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Michael Brannan*, Department of Mathematics, Texas A&M University, College Station, TX 77840, and **Roland Vergnioux**. *Orthogonal free quantum group factors are strongly 1-bounded.*

In this talk I will survey some recent results on the structural theory of a class of II_1 -factors arising from a family of discrete quantum groups, called the orthogonal free quantum groups $\mathbb{F}O_n$. A question that has been around for some time is whether or not an orthogonal free quantum group factor $\mathcal{L}(\mathbb{F}O_n)$ can be isomorphic to a free group factor $\mathcal{L}(F_k)$. We answer this question in the negative by proving that $\mathcal{L}(\mathbb{F}O_n)$ is a strongly 1-bounded von Neumann algebra in the sense of Kenley Jung. We obtain this result by proving a certain spectral regularity result for the edge reversing operator on the quantum Cayley tree of $\mathbb{F}O_n$ and connect this result to a recent free entropy dimension result of Jung and Shlyakhtenko. This is joint work with Roland Vergnioux. (Received September 22, 2017)