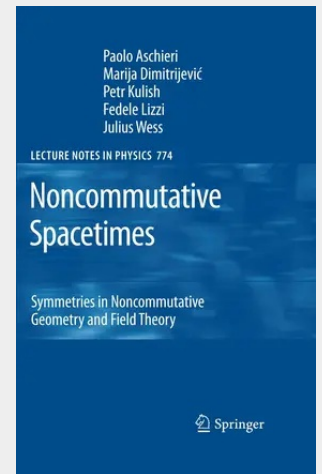


Noncommutative Spacetimes

Symmetries in Noncommutative Geometry and Field Theory

There are many approaches to noncommutative geometry and its use in physics, the $\ast$ -operator algebra and C * -algebra one, the deformation quantization one, the quantum group one, and the matrix algebra/fuzzy geometry one. This volume introduces and develops the subject by presenting in particular the ideas and methods recently pursued by Julius Wess and his group. These methods combine the deformation quantization approach based on the $\ast$ -multiplication of star product and the deformed (quantum) symmetries methods based on the theory of quantum groups. The merging of these two techniques has proven very fruitful in order to formulate $\ast$ -field theories on noncommutative spaces. The aim of the book is to give an introduction to these topics and to prepare the reader to enter the research $\ast$ -field himself/herself. This has developed from the constant interest of Prof. W. Beiglboeck, editor of LNP, in this project, and from the authors experience in conferences and schools on the subject, especially from their interaction with students and young researchers. In fact quite a few chapters in the book were written with a double purpose, on the one hand as contributions for school or conference proceedings and on the other hand as chapters for the present book. These are now harmonized and complemented by a couple of contributions that have been written to provide a wider background, to widen the scope, and to underline the power of our methods.

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