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On the average-case complexity of the word problem in subgroups of $GL_d(\mathbb{Z})$.

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Abstract:

This is joint work with Frédérique Bassino and Cyril Nicaud. We show that the Word Problem in finitely generated subgroups of $GL_d(\mathbb{Z})$ can be solved in linear average-case complexity. This is done under the bit-complexity model, which accounts for the fact that large integers are handled, and under the assumption that the input words are chosen uniformly at random among words of a given length.