leader for the EU COST Action "Nanoscale Quantum Optics", 2014-2018
- **Referee for scientific** papers at: Science, Nature, Nature Physics, Nature Communications, Phys. Rev Let., Phys. Rev. A., New Jour. of Phys., Jour. of Opt. Soc. Amer. B, Journ. of Opt. Phys. A, Phys. Let. A, Opt. Comm., J. Mod. Opt., Eur. Phys. Let and Eur. Phys. Journ. D.
- **Assistant coordinator** and administrator of the Cambridge node on EPSRC funded UK network “QIP IRC” (2005-07) and UK funded Cambridge-MIT Institute program on Quantum Information (2001-03).
- **Assistant Books Review Editor** (1998-2001) for the journal of Contemporary Physics (as PhD student).
- **Member of various academic committees** regarding hiring, promotional, administrative and teaching decision making in St Catharine’s College Cambridge, Centre for Quantum Computation Cambridge, Science and ECE Departments Technical University of Crete, Centre for Quantum Technologies Singapore
- Member of APS, OSA and IOP.

INTERNATIONAL COLLABORATIONS

1. My work **has attracted the interest of world leading experimental groups and high-tech companies in Europe and US**. The most recent ones include:

- i) Collaboration with **Quantum Lab of Google, John Martinis** group. Joint publication in **PRL November 2016** on “Topological pumping with interacting photons”, and in **Science December 2017** on “Spectral signatures of many-body localization with interacting photons in superconducting qubits”(see publications). The work was highlighted in numerous science news articles and in TV interviews in Singapore (the [Straits Times](#)), Greece ([SKY Greece](#), [Crete TV](#)) and worldwide including [Eurekalert](#), [Sciencedaily](#), [tech2.org](#), [tuc.gr](#), [asian scientist](#), [technology networks](#), [nanowerk](#), [alphagalileo](#), [mgronline](#) and others.

We continue the collaboration with the Google group, supported by two Google research awards, on quantum simulations of a range of different problems from physics, engineering, material science as well as applications in machine learning, and finance and industry sectors. The latter is also done in **support from a recent grant from M.A.S and in collaboration with KANTAR data research company**.

- ii) **Institute of Optics, Jena and the Rostock University in Germany, Prof. A. Szameit** group. Joint works (Optica 2015) on using integrated photonic chips for quantum simulations of exotic physics like the Majorana equation. Highlight focus article in **Optics & Photonics News** (OPN) [“Using light to simulate unphysical particles!”](#). It has also appeared in the Science Section, [International Business Times](#), as well as [phys.org](#) and [sciencedaily](#)

Continuing the collaboration in building topologically robust photonic chips for optical communications and computing.

- iii) **Stony Brook, USA**. Collaboration with the quantum optics group of E. Figureoa to implement quantum simulations and **quantum memories in room temperature** using light-matter interfaces developed by them. One publication under review with Nature entitled “Relativistic and topological physics with slow light polaritons in room temperature”, arXiv: 1711.09346
- iv) Ongoing collaboration with University of **Innsbruck, Austria** Dr Keil/Prof G. Weihs’ photonics group on studying aspects of exotic Kibble-Zurek mechanism for defect formation with photons in photonic chips.

2. **Other International collaborations** (only projects that have led to joint publications already) include groups at the University of Oxford, Cambridge, Stony Brook, Imperial College, University College London, Technical University of Berlin, Korea Advanced Study Institute, Institute of Photonic Sciences Barcelona, University of California in Santa Barbara, Seoul National University, C. N. Yang Institute for Theoretical Physics (US). See publications section.

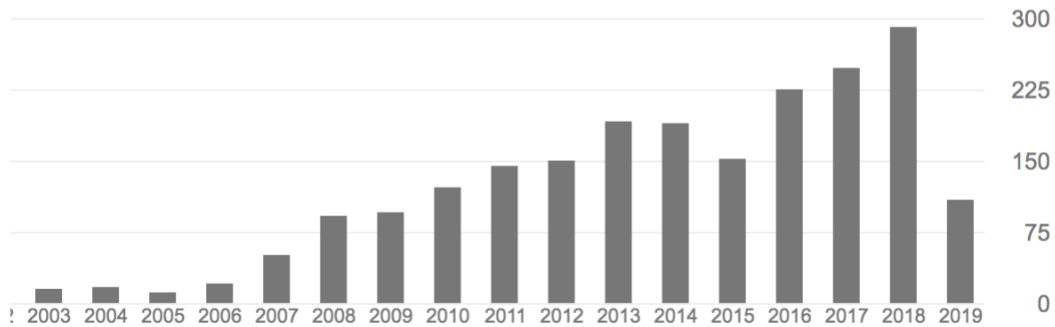
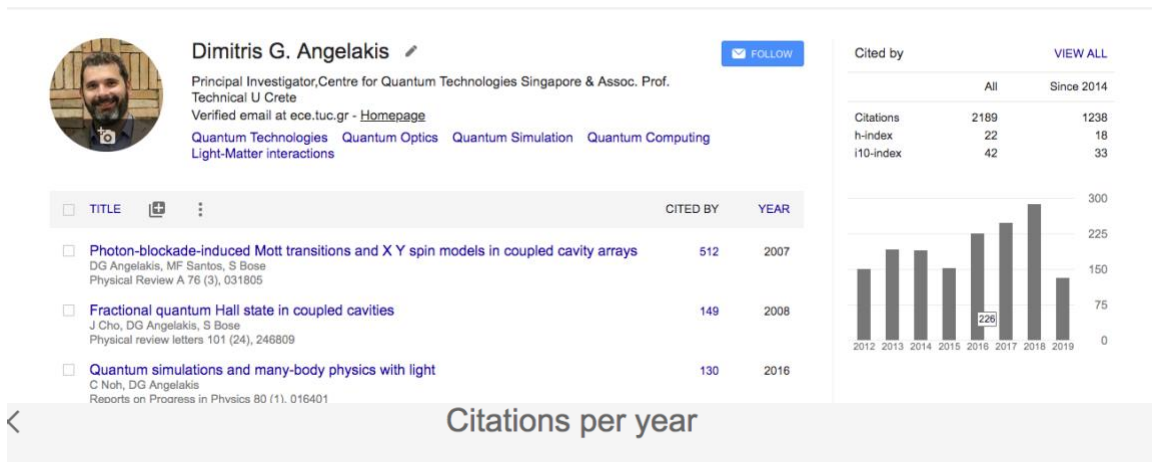
CITATIONS

56 publications with ~2200/ 1900 citations (Google Scholar/Web of Science-4/2019).

H index 22/18, i-10 index 42/34,. Since 2014: 1400 citations, **5 PRLs, 1 Science**, two special issues edited (EPJ QT and NJP), two invited books for Springer, one review for Reports Progress in Physics.

Highest cited paper in 2007 > **500 citations**.

