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Srivatsav Kunnawalkam Elayavalli*

(svivatsav.kunnawalkam.elayavalli@vanderbilt.edu), Stevenson Center, Nashville, TN 37209, and **Isaac Goldbring**. *Embeddings of II_1 factors into their ultrapowers*.

K. Jung showed in 2006 that a II_1 factor is amenable if and only if there is exactly 1 embedding into R^ω up to unitary equivalence. In a recent preprint, S. Atkinson, I. Goldbring and myself study a more general question, where one replaces unitary equivalence with arbitrary automorphism equivalence in the ultrapower. We show several results in this setting, in particular, a generalized Jung theorem: An R^ω embeddable II_1 factor N is amenable if and only if there is exactly 1 embedding into N^ω up to automorphic equivalence. In light of the recent refutation of the Connes embedding problem, we are also able to obtain the existence of non R^ω embeddable generalized Jung factors, i.e, one that satisfies the condition that there is exactly 1 embedding into N^ω up to automorphism equivalence. These theorems are proved using a combination of operator algebraic and model theoretic ideas. As an application we obtain continuum many II_1 factors that satisfy the statement of Popa's factorial commutant problem, which is a long standing open problem in operator algebras. In this talk I will show some of these results and discuss the ideas used in the proof. (Received September 02, 2020)