

SANO, novena reunión

Seminario de Álgebra No Conmutativa

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Matched pairs approach to set theoretic solutions of the Yang-Baxter equation

Tatiana Gateva-Ivanova, Sofia¹ (Bulgaria)

12h.-12h.50 m.

Aula A-26, Facultad de Ciencias

We study set-theoretic solutions (X, r) of the Yang-Baxter equations on a set X in terms of the induced left and right actions of X on itself. We give a characterization of involutive square-free solutions in terms of cyclicity conditions. We characterise general solutions in terms of an induced matched pair of unital semigroups $S(X, r)$ and construct (S, r_S) from the matched pair. Finally, we study extensions of solutions in terms of matched pairs of their associated semigroups. We also prove several general results about matched pairs of unital semigroups of the required type, including iterated products $S \bowtie S \bowtie S$ underlying the proof that r_S is a solution, and extensions $(S \bowtie T, r_{S \bowtie T})$. Examples include a general 'double' construction $(S \bowtie S, r_{S \bowtie S})$ and some concrete extensions, their actions and graphs based on small sets.

Proyecto de Investigación MTM2004-1406, MEC
"Métodos algebraicos en Geometría no conmutativa"
Proyecto de Investigación MTM2004-8125, MEC
"Aplicaciones del Álgebra a la Geometría no conmutativa"

¹Institute of Mathematics and Informatics, Bulgarian Academy of Sciences, Sofia, and American University in Bulgaria Blagoevgrad