4 papers with more than **100 citations** (see next page)



Selected research and publication highlights

- 1) **Roushan et al., Spectral signatures of many-body localization with interacting photons in superconducting qubits**

[Science, 01 Dec 2017: Vol. 358, Issue 6367, \(2017\)](#), 55 citations

Paper emerging from the collaboration with the Google Quantum Group. The work is considered a milestone in the area of quantum simulations with interacting photons, an area I cofounded with my theory work (next item) roughly 10 years ago and led since. The work was highlighted in numerous science news articles and in TV interviews in Singapore (the [Straits Times](#)), Greece ([SKY Greece](#), [Crete TV](#)) and worldwide including [Eurekalert](#), [Sciencedaily](#), [tech2.org](#), [tuc.gr](#), [asian scientist](#), [technology networks](#), [nanowerk](#), [alphagalileo](#), [mgonline](#) and others

2. **Photon blockade induced Mott transitions and XY spin models in coupled cavity arrays**
Dimitris G. Angelakis, Marcelo F. Santos, Sougato Bose, Phys. Rev. A. 2007. **Highest cited publication with 510 citations:**

The work widely recognized the founding work in the field of *Quantum Simulators with Light* as it was the first to connect cavity QED systems to many-body physics and discuss the possibility to simulate Mott transitions with light. Among others while still a preprint was made the cover of in New Scientist: Mark Buchanan, Issue 2586, 11 January 2007 entitled “*Engaging photons in light conversation*”

3. **Fractional quantum Hall state in coupled cavities** J Cho, DG Angelakis, S Bose, Physical Review letters 101 (24), 246809, **110 citations**. One of the early founding works in the area of using photonic systems to understand and probe topological and quantum Hall physics. We showed how to recreate and simulate the Fractional Hall state with photons in arrays of QED resonators. Selected for Virtual Journal of Nanoscale Science & Technology — December 22, 2008.

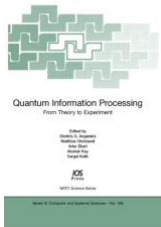
4. **Luttinger liquid photons and spin-charge separation with photons** D. G. Angelakis, M. Huo, E. Kyoseva, LC Kwek [Phys. Rev. Lett. 106, 153601 \(2011\)](#) **80 citations**. **One of the early** in the area of simulating 1D strongly correlated models from condensed matter with light-matter systems. More specifically using slow-light polaritons the phenomenon of spin-charge separation in strongly interacting 1D electronic systems was simulated. The paper was highlighted as an “Editors Suggestion”, as a [Viewpoint article in Physics: In a tight spot, spin and charge separate](#) and a Research Highlight in Nature: [A liquid of photons, Nature, 472, 262 \(2011\)](#)

5. **Experimental simulation of charge conservation violation and Majorana dynamics**

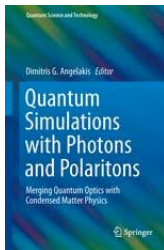
R. Keil, C. Noh, A. Rai, S. Stutzer, S. Nolte, D. G. Angelakis, A. Szameit [Optica 2,454 \(2015\) \[PDF\]](#). One of the earliest experimental implementation of realizing exotic physics with photonic systems, verifying our earlier theory work published two years earlier in Phys. Rev. A. proposing how to simulate the unphysical Majorana equation in a physical set up. Here in collaboration with a leading photonics group in Germany we realized the dynamics of a charged Majorana particle by light propagation in a tailored waveguide chip. Our results illustrate the potential of investigating theories beyond the standard model in a compact laboratory setting. This work was chosen for a focus article in Optics & Photonics News (OPN) [“Using light to simulate unphysical particles”](#). It has also appeared in the Science Section, [International Business Times](#), as well as [phys.org](#) and [sciencedaily](#)

6. **Invited Review** in *Report of Progress in Physics*: “Many-body physics and quantum simulations with light”, 80, 016401 (2016), 130 citations. An invited review to mark the 10 year anniversary of the field of quantum simulations with interacting photons. CQT highlight on [“Review marks 10 years of research in quantum simulators”](#)

7. **Two invited books published by Springer**



“**Quantum Computing: From theory to experiments**” 2006 and 2017. **D.G. Angelakis**, M. Christandl, A. Ekert, A. Kay and S. Kulik (Editors). “Quantum Information Processing From Theory to Experiment” Volume 199 2006. NATO Science Series: Computer & Systems Sciences, Kluwer 2006, ISBN 1-58603-611-4



“**Quantum Simulators with Photons and Polaritons: Merging Quantum Optics with Condensed Matter Physics**” **D. G. Angelakis**, (invited edited volume by *Springer*), 2017.

Part of the Series on Quantum Science and Technology.). Also [CQT research highlight “Book presents global perspective in quantum simulations”](#)

Other highlights of my research in the scientific media.

1. Our November 2016 work in Physical Review Letters “Topological pumping with photons in nonlinear resonator arrays”, theory collaboration with **Google**, has been covered in in [EurekaAlert](#)” [An Archimedes' screw for groups of quantum particles](#). **Phys.org**, **Health Medicinet**, **Nanowerk**, **Nanotechnology Now**, **Sky Nightly**, and **Space Daily**. It was also CQT research highlight [“Topological Scheme inspired by Nobel winner’s work”](#)
2. Our December 2016 PRL “Driven open quantum systems and Floquet stroboscopic dynamics”. Physical Review Letters, December 2016, was a [CQT research highlight “Shaking Schrodinger’s cat may protect from the environment”](#)
3. Our 2013 work in PRL “Mimicking interacting relativistic theories with light” [Centre for Quantum Technologies research highlights](#)
4. News story in “**Physics and Physicists**”, “Luttinger Liquid Behavior For Photons In 1D” Link:<http://physicsandphysicists.blogspot.com/2011/04/luttinger-liquid-behaviorforphotons.html>

5. **Invited review article (cover story) in the Innovation Magazine**, on a focus issue on Quantum Technology, on my contributions in the field of light-matter interactions and quantum simulations.
Title: "Shedding light into the secrets of matter"
http://www.innovationmagazine.com/volumes/v9n2/preserved-docs/18_21.pdf
6. 'Interview and article Greece's most esteem Sundays published national newspaper **TO BIMA**, Science section by Tasos Kafantaris, Science section, Sunday 8 May 2011 "**Liquid photons: A la Grec**" (in Greek).
7. **Focus article** at Phys.Org_ "*Could light and matter coupling lead to quantum computation? October 11, 2010*" by Miranda Marquit on our publication "Photon blockade induced Mott transitions and XY spin models in coupled cavity arrays"
8. Publication "Weaving light matter qubits in into one way quantum computer", New Journal Physics (2008) was selected by **Sciencewatch.com as one of the top 20 papers** with most citations in the years 2008 and 2009 **in the field of quantum computing**. Link here: <http://sciencewatch.com/ana/st/quantum/papers2yr/>
9. Our work "Simulating neutrino oscillations in trapped ions" published at NJP 14 033028 (2012) has been selected for the "**New Journal of Physics Highlights for 2012**" and was covered in the following science media: Phys.org "*Dance like a neutrino: Quantum scheme to simulate neutrino oscillations*". Science news line, SPACEDAILY, Eurekalert, Fermilab .

