Phys. Status Solidi B **250**, No. 5, 923–926 (2013) / **DOI** 10.1002/pssb.201341618

Dedication

Honoring S. R. Elliott

physica status solidi b
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basic solid state physics

Disorder in Order: a meeting honoring the scientific achievements of S. R. Elliott was held at Trinity College, Cambridge on 19–20 September 2012.

An extraordinary collection of scientists from around the globe visited Cambridge to pay their respects to Stephen on the occasion of his 60th birthday, and for an excellent exchange on scientific topics spanning much of condensed matter and chemical science and benefiting from fascinating presentations on biomedical applications and work bridging art and chemistry. It was a memorable two days with lectures and posters from dawn until dusk.

On the evening of the first day, a banquet honoring Stephen and his family was held in the Old Kitchen at Trinity College, and a number of speakers offered their comments suited to a celebratory meal. Two such speeches follow here.

Speech by David Drabold

It has been a privilege to co-organize this celebration honoring Stephen Elliott. My partner in crime for this endeavor has been Sergei Taraskin and in early stages, Alex Kolobov. I want to particularly thank Sergei for carrying out the substantial task of local organizing. Stephen's research group also deserves recognition for helping in many ways.

Stephen is a singular member of our community. He is an international leader, and consistent with the event, even an elder statesman. His service to the field has been extensive: organizing meetings, editing and reviewing for journals, building well-conceived and well-funded programs of research, both solo and collaborative, to enable research and to facilitate the development of young scientists. Quite obvious to this audience, he is scientifically brilliant, with a quick and original mind, and a principled dedication to scientific understanding. His work has spanned many aspects of condensed matter physics, with a sustained exploration of disorder, its many consequences, and he has a particular gift for understanding and developing applications. He has the unusual distinction of great success in experimental work and theory/simulation. It is evident that many of his published works will stand the test of time.

He is many other things: a man of vast erudition, a kind person, a trusted friend, a devoted family man, a proud papa, a prolific writer of exceptionally clear and useful books, a distinguished mentor of many young and established scientists, an incorrigible, even worse, contagious collector – seven Cambridge Loggans adorn my house. He is a wonderful host, as I can attest to personally, with great gratitude. Who else would suffer an Anglophile's request to visit Sutton Hoo on a beautiful October day? He deserves considerable credit even for this meeting, which he cheerfully worked quite hard on (though I could not get him to admit it)! And of course, he is the greatest wine expert that I know!

I make these remarks with deep gratitude and affection for Stephen, with best wishes for many more successes in life, science and collecting – on the occasion of his sixtieth birthday.

David A. Drabold
Distinguished Professor of Physics
Ohio University, USA

Speech by Edward Davis

Good evening Ladies and Gentlemen.

Dave Drabold asked me to say a few words at this truly splendid occasion and in particular to reminisce a little about the time when Stephen was a PhD student in the 1970s. As his thesis advisor (or as we say here PhD supervisor) I was delighted to accept this invitation. Of course as Stephen's supervisor I take full credit for all he has achieved since he graduated with his higher degree. However, if there is anything at all that has not worked out quite as expected, he must naturally take full responsibility for that himself.

My story must include the presence in the Cavendish at that time of Professor Sir Nevill Mott. Indeed it was difficult to avoid his presence as, when he retired as Cavendish Professor, Mott took an office in our research group – the Physics and Chemistry of Solids – a group that has spawned several amorphous scientists. Those students fortunate to be doing their PhDs at the time were extremely fortunate to have Sir Nevill enquire what they were doing and the wisdom of his comments. At that time I was collaborating with him myself, in particular by writing the second edition of our book 'Electronic Processes in Non-crystalline Materials' – a book that was actually selling quite well until Stephen wrote one of his own on the same subject! Stephen was of course the sole author of his own tome, which will forever prevent him from being the victim of the get-out used by Mott when challenged about something in our book – namely "Oh, Ted must have written that bit".

