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A Generalization of the Einstein-Maxwell Equations FREDRICK COTTON, Retired — The proposed modifications of the Einstein-Maxwell equations include: (1) the addition of a scalar term to the electromagnetic side of the equation rather than to the gravitational side, (2) the introduction of a 4-dimensional, non-linear electromagnetic constitutive tensor and (3) the addition of curvature terms arising from the non-metric components of a general symmetric connection. The scalar term is defined by the condition that a spherically symmetric particle be force-free and mathematically well-behaved everywhere. The constitutive tensor introduces two auxiliary fields which describe the particle structure. The additional curvature terms couple both to particle solutions and to electromagnetic and gravitational wave solutions. http://sites.google.com/site/fwcotton/em-30.pdf

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