ORGANIZER/COMMITTEE MEMBER OF INTERNATIONAL CONFERENCE & ADVANCED PHYSICS SCHOOLS

1. Program committee member, 20th International Conference on Physics of Light-Matter Coupling in Nanostructures (PLMCN 2019), Moscow, July 2-6 2019
2. **Main** organizer and **chairman** of “The 1st workshop on Quantum Technologies in Greece : Towards a national program”, Crete June 22-23, 2018
3. Program committee, AQIS18, 18th Asian Quantum Information Science Conference, <http://aqis-conf.org/2018/>, Nagoya Japan, September 8-12, 2018
4. Program committee, The Nanoscale Quantum Optics Workshop, Prague February 2018. <http://www.cost-nqo.eu/event/nanoscale-quantum-optics-conference-mc-meeting-prague-czech-republik/>
5. Program committee, International Workshop on “Strongly correlated fluids of light and matter” held in Corsica, France, 8-12 May 2017. <http://qflm2017.org/>
6. **Main** organizer and **chairman** of the program committee of International School and Workshop on “Many-body physics and quantum simulations with light”, Chania, Crete June 4-11, 2016 <http://qlightcrete2016.org>
7. Program committee member, “International Conference on Quantum Computation, Communication and Measurement (QCMC2016), to be held in CQT/NUS, Singapore, 4-8 July 2016. <https://qcmc.quantumlah.org/>
8. **Main organizer** of the symposium on “Many body quantum optics: Merging condensed matter with AMO physics” within the 9th International Conference on Computational Physics (ICCP9), Singapore January 7-11, 2015. <http://www.physics.nus.edu.sg/iccp9/iccp9/minisym.htm#C13>
9. **Chairman** of the organizing and program committees of the NATO Advanced Study Institute in Quantum Computation and Quantum Information, Chania, Crete, Greece 2-13 May 2005. http://www.qi.damtp.cam.ac.uk/crete_2005/
10. **Chairman** of the organizing committee of the 4th meeting of the CMI (Cambridge-Massachusetts Institute of Technology Institute) in Quantum Information, Cambridge UK, July 2002
11. Member of the organizing committee of the 3rd meeting of the CMI (Cambridge-Massachusetts Institute of Technology Institute) in Quantum Infomation, Cambridge USA, January 2002.

INVITED and KEYNOTE TALKS in INTERNATIONAL CONFERENCES (46 in total)

1. IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC), Cannes, July 2019 (to be delivered).
2. “Many-body physics with strongly confined optical fields”, 20th International Conference on Physics of Light-Matter Coupling in Nanostructures (PLMCN 2019), Moscow, July 2019 (to be delivered).
3. “Quantum simulators with near scale devices”, 8th International Conference on Quantum Information, Tehran, Iran September 2018
4. “Many-body physics with strongly confined optical fields” International School of Physics “E. Fermi” - Nanoscale Quantum Optics, Italy July 2018.
5. Quantum simulations with interacting photons: Spectral signatures of many-body localization in quantum superconducting chips, Quantum Simulations with Atoms and Light, Aarhus, August 2018
6. “The EU Quantum Flagship and the Greek Research Activities in Quantum Technologies” at the The 1st workshop on Quantum Technologies in Greece : Towards a national program”, IESL, Crete, June 22-23, 2017 (**plenary**).
7. “From Mott transitions to many-body localization with interacting photons: An old story and a recent experiment” Conference on Hybrid Photonics and Materials, Mykonos, September 2017
8. “From Mott transitions to many-body localization with interacting photons: An old story and a recent experiment” in conference: The many facets of non-equilibrium physics: from many body theory to quantum thermodynamics, Sicily, September 2017
9. “Spectral Signatures of Many-Body Localization with Interacting Photons: An experiment”, International ICTP Workshop in Quantum Science and Technology, ICTP Trieste, September 2017
10. “Spectral Signatures of Many-Body Localization with Interacting Photons”, CCPQ Workshop on Dynamics of Complex Quantum Systems, Royal Society- Cumberland Lodge, UK, August 2017
11. “Probing Many-Body Physics with Light”, Symposium on Quantum Matter, International Conference on Statistical Physics, $\Sigma\Phi$ 2017, Corfu, Greece, July 2017
12. “Quantum simulations and many-body physics with light”, Thai-Singapore Scholars Workshop in Quantum Technologies, Thailand, January 2017 (**Keynote**)
13. “Topological and gauge fields with photons”, Quantum and Topological Nanophotonics Workshop, Nanyang Technological University, Singapore, December 2016.
14. “Quantum simulations with strongly interacting photons”, International workshop on quantum technologies and metamaterials, Spetses, Greece June 2016.
15. “Many-body physics with light”, *Workshop SU(N), gauge fields and cold atoms*, 18-20 January 2016, MajuLab, CNRS-UMJ collaboration, NUS, January 2016, Singapore

16. "Engineering and probing many-body states of light in driven-dissipative arrays", *Program on Many body physics with light program* run by the Kavli Insitute of Theoretical Physics, UCSB November 2016, California, USA.
17. "Driven dissipative many body physics with light" *Control of Quantum Dynamics of Atoms, Molecules and Ensembles by Light Workshop* 2014, Bourgas, Bulgaria, June 2015
18. "Strongly interacting photons" International Winter School and Workshop on *Strongly correlated fluids of light and matter*, European Centre for Theoretical Studies in Nuclear Physics and related areas (ECT), Trento, Italy January 12th-23rd 2015
19. "Quantum simulations of exotic physics with photonic chips" *The Benasque Workshop on Quantum Simulators*, Benasque, Spain, February 22nd-27th 2015
20. "Quantum simulations of condensed matter and exotic phenomena with strongly correlated photons and polaritons" *Advanced Workshop on Landau-Zener Interferometry and Quantum Control in Condensed Matter, ICTP workshop*, Smyrna, Turkey, October 2014
21. "Proposals for realization of topological states of interacting and non-interacting photon" META'14, *the 5th International Conference on Metamaterials, Photonic Crystals and Plasmonics*, Singapore, May 2014.
22. "Many body quantum optics" *Control of Quantum Dynamics of Atoms, Molecules and Ensembles by Light Workshop* 2014, Bourgas, Bulgaria, June 2014
23. "Emulating strongly correlated models with photons in driven atom-waveguide interfaces" META'14, *the 5th International Conference on Metamaterials, Photonic Crystals and Plasmonics*, Singapore, May 2014.
24. "Quantum simulations with photons and polaritons: The path from the early theory to the first experiments" *23rd Annual International Laser Physics Workshop, Sofia, Bulgaria* July 2014
25. "From the Jaynes-Cummings-Hubbard model to interacting relativistic theories with photons", *Advanced many-body physics and statistical methods in mesoscopic systems II*, Sept. 1-5, 2014, Bucharest Romania
26. "Quantum simulation of condensed matter physics and QFTs with light". *Quantum Simulators Workshop, Benasque, Spain*, October 2013
27. Quantum simulations with photons: The path from Mott transitions to interacting relativistic theories with light, *22nd International Laser Physics Workshop*, Prague, July 2013
28. "From Mott transitions to interacting relativistic theories with photons: A brief history of photonic quantum simulations", *APS March meeting 2013, Invited session on Photonic Quantum Simulations*, Baltimore USA, March 2013.
29. "Photonic Quantum Simulators", *AMOP 2012*, Indian Institute of Science Education and Research Kolkata (IISER-K), December 2012
30. "Luttinger Liquid of photons". *SFP-IPS Workshop at the Nanyang Executive Center (NTU)*, Singapore, January 2012