Mott had been close to retirement when I started in the Cavendish which in the late 1960s was still situated in Free School Lane and where, in earlier times, Thomson had discovered the electron, Cockroft and Walton had first split the atom, Chadwick discovered the neutron, Crick and Watson determined the structure of DNA, Hewish observed pulsars and numerous other discoveries were made. Mott had been preceded as Cavendish Professor by James Clerk Maxwell, Lord Rayleigh, J. J. Thomson, Ernest Rutherford and W. L. Bragg – quite a succession of luminaries and Nobel Prize winners. Fortunately when Mott handed over the reins to Sir Brian Pippard, he chose not to retire from physics and it was then that I started my own collaboration with him.

The move to the new Cavendish off Madingley Road was in 1974, so Stephen must have been one of my first research students there. If my memory serves me correctly, he and Richard Friend, the current Cavendish Professor (who is here with us tonight) were in my tutorial group in their final undergraduate year. They were, as you can imagine, challenging students but I used to get the better of them by setting them the hardest problems I could find in Pippard's 'Cavendish Problems in Physics', which served to keep them quiet for a few days!

Anyhow, Stephen eventually started his PhD research. As his thesis reveals (I took it down from my office shelf just this week) he undertook essentially three independent pieces of work, all of which were of some significance and at least one of which is frequently referred to today. The first involved computer relaxation of a continuous random network or CRN model of amorphous arsenic, which had been built by another student of mine, Neville Greaves. Incidentally I had several students work on amorphous arsenic and I'm pleased to report that they are all still alive and well! Anyhow, the atomic coordinates of the relaxed model generated a radial distribution function that agreed very well with one obtained experimentally. Stephen's second investigation was a study of phase changes in amorphous arsenic. For this experimental work it was necessary to grind lumps of glassy arsenic in order to fabricate specimens for the diamond anvil cell. Of course it was far too dangerous to grind the samples in the laboratory so it was suggested to Stephen that he grind them instead in the car park. However, as a safety precaution I ordered him to stand upwind when he did this. (At this point, Lynn Gladden – the present Pro-Vice-Chancellor for Research here at Cambridge University, intervenes to report that, when she was a research student, her supervisor, who happened to be certain Stephen Elliott, instructed her to do the same!) The third part of Stephen's thesis was a theoretical model for the a.c. conductivity of amorphous semiconductors, based on thermal activation over a potential barrier existing between localized states. This is the work that is frequently referenced in current literature.

Stephen's external examiner was from Chelsea College – a Professor A. K. Jonscher of 'universal dielectric relaxation' fame, but this reference will be lost on those of you who were not regular attendees

