

James Clerk Maxwell, more celebrated abroad than in his native Scotland, is seen as the father of modern physics



Scot's winning

ALASTAIR JAMIESON
AND MIKE MACEACHERAN

IT DOESN'T mean much to those of us without a degree in physics, but a formula devised by a Scottish scientist has been voted the best of all time by a group of experts – beating calculations by Albert Einstein and Isaac Newton.

James Clerk Maxwell's four electromagnetic equations, which describe how electromagnetic fields vary in space and time, were judged best in the world in a poll of physicists.

Maxwell, who died in 1879, took joint first place in the physics hit parade top ten for his electromagnetic theories.

The Edinburgh-born scientist was responsible for the first colour photograph, expressed all the fundamental laws of light, electricity and magnetism and provided the tools to create everything from radar to radios and televisions to mobile phones. He is also credited with fundamentally changing our view of reality – to the extent that Einstein said: "One scientific epoch ended and another began with James Clerk Maxwell." Yet he does not enjoy the same worldwide recognition as figures like Newton.

The poll, by *Physics World*

MAGNIFICENT MAXWELL

Little-known physicist's electromagnetic equations voted best theory of all time

magazine, sought the views of hundreds of readers – including physicists and mathematicians. Maxwell enjoyed joint top billing with the 18th-century Swiss genius Leonhard Euler, who created the "beautiful" equation $e^{i\pi} + 1 = 0$. Physicists like this equation because it has nine basic concepts of mathematics once and only once in a single equation – but it performs no useful, everyday function. Einstein's famous $E=mc^2$ came in sixth.

Dr Martin Durrani, deputy editor of *Physics World*, said: "Maxwell was one of the greatest scientists who have ever lived. To him we owe the most significant discovery of our age – the theory of electromagnetism. He is rightly acclaimed as the father of modern physics and he made fundamental contributions to mathematics, astronomy and engineering."

Dr David Ireland, a specialist in nuclear physics at Glasgow University, said: "I'm not surprised that he came out on top. He really is the physicist's physicist. The general public might not realise who he is, but hope-

fully this will spark some interest in what he has done for the world at large."

Maxwell was born on 13 June 1831 in India Street, Edinburgh, in a house built by his parents, but soon the family moved to Glenlair in Kirkcudbrightshire. The India Street building is now home to the International Centre for Mathematical Sciences.

Maxwell's abilities were evi-

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dent at an early age. Following the death of his mother when he was eight, Maxwell was sent to Edinburgh Academy where fellow pupils nicknamed him "Dafty". In 1846, at the age of 14, he presented his first paper – a treatise on ovals – to the Royal Society of Edinburgh. He went on to Cambridge University and spent much of his career in London, before dying aged 48.

He has a mountain range on