31. "From Mott transitions to interacting relativistic theories with light", *21st International Laser Physics Workshop*, Calgary, July 2012
32. "Photonic quantum simulators". *Quantum Simulators Workshop*, Benasque, Spain, March 2011.
33. "Spin-charge separation with photons", *Workshop for the 75 years of Quantum Entanglement*, Kolkata India, January 2011
34. "Quantum simulators with light". *Quantum Communication Workshop*, Vico Equence, Napoli, Italy, October 2009
35. "Quantum simulations and quantum information processing with photons". *Quantum Information and Quantum Computation conference*, Benasque Spain, June 2009
36. "Photonic Quantum Phase Transitions and QIP in Coupled Cavity Array"s. *18th International Laser Physics Workshop*, Barcelona, July 2009
37. "Quantum simulations and quantum information processing with hybrid light matter qubits". *5th Central European Quantum Information Processing Workshop June 2008*, Telč, Czech Republic, June 2008.
38. "Mott transitions, spin models and cluster quantum computation in coupled cavity arrays". *International Workshop on Strong atom-light interactions: theory, experiment and applications*, Imperial College May 2007.
39. "Quantum phase transitions and quantum computation in coupled cavity arrays". *Many body systems and quantum computation conference*, Pisa, Italy, March 2007.
40. "Quantum phase transitions of light:.. *The fifteenth annual International Laser Physics Workshop-Symposium on Quantum Information* L'Ecole Polytechnique Fédérale de Lausanne, July 2006.
41. "Optical quantum gates in coupled cavity waveguides". *QIP IRC meeting*, St Anne's College, Oxford, September 2005.
42. "Quantum computation in Photonic Crystals", *International Workshop in Quantum Computation and Quantum Information*, Benasque, Spain, 12-30 June 2005.
43. "Optical Quantum Computing in Photonic Crystals", *The fourteenth annual International Laser Physics Workshop*, Kyoto Japan, 4-8 July 2005.
44. "Bell Inequalities and Quantum Computation". *Quantum Probability and Information workshop*. Patras, Greece 2005.
45. "Direct distance estimation between unknown quantum transformations". Invited presentation at *Cambridge-MIT workshop on QI*, Cambridge, UK, January 2003.
46. "Testing Bell Inequalities in Photonic Crystals". *Young Researchers Meeting of the TMR Network on Microlasers and Cavity QED*, Durham, UK July 2000

Invited Lectures in International Physics Schools

1 *Quantum Information Transfer between Light and Matter in Photonic Crystals*. Quantum Information Processing Interdisciplinary Research Collaboration Summer School. Sheringham UK, June, 2005.

2 “Strongly interacting photons” International Winter School and Workshop on *Strongly correlated fluids of light and matter*, European Centre for Theoretical Studies in Nuclear Physics and related areas (ECT), Trento, Italy January 12th-23rd 2015

3 “Many-body physics with strongly confined optical fields” International School of Physics “E. Fermi” - Nanoscale Quantum Optics, Italy July 2018.

TEACHING EXPERIENCE

- **Technical University of Crete, Greece, 2008-2019:** Lecturer 2008-2012, and then Assistant and now tenure Associate Professor with teaching duties of 4 courses per year on average (two undergraduate and two graduate level). Since 2012 two courses per year (part time appointment). Teaching duties include planning and setting up the course material, preparing lectures notes, delivering between 3 to 5 hours of lectures per course per week for 13 weeks, setting up laboratory demonstration experiments and selecting and supervising teaching assistants for the laboratory part of the courses. Number of students trained ~200 per semester per undergraduate course. During 2008-2012 full teaching load of minimum 2 undergraduate courses per year plus one or two graduate ones, 2012 onwards part time duties of one undergraduate and one graduate course per year.

Courses taught:

Winter semester, every year during 2008 -2014: Physics 1 (Mechanics-Thermodynamics), undergraduate year 1

Spring semester: Physics 2 (Electromagnetism-Optics-Modern Physics) 2008, 2009, 2010, 2011, 2016, 2017, 2018 undergraduate year 2

Postgraduate lecture courses: Advanced Quantum Physics (2009-10-11-12,13), Introduction to Quantum Optics and Quantum Information (2010), Special topics in Laser-Mater Interactions (2008, 2009), Introduction to Quantum Information and Quantum Technologies (2014-2017)

- **Cambridge University, UK. 2001-2008.** Academic and personal tutor (junior research fellow St Catharine's College) as well as project supervision in Relativity, Optics, Mechanics, Waves (1st year). Small group teaching, two hours per week per group.
- **Imperial College, UK 1998-2001-**Teaching assistant as PhD student for the courses: Quantum Mechanics (2nd year), Relativity (2nd year), Optics (1st year), Mechanics(1st year), Waves (1st year), Electromagnetism (2nd year), Solid State physics Thermodynamics(3rd year)
- **University of Crete, Greece 1994-1998-** Laboratory demonstrator as undergraduate student (top of my year) for the laboratory courses: Mechanics (1st year), Optics (2nd year), Modern Physics (3rd year). Teaching assistant as an MSc student for Classical Mechanics (3rd year), Thermodynamics(3rd year)

GRADUATE STUDENTS & POSTDOCTORAL RESEARCHERS SUPERVISION

Centre for Quantum Technologies, Singapore

Postdoctoral researchers supervision:

Past

Dr Blas Manuel Rodriguez-Lara, 2+ years, 2009-2011 (now faculty in Mexico),

Dr John Goold, one year, 2010 (now in reader in Italy)

Dr Priyam Das, 3 years, 2012-15 (now lecturer in India)

Dr Amit Rai 3+ years, 2011-15 (now lecturer in India),

Dr Ping Na Ma, 1 year, 2014-15 (now CEO and founder of "Yotcopi Technologies" also working in parallel the banking sector)

Dr Changyup Lee 3 years, 2012-15 (now senior researcher KIT, Germany)

Dr Changsuk Noh, 5 years, 2010-15 (now assistant professor in KNU, Korea)

Dr Victor Bastidas, 12/2015-12/2017, from TU Berlin (now permanent researcher NTT Japan)

Dr Wing Chi Yu, 9/2017-12/2018, from NUS 2D Center (now assistant professor, Hong Kong University)

Current

Dr Marc Antoine Lemonde, joined March 2017, from Vienna, Austria

Dr Jirawat Tangpatinanon, joined February 2019, from my group

PhD students supervision (CQT NUS)

Completed

1. Mingxia Huo, PhD, "Quantum simulations with atoms and photons, successfully defended July 2013, now postdoctoral researcher at University of Oxford, Physics department, D. Jaksch group (supervised jointly with Kwek LC)
2. Jirawat Tangpatinanon, PhD, August 2014-January 2019, graduate of Cavendish laboratory, Cambridge UK. "Towards quantum simulations with strongly interacting photons". Thesis defended January 2019. Part of the work was published in Science Dec. 2017.