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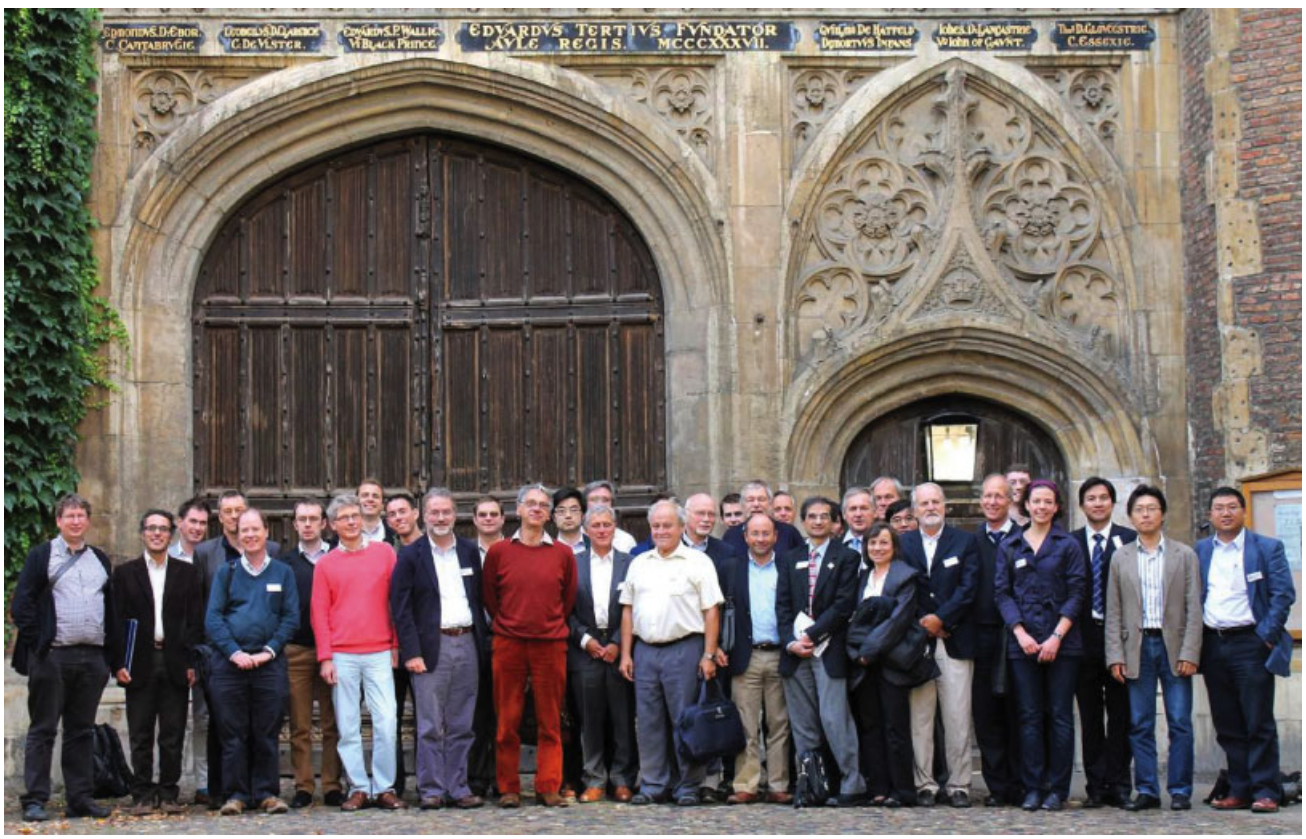
of the annual Chelsea meeting held just before Christmas at premises on the then very fashionable King's Road in London. These were the early glorious days of amorphous semiconductors and glasses when frequent visitors to this country were people such as Joseph Stuke from Marburg, Bill Paul from Harvard, Marc Brodsky from IBM, Jan Tauc from Prague – all anxious to hear Professor Mott's views on their latest results. This was the time when Walter Spear from Dundee showed us how amorphous silicon could be doped just like crystalline silicon, making it useful for solar cells, thin-film transistors and the like.

Those of you who attended the Chelsea meetings will not have forgotten a talk by Mark Brodsky who convinced all present except Walter Spear that amorphous silicon prepared by PECVD contained large quantities of hydrogen. His evidence was based on results from infrared absorption and hydrogen evolution on heating. But Walter still believed that the special properties of the films derived from the 'gentle' method of deposition and he never used the term a-Si:H to describe them. Another frequent visitor to Chelsea was Guy Andraienssens from Leuven in Belgium who always talked on chalcogenides but, unlike Jonscher, thankfully told us something new each time. Chalcogenides have of course been Stephen's preferred materials since his PhD.

I might point out that Stephen was awarded his PhD in the same year (1977) as Professor Mott was awarded the Nobel Prize jointly with van Vleck and Phil Anderson. Two great achievements in the same year! Later, in 1995, Mott received the Companion of Honour and an audience with the Queen. By then I had accepted a Chair of Physics at the University of Leicester and Stephen had changed subjects and moved to Chemistry here in Cambridge. Well, I say changed subjects but not really – he continued to do the same things but in a different department. He wrote the second of his books – a comprehensive and popular textbook with the title 'The Physics and Chemistry of Solids'. How he found time to write this large tome I know not, although perhaps Penny could probably throw some light on that matter. In addition he has published continuously, adding immensely to the storehouse of knowledge on all things disordered.



Group photo for "Disorder in Order", in front of Great Gate, Trinity College, Cambridge.

In 1993 Stephen and I got together again to organize ICAS 15 (15th International Conference on Amorphous Semiconductors) here in Cambridge. He and I have served on the International Advisory Committee of that series of conferences for many years. The next conference will be ICANS 25 (the N stands for nanocrystalline) in Montreal in 2013. As this conference is held biennially, the number reveals that the series has been running for almost 50 years, which is slightly alarming when many of us consider we are still working in a new field!

Thank you Stephen for providing us with this opportunity to hold such an interesting and enjoyable meeting with old and new friends. We all wish you a happy sixtieth birthday and many more years of fruitful research.

Edward A. Davis
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