

## Editorial

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*N Mukunda, Editor*

Sir Rudolph Ernst Peierls (1907–1995) was one of the group of theoretical physicists who grew up as students just after the formulation of quantum mechanics in 1925–26. Some others in this group were Hans Bethe, Victor Weisskopf, Felix Bloch and Lev Landau, every one of them an outstanding physicist. They were all a few years younger than Pauli (1900), Heisenberg and Fermi (1901), Dirac (1902) and von Neumann (1903).



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In this issue we pay tribute to Peierls with short pieces and articles by Rajat Bhaduri, G Baskaran and S Dattagupta. We learn about the academic atmosphere in Germany in which Peierls grew up. He was taught by so many greats in physics and mathematics – Planck, Nernst (both awful), Schur and Sommerfeld (models of clarity) – and worked with no less than Sommerfeld, Heisenberg and Pauli. All this training and exposure led to his becoming a versatile physicist, who made landmark contributions in many areas including solid state physics, nuclear physics and quantum field theory. In this last area, one most elegant work is the derivation of quantum field commutators and anti-commutators from  $S$ -matrix ideas.

We also recall the Bohr–Peierls–Placzek optical theorem in quantum scattering theory, and the startling discovery with Otto Frisch in 1940 that just one kilogram of  $U^{235}$  was enough to set off a nuclear explosion – the topic of Ayan Guha’s cartoon.

Peierls lived and worked in England for the greatest part of his life. After Manchester (1933–1936), he set up a renowned school in Birmingham (1936–1963), and then at Oxford (1963–1974). The Irishman John Bell, who later made pioneering contributions to the foundations of quantum mechanics, was his student in Birmingham.

Peierls had an Indian connection too – Kapur as student in Birmingham in 1938, Bhaduri in Oxford in 1963 as research assistant. From all accounts, apart from his physics, we learn about his human qualities of courtesy and genuine humility.

In ‘Reflections’ we read Peierls’ recollections of Rutherford and Bohr – a charming account by one who had known them both – an important historical document.

Personalities such as Peierls continue to inspire us all.

