

Banach Algebras 2009

*A conference supported by the European Science Foundation under the
ESF-EMS-ERCOT partnership*

*July 14-24, 2009, Stefan Banach International Mathematical Center, Będlewo,
Poland*

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When a quantum space is not a group?

ABSTRACT. Given a compact topological space one might pose the question whether it can be endowed with the structure of a topological group. In some cases it is simple to show that this cannot be done. Other cases require more effort. We address this question for objects of “noncommutative topology”. We will show that some well known quantum spaces like quantum tori and some quantum spheres cannot be given the structure of a compact quantum group. We will use completely different tools than those employed in classical topology. In particular we will be interested in existence of characters and traces and nuclearity of C^* -algebras describing the considered quantum spaces.