

PRIMITIVE LIE ALGEBRAS AND CONTINUITY OF ISOMORPHISM AND DERIVATIONS

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As an example of how Jordan algebras can be used to get information on Lie algebras, we introduce in this talk a notion of primitivity for Lie algebras and give some examples that show that our definition of primitivity is natural and coherent with that of primitivity for associative algebras. Then we consider Banach-Lie algebras proving the following results: (1) Primitive Banach-Lie algebras have uniqueness of the complete norm topology. (2) Every Lie-isomorphism between semiprimitive Banach associative algebras with essential (for instance, dense) socle is continuous. (3) Every derivation of a nondegenerate Banach-Lie algebra with essential socle is continuous.