

## **COST Action MP1209 “Thermodynamics in the Quantum Regime” Newsletter**

Thursday June 2<sup>nd</sup> 2016

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### **COSTMP1209 – Year 3 Overview**

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#### **Events**

The third Action year ended on 30th April (this was a month earlier than originally planned, see note from the chair below). During the year we held the following events, all of which were well received & attended.

Third International Quantum Thermodynamics Conference & MC Meeting –

Porquerolles, France, October 2015 ([3rd QTD Conference, Porquerolles](#))

ESR Meeting – Malta, November 2015

Sixth Working Group Meeting – Malta, February 2016 ([6th WG Meeting, Malta](#))

In addition, 4 plus one additional Call were issued and 15 STSMs were successfully completed.

#### **Membership**

239 researchers were participants of the network from 32 countries.

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### **COSTMP1209 – A note from the chair**

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*I would like to sincerely apologise to those of you who have experienced long-waiting times to become a member of our COST network in the last 6 months.*

This delay has been caused by a member of the team, who is handling the applications, being out of office due to health issues and bereavement. The delays have been further compounded by our network webpage not working properly (information put in the joining form was not saved) and the webpage support being unable to address these problems for us for extended periods. Sandra and I are now working on setting up a stable and speedy pathway for new members to join.

*I would also like to apologise to those affected by uncertain funding status for the Erice conference.*

This delay has been caused by the COST office who required us to pull forward the end of our network Year 3 from end of May 2016 to end of April 2016, as was requested by the European Commission. This meant that the Erice conference effectively moved from Year 3 to Year 4 and financial commitments could only be made after the Work Budget plan for our network was submitted and approved early in May (ie. at the same time as the conference was already running).

*Finally, I would like to apologise to Markus Huber, Mario Ziman and their team who proposed a working group meeting for the end of 2016, which was first accepted, but then declined.*

This is a very unfortunate circumstance, that occurred because the move of the Erice conference to the 4th year meant that we have effectively lost budget for one meeting in Year 4, and that meant we had to cut out the working group meeting. We will continue to communicate with the COST office to see if any additional funding can be found to fund the working group meeting.

Looking forward, we have now entered the network's 4th and final Year, which will run until the end of April 2017. The planned events and their dates and the STSM call dates are listed in this newsletter - please put them in your diary.

I very much hope you will enjoy the quantum thermodynamics events of the coming year.

Best wishes  
Janet

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### **COSTMP1209 – Year 4 Ahead**

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Our Working Budget Plan for Year 4 of the Action, has now been approved.

The following events are planned (please see below for further information)

- 4<sup>th</sup> International QTD Conference-Erice, Italy, 8-13 May 2016 (completed)
- 2<sup>nd</sup> QTD Training School, Istanbul, Turkey, 19-24 September 2016
- 5<sup>th</sup> International QTD Conference plus MC Meeting-Oxford, UK, 13-17 March 2017.
- 4 STSM Calls

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

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**COSTMP1209 – The 4<sup>th</sup> Quantum Thermodynamics Conference**  
<http://qtd4.sciencesconf.org> was held between 8-13 May, Erice, Italy.

This conference was a great success with over 80 participants attending, of which over 60% were ESRs. The conference consisted of informative and valuable discussions together with interesting and engaging presentations.

We would like to thank Michele Campisi, Claudio Guarcello, (SNS-NEST,Pisa), Fabio Marchesoni (Uni Camerino), Bernardo Spagnolo, Davide Valenti, Massimo Palma, Angelo Carollo (Uni Palermo) and Luca Magazzù (Uni Augsburg) and the programme committee for all their hard work in ensuring the conference was such a wonderful event.

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#### **Forthcoming Events in Year 4**

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

19-24 September 2016, Istanbul, Turkey. <https://www.eventbrite.com/e/non-equilibrium-phenomena-at-quantum-interfaces-of-light-and-matter-registration-24297998969>.

#### **COSTMP1209 - 5<sup>th</sup> Quantum Thermodynamic Conference**

13-17 March 2017, Oxford, UK. This event will be organized by Felix Binder, Fabio Anza, Cormac Browne (University of Oxford) and Luis Correa, Pietro Liuzzo-Scorpo and Gerardo Adesso (University of Nottingham).

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#### **STSM Update**

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The call dates for year 4 STSMs have now been finalised and full details are outlined below and are also available on the website <http://blogs.exeter.ac.uk/qut/>

#### **Call 13**

Opens 7<sup>th</sup> June 2016  
Closes 21<sup>st</sup> June 2016

#### **Call 14**

Opens 16<sup>th</sup> August 2016  
Closes 30<sup>th</sup> August 2016

#### **Call 15**

Opens 1<sup>st</sup> November 2016  
Closes 15<sup>th</sup> November 2016

#### **Call 16**

Opens 24<sup>th</sup> January 2017  
Closes 17<sup>th</sup> February 2017

The **next STSM call opens on the 7<sup>th</sup> June (open now)** and applications must be received by 21<sup>st</sup> June. STSM applications are a competitive process so, 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 working hard to resolve the technical difficulties with the 'join us' page. In the meantime, if you know of anyone wishing to join the network please ask them to contact the Project Administrator, Sandra Howsley at [costmp1209@gmail.com](mailto:costmp1209@gmail.com) for a short application form.

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**Administrative Information**

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Please send any items for inclusion in the next newsletter to Sandra Howsley at [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. Ford, I. J. Maxwell's demon and the management of ignorance in stochastic thermodynamics. *Contemp. Phys.* 1–22 (2016). doi:10.1080/00107514.2015.1121604
2. Gogolin, C. & Eisert, J. Equilibration, thermalisation, and the emergence of statistical mechanics in closed quantum systems. *Rep. Prog. Phys.* **79**, 056001 (2016).
3. Manzano, G., Galve, F., Zambrini, R. & Parrondo, J. M. R. Entropy production and thermodynamic power of the squeezed thermal reservoir. *Phys. Rev. E* **93**, 052120 (2016).
4. Rossnagel, J. *et al.* A single-atom heat engine. *Science*, **352**, 325–329 (2016).