In progress

3. Tian Feng See (PhD), started August 2014, graduate of DAMTP, Cambridge UK, defending August 2019. "Scattering and multiphoton transport in many-body photonic systems:"
4. Supanut Thanasilp, PhD, started August 2018, graduate of Imperial College, London UK. "Quantum simulation and computation with near scale devices"

Membership in PhD and MSc committees and examiner of MSc and PhD theses

1. External examiner of Kwan Mun Kit, Nanyang Technological University Singapore MSc thesis entitled "Berry's Phase in Dyshalonskii-Mariya Interaction", Singapore, 2008
2. Internal examiner of Wang Guangquan PhD thesis entitled, "Strongly correlated phases in the anisotropic honey-comb lattice", National University Singapore February 2013
3. Committee member for NUS physics graduate student Tang Ho Kin's and examiner of QE3 oral exam on "Quantum Monte Carlo study of correlation effects in graphene", supervised by Dr. S. Adam, NUS
4. Internal examiner of CQT PhD student Jian Bu You PhD thesis entitled, " Title: Majorana fermion in topological superconductor and Mott-superfluid transition in circuit-QED system", National University of Singapore August 2015
5. Examiner of MSc thesis by Navneeth Ramakrishnan, ""The effects of marcoscopin disorder in a condensed matter system", National University of Singapore October 2016
6. External examiner of RADITYA WEDA BOMANTARA, National University Singapore PhD thesis entitled " EMERGENCE AND CONSTRUCTION OF NOVEL GAPLESS TOPOLOGICAL PHASES", Singapore, September 2017
7. Thesis Advisory Committee Member for NUS Physics student Mr Yu Xianquan "Laser Cooling of Group III atoms", April 2019
8. Examiner of PhD thesis by Konstantakis Christos, ""Quantum Search Algorithms", National University of Singapore October 2016
9. Diploma thesis examiner for ECE, TUC Crete student G. Devetzakis, «Ebits at a Distance: Quantum Algorithms and Circuits for Teleportation of Quantum Resources», October 2016.

10. PhD Committee member for ECE, TUC Crete PhD student M. Bassford, « Walks and Vortices: Quantum Processes on Lattices induced by irrational numbers », since January 2018.
11. PhD Committee member for ECE, TUC Crete PhD student G. Moutzianos, « Quantum walks and quantum computing», since January 2016.

Honours Thesis Supervisions (NUS Physics Department)

Zeijian Li, NUS Physics and SPMS student “Quantum Simulation with Strongly Correlated Photons”, completed April 2019

Kurniawan Tjandra, NUS Physics Department, “Quantum Transport in Topological Lattices ”, completed April 2019

Technical University of Crete (PhD students supervision)

Nikos Schetakis, (MSc), defended July 2012

Michail Kalogerakis, (MSc), defended 2013

Markela Tsafantaki (MSc), defended March 2017

In progress PhDs

Nikos Schetakis, (PhD), started 2013

Michail Kalogerakis, (PhD), started 2014

Honours Thesis Supervisions (TUC Crete ECE Department)

Themistoklis Skordias, ECE TUC, “Quantum machine learning and applications”, ongoing, to be submitted August 2019

Alexandros Politis, ECE, TUC, “Variational hybrid quantum-classical algorithms and photonic implementations”, ongoing, to be submitted August 2019

Outreach activities

I have participated in numerous open days in University of Cambridge, Imperial College, TU Crete, and CQT. I have delivered more than 30 talks and presentations to high schools, general audiences, companies, industrial events, and hosted several visits by industry teams and international educational experts in Europe and in Singapore. Highlights include invited talks about quantum computing at SGInnovate Singapore, hosting and presenting the quantum computing and simulation field to the HR Princess of Thailand and the whole Thai scientific delegation during their recent visit to CQT, NUS. I have also been involved in the Feynman 100 years exhibition held in the Arts and Science Museum Singapore in 2018-19, helping in the VIP opening tour including Minister Heng Swee Heat where a real quantum superconducting chip donated by my Google collaborators was exhibited. I have given interviews and wrote articles for various national newspapers like the Straits Times, Innovation Magazine, South China Morning Post, SKY TV, CNN and others

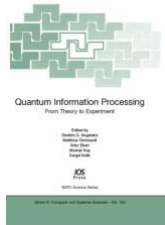
PUBLICATIONS

Theses:

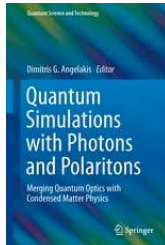
- D.G. Angelakis. “Atom-Photon Interactions in Structured Reservoirs”, PhD thesis, Imperial College, 2002. Supervised by Prof. Sir Peter Knight FRS, Awarded the 2002 Quantum Electronics Theses Prize from IOP UK.
- D.G. Angelakis. “The quantum jump approach in quantum optics”, MSc Thesis, University of Crete, 1998. Supervised by Prof. Peter Lambropoulos

Books

- 1 D.G. Angelakis, M. Christandl, A. Ekert, A. Kay and S. Kulik (Editors). “Quantum Information Processing From Theory to Experiment” Volume 199 2006. NATO Science Series: Computer & Systems Sciences, Kluwer 2006, ISBN 1-58603-611-4



- 2 D. G. Angelakis, editor “Quantum Simulators with Photons and Polaritons: Merging Quantum Optics with Condensed Matter Physics” (edited volume invited by *Springer*), 2017. Series on Quantum Science and Technology.



Special issues edited

“Quantum simulations”. *European Physical Journal: Quantum Technology*, 2014. DGA as lead editor with D. Jacksh, A. Aspuru-Guzik, E. Solano as co-editors.

“Many-body physics with photons and polaritons”, *New Journal of Physics*, 2017. DGA as lead editor with C. Ciuti (Paris), Pedram Roushan (UCSB/Google), A. Szameit (Rostock) as co-editors.

Invited Reviews

C. Noh and D.G. Angelakis “Many-body physics and quantum simulations with light” *Report of Progress in Physics*, 80, 016401 (2016)

Book chapters

C. Noh, S. Clark, D. Jacksh and D.G. Angelakis “Out-of-equilibrium physics in driven dissipative coupled resonator arrays” in “Quantum Simulators with Photons and Polaritons: Merging Quantum Optics with Condensed Matter Physics” (*Springer*), 2017. Series on Quantum Science and Technology.

JOURNAL PUBLICATIONS

Submitted

1. J. Tangpatinanon, S. Thanasilp, M Lemonde, **D. G. Angelakis*** “Quantum supremacy in analog quantum simulators and applications in material science and machine learning”, [arXiv:1906.03860](https://arxiv.org/abs/1906.03860)
2. [I. D'Amico](https://arxiv.org/abs/1906.07086), **D. G. Angelakis**, et al., “Nanoscale Quantum Optics”, [arXiv:1906.07086](https://arxiv.org/abs/1906.07086)
3. M. Namazi, B. Jordaan, C. Noh, **D. G. Angelakis**, E. Figueroa “Realizing topological relativistic dynamics with slow light polaritons at room temperature” [arXiv:1711.09346](https://arxiv.org/abs/1711.09346)

(Published - 56 in total, * corresponding author)

