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Benjamin Fine* (fine@mail.fairfield.edu), Dept. Of Mathematics, Fairfield University, Fairfield, CT 06428, and **Alexei Myasnikov** and **Gerhard Rosenberger**. *Generic Subgroups of Amalgams and Cryptography*.

The choice of a random subgroup of a finitely presented group has been proposed for use in cryptography. This presents a problem since for many groups the structure of finitely generated subgroups is generically simple. That is with asymptotic density one a randomly chosen finitely generated subgroup has a particular structure. A result of D.B.A.Epstein says that a finitely generated subgroup of $GL(n, \mathbb{R})$ is generically a free group. This generic free group structure has been shown to hold for other types of groups as well. Here we show that for an arbitrary free product or free product with amalgamation finitely generated groups of size greater than 3 a finitely generated subgroup is generically a free group. We actually prove a somewhat stronger result, that is they satisfy the strong generic free group property. This means that the random elements are actually a free basis. In other work this has been called the dominant Nielsen Property. (Received January 20, 2007)