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Paul Frank Baum* (baum@math.psu.edu), Department of Mathematics, Penn State University, University Park, PA 16802. *Free actions of compact quantum groups.*

A compact quantum group is a unital C^* algebra with a given comultiplication.

THEOREM.(Baum-Hajac-DeCommer) Let G be a compact quantum group acting on a unital C^* algebra A . Then the action is free if and only if the action of the underlying Hopf algebra of G on the Peter-Weyl subalgebra of A satisfies the Peter-Weyl-Galois condition (i.e. the canonical map is bijective).

This talk will outline the proof in the classical case of a compact Hausdorff group G acting on a compact Hausdorff topological space X , and will then indicate how this proof can be modified to apply to the quantum case.

The above is joint work with Piotr Hajac and Kenny DeCommer. (Received September 03, 2014)