1. J. Tangpatinanon, S. Clark, V. M. Bastidas, R. Fazio, D. Jaksch, **D. G. Angelakis***, “Hidden Order in Quantum Many-body Dynamics of Driven-Dissipative Nonlinear Photonic Lattices”, *Phys. Rev. A* 99, 043808 (2019)
2. Wing Chi Yu, Jirawat Tangpanitanon, Alexander W. Glaetzle, Dieter Jaksch, **Dimitris G. Angelakis***, “Discrete time crystal in globally driven interacting quantum systems without disorder”, *Phys. Rev. A* 99, 033618 (2019)
3. Tian Feng, See, V. M., Bastidas, Jirawat, Tangpanitanon, **Dimitris G., Angelakis***, “Strongly correlated photon transport in nonlinear photonic lattice with disorder: Probing signatures of the localization transition”, *Phys. Rev. A* 99, 033835 (2019)
4. Wing Chi Yu, P. D. Sacramento, Y. Chao, **D. G. Angelakis**, and Hai-Qing Lin, “Detection of topological phases by quasilocal operators” *Phys. Rev. B* 99, 115113 (2019)
5. V. M. Bastidas, T.H. Kyaw, J. Tangpanitanon, G. Romero, L.C. Kwek, **D.G. Angelakis*** “Floquet stroboscopic divisibility: coherence preservation in non-Markovian dynamics” *New Journal of Physics*, *New J. Phys.* 20 093004 (2018)
6. P. Roushan, C. Neill, J. Tangpanitanon, V.M. Bastidas, A. Megrant, R. Barends, Y. Chen, Z. Chen, B. Chiaro, A. Dunsworth, A. Fowler, B. Foxen, M. Giustina, E. Jeffrey, J. Kelly, E. Lucero, J. Mutus, M. Neeley, C. Quintana, D. Sank, A. Vainsencher, J. Wenner, T. White, H. Neven, **D. G. Angelakis***, J. Martinis, “Spectral signatures of many-body localization with interacting photons” **in Science**, **01 Dec 2017**: Vol. 358, Issue 6367, 2017
7. TF See, C Noh, D.G. Angelakis, “A diagrammatic Diagrammatic Approach to Multiphoton Scattering”, *Phys. Rev. A* 95, 053845 (2017)
8. E. Compagno, G. De Chiara, **D. G. Angelakis**, and G. M. Palma, “Tunable Polarons in Bose Einstein Condensates”, *Scientific Reports* 7, 2355 (2017)
9. J. Tangpatinanon, V. M. Bastidas, P. Roushan, S. Assam, D. Jaksch, **D. G. Angelakis***, “Topological pumping with photons in nonlinear resonator arrays”, [arXiv: 1607.04050](https://arxiv.org/abs/1607.04050), *Physical Review*

- Letters, 117, 213603 (2017).
10. Sebastian Restrepo, Javier Cerrillo,, V. M. Bastidas, **D. G. Angelakis**, T. Brandes, "Driven open quantum systems and Floquet stroboscopic dynamics". *Phys Rev. Let.* 117, 250401 (2016).
 11. C. Koke, C. Noh, **D. G. Angelakis***, "Dirac equation in 2-dimensional curved spacetime, particle creation, and coupled waveguide arrays", *Annals of Physics* 374, 162 (2016).
 12. J. J. Mendoza-Arenas, S. R. Clark, S. Felicetti, G. Romero, E. Solano, **D. G. Angelakis**, and D. Jaksch "Beyond mean-field bistability in driven-dissipative lattices: Bunching-antibunching transition and quantum simulation", *Phys. Rev. A* **93**, 023821 (2016).
 13. A. V. Sorokin, M. Aparicio Alcalde, V. M. Bastidas, G. Engelhardt, **D. G. Angelakis**, T. Brandes, "Semiclassical bifurcations and topological phase transitions in a one-dimensional lattice of coupled Lipkin-Meshkov-Glick models", *arXiv: 1604.08023*, *Phys Rev. E.* 94, 0321123 (2016)
 14. D.G. **Angelakis*** and C. Noh "Many-body physics and quantum simulations with light"
Report of Progress in Physics, 80 016401 (2016)
 15. C. Lee, C. Noh, N. Schetakakis, D. G. **Angelakis*** " Few-photon transport in many-body photonic systems: A scattering approach", *Phys. Rev. A* **92**, 063817 (2015)
 16. G. W. Hanson, S. A. H. Gangaraj, C. Lee, D. G. **Angelakis**, M. Tame "Quantum plasmonic excitation in graphene and robust-to-loss propagation", [Phys. Rev. 92, 013828 \(2015\)](#)
 17. R. Keil, C. Noh, A. Rai, S. Stutzer, S. Nolte, **D. G. Angelakis***, A. Szameit "Experimental simulation of charge conservation violation and Majorana dynamics", *Optica* 2,454 (2015)
 18. Changyoun Lee, Amit Rai, Changsuk Noh, **Dimitris G. Angelakis***. " Photonic lattice simulation of dissipation-induced correlations in bosonic systems", in *Nature Scientific Reports* 5, 8438 (2015).
 19. Hyunseok Jeong, Changsuk Noh, Seunglee Bae, **Dimitris G. Angelakis**, Timothy C. Ralph, "Detecting the degree of macroscopic quantumness using an overlap measurement", *Jour. of Opt. Soc. Of America B*, Vol. 31, Issue 12, pp. 3057-3066 (2014)
 20. Peter A. Ivanov, Naoum I. Karchev, Nikolay V. Vitanov, **Dimitris G. Angelakis**, "Quantum simulation of superexchange magnetism in linear ion crystals",
arXiv: 1405.6071, *Phys. Rev. A* 90, 012325(2014)
 21. Changyoun Lee, Amit Rai, Changsuk Noh, **Dimitris G. Angelakis***. "Probing the effects of interaction in Anderson localization using linear photonic lattices"
arXiv:1310:8208, *Physical Review A* 89, 023823 (2014).
 22. Priyam Das, Changsuk Noh, **Dimitris G. Angelakis*** "Realizing the driven non-linear Schrodinger equation with stationary light", *arXiv:1208.0313 Europhysics Lett.* 103 34001 (2013).
 23. **Dimitris G. Angelakis***, C. Noh "Probing the topological propertied of Jackiw-Rebbi model with light". *arXiv:1306.2179*, *Nature Scientific Reports* 4, 6110 (2014)
 24. N. Schetakakis, Tom Gruzic, Stephen R. Clark, Dieter Jacksh **Dimitris G. Angelakis***. "Frozen photons in coupled cavity arrays", *arXiv:1305.6576*, *J. Phys. B: At. Mol. Opt. Phys.* 46 (2013)

