How to avoid the Classification Theorem of Finite Simple Groups in Asymptotic Group Theory

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The Classification of Finite Simple Groups (CFSG) is a monumental achievement and a seemingly indispensable tool in modern finite group theory. By now there are a few results which can be used to bypass this tool in a number of cases, most notably a theorem of Larsen and Pink which describes the structure of finite linear groups of bounded dimension over finite fields.

In a few cases more ad hoc arguments can be used to delete the use of CFSG from the proofs of significant results. The talk will among others discuss a recent example due to the speaker: how to obtain a CFSG-free version of Babai's quasipolynomial Graph Isomorphism algorithm by proving a Weird Lemma about permutation groups.

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