

Professor Sir Nevill Mott's Visit to the SRS Station 1.2: the Mott Polarimeter

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On February 21st 1994 Sir Nevill Mott (Nobel prize winner for physics in 1977) visited Daresbury Laboratory as an invited speaker in the 'Daresbury Lecture Series'. His title for the talk was 'A Polaron Theory of High Temperature Superconductors' – a research area in which he had been active for the previous six or seven years. Although eighty-eight at the time, the research output of Sir Nevill was still prodigious and since his 'retirement' in 1973 he had published more than 120 papers! Before his talk a special visit was made to Station 1.2 of the SRS (the Synchrotron Radiation Source) so that Sir Nevill could see at first hand the eponymous high-energy Mott polarimeter that was used to determine the spin polarisation of photoemitted electron beams. Daresbury Laboratory had the only conventional high-energy Mott polarimeter in the country and this was the first - and only - time that Sir Nevill actually saw one. After some discussion about the relative merits of types of polarimeter and the systems being studied with them, Sir Nevill expressed great satisfaction that his theoretical work had led to the construction of a useful instrument. He was being characteristically modest in this respect as his contribution to the area was immense: In 1929, whilst at Cambridge he proposed that a double scattering experiment could be used as a means to generate and then characterise polarised electron beams. He then worked out the theory for the process using the newly reported relativistic wave equation of Dirac and the experiment was successfully carried out eleven years later.



Professor Sir Nevill Mott next to the Mott polarimeter on Station 1.2 of the SRS