



**James Clerk Maxwell** [FRS](#) [FRSE](#) (13 June 1831 – 5 November 1879) was a Scottish [\[2\]](#)  
[\[3\]](#) scientist in the field of [mathematical physics](#).[\[4\]](#)His most notable achievement was to

formulate the classical theory of [electromagnetic radiation](#), bringing together for the first time electricity, [magnetism](#), and light as manifestations of the same phenomenon. [Maxwell's equations](#) for electromagnetism have been called the "second great unification in physics"<sup>[5]</sup> after the first one realised by [Isaac Newton](#).

With the publication of *A Dynamical Theory of the Electromagnetic Field* in 1865, Maxwell demonstrated that [electric](#) and [magnetic fields](#) travel through space as [waves](#) moving at the [speed of light](#). Maxwell proposed that light is an undulation in the same medium that is the cause of electric and magnetic phenomena.<sup>[6]</sup> The unification of light and electrical phenomena led to the prediction of the existence of [radio waves](#).

Maxwell helped develop the [Maxwell-Boltzmann distribution](#), a statistical means of describing aspects of the [kinetic theory of gases](#). He is also known for presenting the first durable [colour photograph](#) in 1861 and for his foundational work on analysing the [rigidity](#) of rod-and-joint frameworks ([trusses](#)) like those in many bridges.

His discoveries helped usher in the era of modern physics, laying the foundation for such fields as [special relativity](#) and [quantum mechanics](#). Many physicists regard Maxwell as the 19th-century scientist having the greatest influence on 20th-century physics. His contributions to the science are considered by many to be of the same magnitude as those of [Isaac Newton](#) and [Albert Einstein](#).<sup>[7]</sup> In the millennium poll—a survey of the 100 most prominent physicists—Maxwell was voted the third greatest physicist of all time, behind only Newton and Einstein.<sup>[8]</sup> On the centenary of Maxwell's birthday, Einstein described Maxwell's work as the "most profound and the most fruitful that physics has experienced since the time of Newton".<sup>[9]</sup>