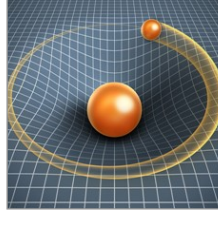


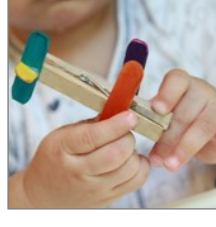
### In this newsletter



Student conference is a resounding success



Research 'gong show' at string theory conference

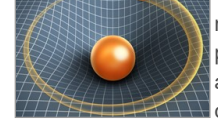


Young Theorist Forum stresses fundamental physics



Dr Joe Bhasen elected chair of the MTPG

### Student conference is a resounding success



The Strings, Cosmology, and Gravity Student Conference is an annual meeting that aims to bring together PhD students and early stage postdoctoral researchers in an environment where they can share ideas in a setting that is more informal and less daunting than that of other conferences. It has provided an excellent opportunity to foster collaboration between young researchers and to expose them to a wide range of research from within theoretical physics.

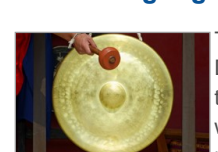
This year the conference held at the Paris Institut Henri Poincaré on 15<sup>th</sup> to 17<sup>th</sup> February attracted a larger number of participants than the previous year, and remained diverse regarding the interests of the participants. Once more the conference succeeded in bringing together early career researchers and allowed a platform for the cross-pollination of several crucial areas of fundamental physics, from potential future axion dark matter searches, to obtaining supersymmetric field theories in curved space. Over the course of the three-day conference there was a good balance across the three main topics, in addition to which were featured two talks in more general mathematical physics, a change that was well received by the participants.

Once more the local organisers proved invaluable to the smooth running of the event, be it with obtaining a venue, organising coffee breaks or providing numerous options of places for participants to socialise in the evenings. A true highlight was, as always, the conference dinner. This and the various other chances to socialise were crucial to the success of the conference, allowing time for participants to discuss new ideas, explore a new city and form friendships that will hopefully last throughout their careers. This has already led to collaborations between participants and the organisers hope that these continue.

From the many pieces of positive feedback received, the conference proved to be a resounding success.

<https://sites.google.com/site/scgscparis2017>

### Research 'gong show' at string theory conference



The conference "String Geometry, Supersymmetric Theories and Dualities" held at the University of Surrey on 3<sup>rd</sup> and 4<sup>th</sup> July, had the aim to gather together a broad spectrum of researchers and to provide a window into topics of current research in String Theory. The audience was mainly composed by early career researchers, with a few well-renowned scientists (Prof. Philip Candelas, Prof. Xenia de la Ossa, Prof. Nick Dorey, Prof. Dario Martelli).

The first day of the conference was devoted to pedagogical lectures on some research topics of String Theory, which turned out to be particularly fruitful for the young researchers in terms of their learning and background enlargement.

The second day was mainly composed of technical talks which focused on the recent developments/results of the research topics introduced the day before.

Among the series of talks, two of them were given by early career researchers (the PhD student Carolina Matte Gregory and the Post-doc Dr. Marco Caldarelli).

On the second day, the organisers also scheduled a gong show, which consisted of a 10 minute research presentation from six PhD students attending the conference.

Talks presented during the conference covered both the mathematical and the physical aspects of String Theory (moduli space of heterotic compactifications, supergravity tools for holography, supersymmetric quantum mechanics, integrability, Anti de Sitter / Ricci Flat duality).

The conference webpage is available at: <https://sgstad.blog>

*Organisers: Andrea Fontanella (University of Surrey), Joakim Strömwall (University of Surrey)*

### Young Theorist Forum stresses fundamental physics



The YTF 9 conference took place at Durham University on 11<sup>th</sup> and 12<sup>th</sup> January 2017. YTF is a long running conference organised by a collaboration of PhD researchers from the University's Departments of Physics and Mathematical Sciences. The purpose of the conference is to bring together postgraduate students working in theoretical physics, providing them with the opportunity to present their work to a friendly audience.

With 79 attendees this was a vibrant event – succeeding in its aim of fostering development of early career researchers and encouraging collaboration between different universities. The conference had two parallel streams of talks: one phenomenological, and one more mathematical. The topics of the phenomenology sessions were: Beyond the Standard Model Theory and Lattice, Neutrinos, BSM Phenomenology, and Dark Matter. The topics of the mathematical talks were: String Theory, Holography, Gravity and Gauge Theories, and Gravity and Cosmology.

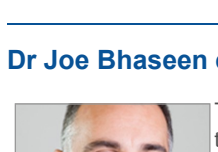
Overall, 29 PhD students from over 12 institutes across the UK had the opportunity to present a 20 minute talk on their research, with each talk being followed by a brief discussion session. Attendees also had a chance to present their research at a pizza and poster session, taking place at the end of the first day.

The plenary talk was given by Dr Donal O'Connell of the University of Edinburgh. Titled "Physics in 2017: Something's funny?" the talk focused primarily on the double copy for calculating gravity amplitudes from Yang Mills amplitudes. It contained a very optimistic message about the importance of research on the fundamental aspects of our theories in the face of the difficulty to find new physics.

The conference was supported by an LMS Postgraduate Research Conference grant (Scheme 8); the Institute of Physics; the Scottish Universities Physics Alliance; the Durham Centre for Academic, Researcher and Organisation Development; the Durham University Centre for Particle Theory; and the Durham University Institute for Particle Physics Phenomenology.

*Organisers: Matheus Hostert, Sam Fearn, Maciej Matuszewsk, Akash Jain, Juan Cruz-Martinez, Alex Peach, Andres Olivares, Calum Robson, Vaios Ziogas, Helen Brooks, Karl Nordstrom (all Durham University).*

### Dr Joe Bhasen elected chair of the MTPG



The Mathematical and Theoretical physics Group is delighted to announce that following the recent election, Dr Joe Bhasen has been elected to the position of Chair of the Mathematical and Theoretical Physics group. Joe's term commenced on Sunday 1<sup>st</sup> October 2017 and ends in 2021.

Joe is replacing the former chair Dr Clare Dunning. Clare had been involved with the committee since 2008, first co-opted then as an ordinary member, treasurer and finally chair "I have enjoyed contributing to the group and thank all of you for your contributions". Clare goes on to say that she will remain involved with the IOP as a member of its Groups Committee, thereby keeping up to date with the MTPG's activities and reports in the following years.

Many thanks to you Clare, for all your dedication and the hard work you have done for the MTPG.

For submissions to the MTPG newsletter please send articles via email to

[steve.cohen@physics.org](mailto:steve.cohen@physics.org)

Submissions should be in an editable text format. Please include links for further information or contact details where appropriate.

Steve Cohen

Editor