25. J. Ryu, C. Lee, Y. Zhi, R. Rahaman, **D. G. Angelakis**, J. Lee, M. Żukowski. "Multi-setting Greenberger-Horne-Zeilinger theorem", [arXiv:1303.7222](#), Phys. Rev. A 89, 024103 (2014)
26. Changhyoup Lee, Mark Tame, Changsuk Noh, James Lim, Stefan A. Maier, Jinhyoung Lee, **Dimitris G. Angelakis***. "Robust-to-loss entanglement generation using a quantum plasmonic nanoparticle array" [arXiv:1303.5092](#), New J. Phys. 15 083017 (2013)
27. **Dimitris G. Angelakis***, C. Noh. "Towards topological effects with coupled QED cavity arrays". [arXiv:1306.2179](#), Int. J. Mod. Phys. B 28, 1441003 (2014).
28. Tom Gruzic, Stephen R. Clark, Dieter Jacksh **Dimitris G. Angelakis*** "Repulsively induced photon super-bunching in driven resonator arrays" [arXiv:1205:0994](#), Phys. Rev. A. 87 053846 (2013)
29. Changsuk Noh, Blas M. Rodriguez **Dimitris G. Angelakis*** "The Majoranon and how to realize it in a table-top experiment", [arXiv:1210.5060](#), PRA(R) 87 0401102
30. **Dimitris G. Angelakis***, Mingxia Huo, Darrick Chang, Leong C Kwek, Vladimir Korepin "Mimicking interacting relativistic theories with stationary light" [arXiv:1207.7272](#) Phys. Rev. Lett. 110, 100502 (2013)
31. Tom Gruzic, Stephen R. Clark. **Dimitris G. Angelakis***, Dieter Jacksh "Non-equilibrium many-body effects in driven nonlinear resonator arrays", [arXiv:1205:0994](#), New Journal of Physics, 14 103025 (2012) (pdf)
32. Mingxia Huo, **Dimitris G. Angelakis***, Leong C Kwek "Spinons and hollons with polarized photons in a nonlinear waveguide", New J. Phys. 14 075027 (2012) (pdf)
33. Amit Rai, **Dimitris G. Angelakis*** "Dynamics of quantum light in integrated nonlinear waveguide arrays and generation of robust continuous variable entanglement" [arXiv:1201.4303](#) Phys. Rev. A 85, 052330
34. [Changsuk Noh](#), Blas M. Rodríguez-Lara, **Dimitris G. Angelakis*** "Quantum simulation of neutrino oscillations with trapped ions" [arXiv:1106.4936](#) New J. Phys 14 033028 (2012)
35. Mingxia Huo, [Changsuk Noh](#), B. M. Rodríguez-Lara, **Dimitris G. Angelakis*** "Quantum simulation of Cooper pairing with photons" [arXiv:1106.4936](#), Phys. Rev. A 86, 043840 (2012).
36. **Dimitris G. Angelakis***, Stefano. Mancini "Fluctuations assisted stationary entanglement in driven quantum systems". ([arXiv:1107.0905](#)), Int. J. Mod. Phys. B 27, 1345037 (2012).
37. M. Huo, **D.G. Angelakis*** "sine Gordon and Bose-Hubbard dyanmics with photons in a nonlinear fiber". ([arXiv:1103.4856](#)), PRA 85, 023821 (2012)
38. **D. G. Angelakis***, M. Huo, E. Kyoseva, LC Kwek, "A photonic Luttinger liquid and spin-charge separation in a quantum optical system". ([arXiv:1006.1644](#)) Phys. Rev. Lett. 106, 153601 (2011)
39. Elica Kyoseva, **Dimitris G. Angelakis**, LC Kwek, "A single-interaction step implementation of a quantum search in coupled micro-cavities". Eur. Phys. Lett. 89, 20005 (2010) ([arXiv:0908.3308](#))
40. **Dimitris G. Angelakis***, Dai Li, LC Kwek, "Coherent control of steady state entanglement in driven cavity arrays". Eur. Phys. Lett. 91, 10003 (2010) ([arXiv:0906.2168](#))

41. Jaeyoon Cho, **Dimitris G. Angelakis***, Sougato Bose, "Fractional Quantum Hall state in coupled cavities". *Phys. Rev. Lett.* 101, 246809 (2008) ([arXiv:0807.1802](#))
42. **Dimitris G. Angelakis***, Stefano Mancini, Sougato Bose, "Steady state entanglement between distant hybrid light-matter qubits under classical driving", *Eur. Phys. Lett.* 85, 20007 (2009) ([arXiv:0711.1830](#)).
43. Jaeyoon Cho, **Dimitris G. Angelakis***, Sougato Bose, "Simulation of high-spin Heisenberg chains in coupled cavities." *Phys. Rev. A* 062338 (2008) ([arXiv:0802.3365](#)).
44. Alastair Kay and **Dimitris G. Angelakis***, "Reproducing spin lattice models in strongly coupled atom-cavity systems." *Eur. Phys. Lett.* 84 20001 (2008) ([arXiv:0802.0488](#)).
45. Jaeyoon Cho, **Dimitris G. Angelakis**, Sougato Bose, "Heralded generation of two-photon polarization entanglement with coupled cavities". *Phys. Rev. A*, vol. 78, 022323 (2008). ([arXiv:0712.2413](#))
46. **Dimitris G. Angelakis***, Marcelo F. Santos, Sougato Bose, "Photon blockade induced Mott transitions and XY spin models in coupled cavity arrays", *Phys. Rev. A (Rap. Com.)* vol. 76, 031805 (2007) ([arXiv:quant-ph/0606159](#)).
47. **Dimitris G. Angelakis***, Alastair Kay, "Weaving light-matter qubits into a one way quantum computer", *New J. Phys.* Vol. 10, 023012 (2008). ([arXiv:quant-ph/0702133](#)).
48. **Dimitris G. Angelakis***, M. Santos, V. Yanopappas, A.K. Ekert, "A proposal for the implementation of quantum gates with photonic-crystal coupled cavity waveguides", *Phys. Lett. A*. Vol.362, 377 (2007) ([arXiv:quant-ph/0410189](#)).
49. Sougato Bose, **Dimitris G. Angelakis**, Daniel Burgarth. "Transfer of a Polaritonic Qubit through a Coupled Cavity Array", *Journ. Of Mod. Opt.* vol. 54, 2307 (2007) ([arXiv:0704.0984](#)).
50. **Dimitris G. Angelakis***, Sougato Bose "Generation and verification of high-dimensional entanglement from coupled-cavity arrays", *Jour. of Opt. Soc. Amer. B.* 24, 266 (2007).
51. **D.G. Angelakis***, E. Paspalakis and P.L. Knight. Photonic Crystals and Inhibition of Spontaneous Emission: An Introduction. *Contemporary Physics* Vol. 45, 303 (2004) ([arXiv:quant-ph/0408025](#)).
52. **D. G. Angelakis***, E. Paspalakis and P.L. Knight. Transient properties of modified reservoir-induced transparency. *Phys. Rev. A* 61, 55802 (2000). ([arXiv:quant-ph/9909018](#))
53. **D. G. Angelakis***, E. Paspalakis and P.L. Knight. Coherent phenomena in photonic crystals. *Phys. Rev. A* 64, 013801 (2001). ([arXiv:quant-ph/0009106](#))
54. **D. G. Angelakis**, A. Beige, P. L. Knight, W. J. Munro, B. Tregenna. Verifying Atom Entanglement Schemes by Testing Bell's Inequality. *Z. Naturforsch.* 56 a, 27 (2001) ([arXiv:quant-ph/0102079](#).)
55. **D. G. Angelakis*** and P.L. Knight. Testing Bell Inequalities in Photonic Crystals. *Eur. Phys. Journal D.* 18 (2): 247-250 (2002).
56. E. Paspalakis, **D. G. Angelakis*** and P.L. Knight. The influence of the density of states on dark lines in spontaneous emission. *Opt. Com* 172, Issues 1-6, 15 229-240 (1999). ([arXiv:quant-ph/9906093](#)).

