

Mathematisches Kolloquium

Towards a better understanding of electromagnetic fields

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Although electromagnetism can be described by a very small set of equations, it is often felt to be one of the subjects most difficult to understand. One purpose of this talk is to show that some of these difficulties are "home made" and may thus be overcome. Results from fundamental research in the 20th century suggest that the interpretation of the basic equations known as "Maxwell's Equations" is much simpler than assumed by Maxwell himself, and many of his successors. As a result, the number of fields is reduced to two and other quantities appearing in Maxwell's Equations are identified as contributions to these two fields. Electrodynamics and electrical engineering may thus be simplified and made easier to understand.