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On the Classification of Free Araki Woods Factors

Free Araki-Woods factors (FAWF) were introduced by Shlyakhtenko in 1996. In some sense they are free probability analogs of the hyperfinite factors. Among many amazing properties, Shlyakhtenko showed that they are typically von Neumann algebras of type III_1 , and moreover he constructed a one parameter family of non isomorphic type III_1 FAWF. In this talk I will discuss about the complexity of the classification problem of FAWF from the descriptive set theory point of view.