From the CM-DTC Director - Prof Andy Mackenzie

It has been a pleasure to see CM-DTC develop and mature over this past year. We are also delighted to welcome to the Centre the second cohort of highly talented students, bringing our total to twenty one. Of these, fifteen are from the UK, one from France; three from Germany, one from Spain and one from Poland, and all have good first class honours degrees or equivalent qualifications. Julian Schmehr was awarded a SUPA Prize studentship in March 2010. The students’ research projects range from studies of high-pressure hydrogen fuel storage to topologically protected states that are potential building blocks for creating a quantum computer.

The esprit de corps among the students is particularly notable. We had wondered how being spread over three sites would affect this, but it does not seem to have been a hindrance at all.

In our first year we concentrated on the academic side of our activities and were pleased that the quality of the training offered by the DTC was commended in a report from our International advisory committee who said that the DTC taught courses represent ‘an impressive commitment on behalf of the academic staff’ and the ‘scope and level of the training already exceeds that available at most, if not all, UK based institutions’.

In our first year we were also delighted to host lectures from Nobel Laureates Professors Sir Anthony Leggett and Klaus von Klitzing. Our first summer school ‘Foundations of Condensed Matter Physics’ attracted over 50 delegates and top lecturers from the UK and USA. We are looking forward to another good year, and hope to welcome many more visitors to Scotland.

From the CM-DTC Director of Training - Dr Chris Hooley

When I last wrote in this newsletter, the CM-DTC’s training programme had been in active operation for about two months, with ten students to its name. Now we have more than twice that number, and we have completed the first full year of CM-DTC taught courses. The second year sees a significant expansion of our course provision, with brand new courses on Quantum Phase Transitions, Disordered Systems, and Magnetism, as well as a course on Non-Equilibrium Statistical Mechanics and a reading course on Chaikin and Lubensky’s ‘Principles of Condensed Matter Physics’, widely acknowledged as one of the key texts of the field.

I’m pleased to note here that the vast majority of our students look as if they’re going to significantly exceed the (fairly stringent) credit requirements we impose. My impression is that our in-depth training programme is already helping to produce a much more rounded cohort of condensed matter physicists.

Industrial Associates programme - Prof Andrew Huxley

Now that we have a critical mass of students we aim to develop stronger links with our Industrial Associates. Events involving associates to date have included talks from SELEX Galileo and Marks & Clerk with presentations from Science magazine and Edinburgh Instruments scheduled over the next few months. As well as hosting individual visits we are planning a careers event for Thursday 10 March 2011. This event will provide an opportunity for our students to find out about different careers and benefit from the experience of physics graduates working at the different Associate organisations.
CM-DTC Outreach Project - Anne Pawsey, CM-DTC student and Outreach Project Leader

Making ice cream, firing giant smoke rings, playing with slinkies and building a microscope from Lego are just a few of the tasks performed by DTC students during their outreach activities. The students helped demonstrate various experiments at a science fair held at St Andrews University during National Science and Engineering Week. We have developed a workshop demonstrating the physics of Liquid Crystal Displays (LCD) for final year secondary school children, which ran twice at the University of Edinburgh. Finally, in a frantic and slightly sticky twenty minutes some of the DTC students made and served ice cream to 130 hungry school students as part of the TUSLIP day of physics. Students have also been involved individually in events run by external organisations such as the Institute of Physics.

At the beginning of October we received training from Linda Hadfield to help us to develop the skills required for outreach and we will work with her to develop new activities such as a high school science club starting in January. Over the year we have acquired a series of demonstrations linked to our research which we tested during the DTC summer school. These can be used in workshops, as part of science shows and at science fairs to help us to communicate the excitement of our research fields to a wider public.

CM-DTC Calendar of Future events

The following is a brief summary of the main upcoming DTC events.

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<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>10 - 11</td>
<td>March 2011 CM-DTC Future Careers Event</td>
<td>University of St Andrews</td>
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<tr>
<td>27 - 29</td>
<td>April 2011 Student Retreat at the Burn</td>
<td>Edzell</td>
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<tr>
<td>20 - 27</td>
<td>August 2011 CM-DTC Summer School 2011 on Condensed Matter</td>
<td>University of St Andrews</td>
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<td>Physics &amp; Energy</td>
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A complete list of events and further details can be found at our website: [http://cm-dtc.supa.ac.uk/](http://cm-dtc.supa.ac.uk/).

For further information on the CM-DTC please contact:

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New Appointments We are pleased welcome Dr Julie Massey, recently appointed as full-time Information Technologist / Administrator. One of her key roles is the update and the development of our website: [http://cm-dtc.supa.ac.uk/](http://cm-dtc.supa.ac.uk/).