SUGAR—Efficient Implementations for SUpersolvable Groups and Algorithmic Representation Theory

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We present the software package SUGAR which comprises implementations of two almost optimal algorithms: the fast generation of generalized discrete Fourier transforms (DFT) as well as the fast evaluation of DFTs (FFTs) for the class of finite supersolvable groups. For the first time, this class of generalized fast Fourier transforms is made accessible to applications in fields such as digital signal processing. As an example, we present some application of SUGAR to efficient data compression.