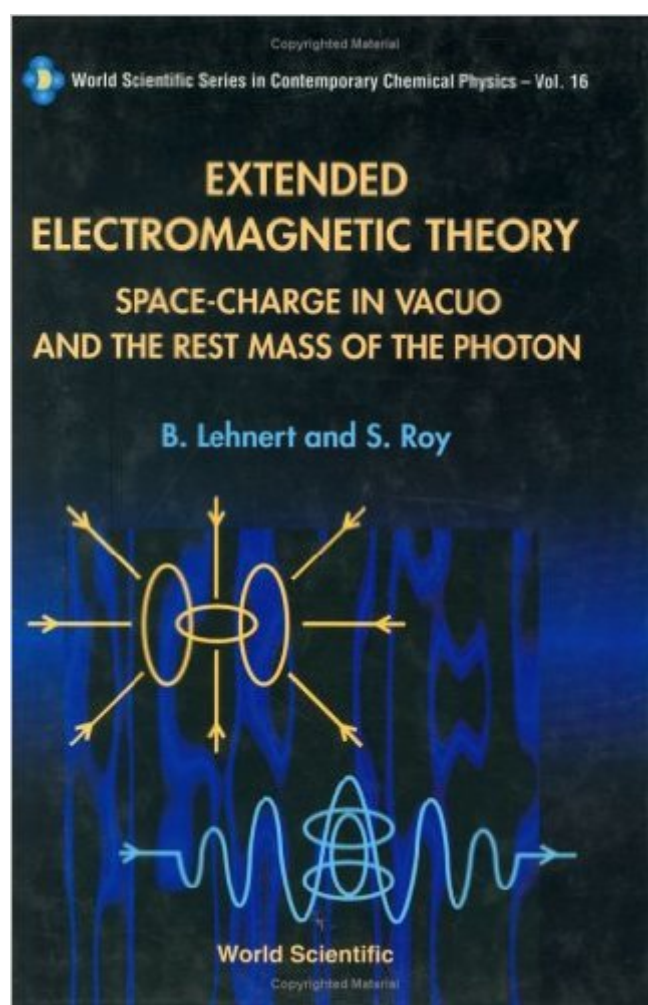


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# Extended Electromagnetic Theory, Space Charge In Vacuo And The Rest Mass Of Photon (World Scientific Series In Contemporary Chemical Physics)



## Synopsis

This book presents extended forms of the Maxwell equations as well as electromagnetic fields, based on a non-zero divergence of the electric field and a non-zero electric conductivity in vacuo. These approaches, which predict new features of the electromagnetic field, such as the existence of both longitudinal and transverse solutions, the existence of space-charge current in vacuo, and steady electromagnetic equilibria, have possible applications to charge and neutral leptons and new photon physics. The present theory can also clear up some unsolved problems, such as the total reflection of light at the interface between a vacuum and a dissipative medium, and the appearance of an angular momentum of the photon, thereby leading to a rest mass and an axial magnetic field component of the photon. This axial magnetic field component may be related to the  $B(3)$  field proposed by Evans and Vigier. A new gauge condition has been proposed to maintain consistency of the theory with the non-zero photon mass. Several consequences of the non-zero mass of the photon are also discussed, especially in the astrophysical context.

## Book Information

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## Customer Reviews

In 1927, the world of physics split at the Solvay Conference in Belgium into the probabilistic and spooky world of quantum theory according to the Copenhagenists, Wolfgang Pauli and Heisenberg and their dissenters Schrodinger, Einstein and Prince Louis De Broglie, who still believed in the deterministic world of physics as pioneered by Kepler, Galileo and Newton. On the train back to France, Einstein charged De Broglie with the task of continuing the fight of deterministic physics

against the Copenhagenists. However, having received a scolding for his views off Wolfgang Pauli at the conference, he was reluctant to continue the fight until the arrival of Vigier in Paris, who became his assistant. Together they propounded their alternative views against those of the dominant Copenhagen faction, although it must be said, somewhat out of the spotlight of standard model physics. Their big counter argument against the prevailing views was that photons possessed mass, even though it was very small and that the photon was not a two dimensional entity, but had a three dimensional structure. In 1994, now collaborating with the chemical physicist Myron Evans, Vigier became editor of the book series 'The Enigmatic Photon'. In volumes 1 and 2, the duo elaborated on why it could reasonably be proposed that photons have both mass and a three dimensional structure. They also went further and proposed that photons have a small magnetic field in the direction of propagation of the photon, termed the B3 Field. Bo Lehnert is another supporter of the school of Einstein, De Broglie and Vigier and in this book he reviews the evidence for photon mass and the B3 field and adds his own insights on the subject.

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