

**COST Action MP1209 "Thermodynamics in the Quantum Regime" Newsletter**  
Thursday October 8<sup>th</sup> 2015

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**Forthcoming Events**

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**COSTMP1209 – Third Quantum Thermodynamics Conference "Quantum Thermodynamics, Quantum Information"** is being organised by a group of CNRS researchers. It will be held from 11-16 October 2015 in Porquerolles, France.

The meeting website is <http://q-thermo3.sciencesconf.org/>. Registration is now closed

**COST funding invites have now been sent out to successful candidates. I will be available at the conference centre to answer COST related queries on Wednesday (14<sup>th</sup>) and Thursday (15<sup>th</sup>) from 9-1pm.**

**COSTMP1209 – 6<sup>th</sup> Working Group Meeting**

21-24 February 2016, Atard, Malta. André Xuereb, Lucienne May Bugeja, Jackson Levi Said and Alison Darmanin are organising this event.

The meeting website is <http://qutmalta.sciencesconf.org> and the submission of abstracts is now open.

The 6<sup>th</sup> Working Group Meeting in Malta will provide a platform to discuss results and questions relating to each working group and topics that cut across groups. This meeting will be organised along the lines of the three main themes addressed by the action: Thermalisation, information in thermodynamics, and implementations. Sessions that tie these themes together will serve to provide a bird's eye view of the work achieved by this network, and the major questions that still remain open.

**COSTMP1209 – 4<sup>th</sup> Quantum Thermodynamics Conference**

8-15 May 2016, Ettore Majorana Centre, Erice, Italy. Michele Campisi and his team are organising this event. [The meeting website is to be announced.](#)

**COSTMP1209 – Training School- Thermodynamics and non-equilibrium phenomena for quantum interfaces of light and matter.**

Aug/Sept 2016, Institute of Theoretical and Applied Physics (ITAP), Turunc/Marmaris, Turkey. [The meeting website is to be announced.](#)

**Other Non-Cost Meetings**

**Hybrid Quantum Systems Far from Equilibrium**  
9-10 November 2015 Chicheley Hall, Chicheley

**Key dates:**

**14 October 2015**      **Abstract submission deadline**  
19 October 2015      Early registration deadline  
28 October 2015      Registration deadline

Website at <http://qs2015.iopconfs.org/>

Recent advances in our ability to control the quantum properties of atoms, ions, and light, and integrate them with solid-state devices, offers a new wave of hybrid quantum systems. Such systems raise challenging fundamental science questions and offer prospects for new technologies: for example sensors that exploit nonlinear matter wave dynamics and interference. The workshop will explore the generic questions, phenomena, and formalisms that will be needed to understand and develop a wide range of hybrid quantum systems far from equilibrium.

Topics include, but are not limited to, light-matter interactions, atom-matter interactions, hybrid systems for nano and quantum metrology, thermalisation in interacting Bose and Fermi gases. Due to their intrinsic complexity, understanding hybrid quantum systems requires communities with diverse expertise to work together.

Contributed talks and a poster session will be a key part of the meeting.

**New Horizons In Nonequilibrium Thermodynamics**

26-30 October 2015, Ettore Majorana Centre, Erice, Italy.

Further details can be found at:

<https://sites.google.com/site/newhorizonsnetd2015/>

**Arctic School on Open Quantum Systems**

14-18 December 2015, Kilpisjarvi Biological Station, Helsinki, Finland.

Further details can be found at:

[http://cqe.aalto.fi/en/current/events/arctic\\_school\\_2015/](http://cqe.aalto.fi/en/current/events/arctic_school_2015/)

**APS Meeting: Quantum Information and Thermodynamics**

14-18 March 2016, Baltimore Convention Centre, Baltimore, Maryland, USA.

Further details can be found at:

<http://www.aps.org/meetings/march/scientific/index.cfm>

The Topical Group on Quantum Information, Concepts and Computation is pleased to announce a focus session on Quantum Information and Thermodynamics at the 2016 APS March Meeting. The purpose of the focus session is to highlight current experimental and theoretical research on the interplay of quantum mechanics and thermodynamics. We encourage you to consider sending a contributed talk for this session.

Abstracts can be submitted using the APS link <http://abstracts.aps.org>. The deadline for submission is November 6.

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**STSM Update**

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STSM call 10 has now closed and two applications have now been approved totalling €2,440.

The next STSM call opens on the 1<sup>st</sup> December and further details of this and future calls can be found on the website <http://blogs.exeter.ac.uk/qut/>

Please remember that STSM applications are a competitive process. Therefore, if you are considering applying, please give yourself the best chance of success by ensuring your project description is as strong as possible.

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**Website**

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We are currently experiencing technical difficulties with the 'join us' page. If you know of anyone wishing to join, please ask them to send their information direct to the Project Administrator at [costmp1209@gmail.com](mailto:costmp1209@gmail.com).

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**New Members**

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5 new members recently joined our network.

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**Administrative Information**

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Please send any items for inclusion in the next newsletter to [costmp1209@gmail.com](mailto:costmp1209@gmail.com).

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**COST Acknowledged Publications**

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The following COST acknowledged publications have been notified to us since the last newsletter. Please send details of any new COST acknowledged publications to [costmp1209@gmail.com](mailto:costmp1209@gmail.com).

1. Campisi, M. Construction of microcanonical entropy on thermodynamic pillars. *Phys. Rev. E* **91**, 052147 (2015).
2. Elouard, C., Richard, M. & Auffèves, A. Reversible work extraction in a hybrid opto-mechanical system. *New J. Phys.* **17**, 055018 (2015).
3. Hardal, A. Ü. C. & Müstecaplıoğlu, Ö. E. Superradiant Quantum Heat Engine. *Sci. Rep.* **5**, 12953 (2015).
4. Michele, C., Jukka, P., And & Fazio Rosario. Nonequilibrium fluctuations in quantum heat engines: theory, example, and possible solid state experiments - 1367-2630\_17\_3\_035012.pdf. *New Journal of Physics* (2015).
5. Parra-Murillo, C. A., Madroño, J. & Wimberger, S. Exact numerical methods for a many-body Wannier–Stark system. *Comput. Phys. Commun.* **186**, 19–30 (2015).
6. Pikovski, I., Zych, M., Costa, F. & Brukner, Č. Universal decoherence due to gravitational time dilation. *Nat. Phys.* **4** (2015).