INVITED SEMINARS AND COLLOQUIA IN UNIVERSITIES AND INSTITUTIONS (only selected items)

1. "Quantum computing and quantum simulations", ECE School, Technical University of Crete, June 2018, **Colloquium**
2. "Quantum simulations of material science with interacting photons", Materials Department, University of Crete, April 2018, **Colloquium**
3. "Quantum simulations with light", Physics Department, University of Crete, Greece, March 2018, Special **Colloquium** to open the 40th year anniversary celebrations of the department
4. "Quantum simulations with interacting photons in superconducting qubits", Physics Department, University of Melbourne, Melbourne, December 2017
5. "Quantum simulations with interacting photons: Spectral Signatures of Many-Body Localization with Interacting Photons", Physics Department, University of New South Wales, Sydney December 2017
6. "Spectral Signatures of Many-Body Localization with Interacting Photons", Physics and Astronomy Department, Macquarie University, Sydney, December 2017
7. "Spectral Signatures of Many-Body Localization with Interacting Photons", Physics Department, University College London, August 2017
8. "Quantum Simulations with Strongly Interacting Photons: Merging Condensed Matter Physics with Quantum Optics", **Colloquium** of the Centre for Quantum Technologies, National University of Singapore, July 2017
9. "Quantum Simulations with Light", Physics Department, University of Queensland Australia, Brisbane, November 2016
10. "Topological pumping with photons", Physics Department, Macquarie University, Sydney. November 2016
11. "Many-body physics with light: From Mott transition to topological pumping with photons", Physics Department, University College London, September 2016
12. "From Mott transition to topological pumping with photons", Physics Department, University of Oxford, September 2016
13. "*Probing the topological properties of the Jackiw-Rebbi model with light*", Physics Department and CN Yang Institute for Theoretical Physics, State University of New York, NY USA January 2016
14. "Engineering and probing many-body states of light in driven-dissipative arrays", Kavli Institute of Theoretical Physics, California, USA, November 2015
15. "*Quantum simulations with photons and polaritons*", Physics Department, NTU, May 2014
16. "*Mott transitions and interacting relativistic theories with cavity arrays*", Walter Meissner Institute, Munich, October 2013
17. "*From Mott transitions to the Thirring model with light*", CN Yang Institute for Theoretical Physics, State University of New York, NY USA March 2013

18. *"Mimicking condensed matter and high energy physics with light"*, Colloquim, Physics Department, University of Crete, Heraklion November 2012
19. *"Quantum with strongly correlated photons"*, Colloquim, Bristol Centre for Quantum Photonics, Bristol UK, November 2012
20. *"Quantum simulations with photons"*, QOLS group, Physics Department, Imperial College, October 2012
21. *"Photonic quantum simulators"*, Quantum Information and AMO group, Physics Department, University College London, October 2012
22. *"Quantum simulation with coupled cavity arrays"*, Clarendon Laboratory, University of Oxford, November 2010.
23. *Photonic quantum simulators: Mimicking condensed matter physics with photons"*, Cavendish Laboratory, University of Cambridge, November 2010.
24. *"Mott transitions and Fractional Hall effect with photons"*, Physics Department, Imperial College, October 2010
25. *"Luttinger liquid and spin-charge separation in nonlinear fibers"*, Physics Department, University of Nottingham, October 2010
26. *Quantum simulations in strongly coupled atom-cavity systems*. Slovak Academy of Sciences, June 2008.
27. *Photonic phase transitions, spin models, and QIP in coupled cavity arrays*, IESL Foundation of Research and Technology, Greece, January 2007.
28. *Many body effects and quantum computation in strongly coupled atom-cavity systems*. Physics Department, University College London, 2006.
29. *Photonic quantum phase transitions in coupled cavity arrays*. Physics Department, National University of Singapore, August 2006.
30. *Light-Matter Interactions in Photonic Crystals*, Science Department, Technical University of Crete, Chania, January 2005.
31. *Optical Quantum Computing in Photonic Crystals*, Physics Department, National University of Singapore, August 2004.
32. *From light localization and optical circuitry to single photon switches and more*, Physics Department, Imperial College London, July 2003.
33. *Light localization and spontaneous emission in photonic crystals*, Physics Department, National University of Singapore, August 2003.
34. *Quantum Nonlocality and Quantum Computation in photonic crystals*. Physics Department, Aristotelian University of Greece, Thessaloniki, December 2002.
35. *Bell Inequalities and Quantum Computation in Photonic Crystals*. Physics Department, University of Crete, Crete, April 2001.
36. *Testing Bell Inequalities in Photonic Band Gap Materials*. Centre of Quantum Computation, University of Oxford, February 2001.

37. *Transparency Effects in Photonic Crystals* Physics Department. University of Rochester, USA, October 2000.
38. *Creating Entanglement in Photonic Crystals* Physics Department. University of Toronto, Canada, October 2000.

REGULAR CONTRIBUTIONS IN INTERNATIONAL MEETINGS (SELECTED ITEMS ONLY)

1. *Quantum nano-photonics for quantum simulations*, FOMO2014, Kolymbari, Chania Greece, October 2014
2. *Quantum simulations in strongly coupled atom-cavity systems*, ICAP, Cairns Australia, August 2010
3. *Quantum simulation with photonic systems*. International Workshop in Quantum Computation Simulators, Physicszentrum, Bad Honnef, Germany, 12-15 October 2009.
4. *Quantum simulations and quantum computation with strongly correlated photonic systems*. International Workshop in Quantum Computation and Quantum Information, Benasque, Spain, 10-29 June 2007.
5. *Photonic phase transitions spin models, and QIP in coupled cavity arrays*. CLEO-IQEC 2007, Munich, June, 2007.
6. *Cluster state quantum computing with hybrid light matter qubits*. International workshop in Measurement Based Quantum Computing, Oxford, March 2007.
7. *Mott transitions and quantum computing in coupled cavities*. American Physical Society March meeting, Denver, USA 2007.
8. *Direct distance estimation between unknown quantum transformations*. Advances in Quantum Information Processing Conference: From Theory to Experiment, Sicily, Italy, March 2003.
9. *Direct distance estimation between unknown quantum gates and quantum error correction*. Cambridge -MIT workshop, Cambridge, Boston, USA, January 2003.
10. *Testing Bell Inequalities in Photonic Crystals*. International Quantum Electronics Conference 2000, Nice, France, September 2000.
11. *Entangled States in Photonic Crystals. Bell Inequalities Testing*. QUICK-Quantum Interference and Cryptographic Keys: Novel Physics and Advancing Technologies Conference. Cargese, Corsica, France, April 2001.
12. *Coherent phenomena in Photonic Crystals*. Photonic Crystals and Light Localization, NATO Advanced Study Institute, Crete, Greece, June 2000.
13. *Reservoir Engineering*. 14th Quantum Electronics Conference, Manchester, UK, September 2000.

References

Prof. Artur Ekert, Professor of Quantum Physics at the Mathematical Institute, University of Oxford, and a Lee Kong Chian Centennial Professor at the National University of Singapore and also the Director of CQT.
artur.ekert@qubit.org ([postdoctoral advisor](#))

Prof. Ignacio Cirac, Max Planck Institute for Quantum Optics, Munich, Division Director, CQT SAB member
ignacio.cirac@mpq.mpg.de

Prof. Sir Peter Knight FRS, Emeritus Professor of Quantum Optics, Imperial College London SW72AZ (PhD advisor)
Chair of the Quantum Metrology Institute, National Physical Laboratory
p.knight@imperial.ac.uk

Prof. Alexander Szameit, Professor of Quantum Physics, University of Rostock, Germany,
alexander.szameit@uni-rostock.de (collaborator in one publication)

Dr Pedram Roushan, Senior Quantum Engineer, Google, Quantum Hardware Group,
pedramr@google.com (collaborator in two publications)