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(Super) Maxwell Symmetries and Infinite Dimensional Algebras

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The Poincaré algebra can be extended (non- centrally) to the Maxwell algebra and beyond. These extensions are relevant for describing particle dynamics in electro-magnetic backgrounds. They also appear in gravity theories. We establish the relation of this construction to Free Lie algebras. We will also consider the supersymmetric extension and the role of Free super Lie algebras and Borchers super algebras as possible symmetries of M theory. Title: (Super) Maxwell Symmetries and Infinite Dimensional algebras Abstract The Poincaré algebra can be extended (non- centrally) to the Maxwell algebra and beyond. These extensions are relevant for describing particle dynamics in electro-magnetic backgrounds. They also appear in gravity theories. We establish the relation of this construction to Free Lie algebras. We will also consider the supersymmetric extension and the role of Free super Lie algebras and Borchers super algebras as possible symmetries of M theory. Title: (Super) Maxwell Symmetries and Infinite Dimensional algebras Abstract The Poincaré algebra can be extended (non- centrally) to the Maxwell algebra and beyond. These extensions are relevant for describing particle dynamics in electro-magnetic backgrounds. They also appear in gravity theories. We establish the relation of this construction to Free Lie algebras. We will also consider the supersymmetric extension and the role of Free super Lie algebras and Borchers super algebras as possible symmetries of M theory.

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