

## **Computing Fourier coefficients of theta series**

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In this talk we present a method to effectively compute Fourier coefficients of theta series on the  $n$ -fold cover of  $GL_2$ . We detail the computational challenges that arise when applying this method for several small  $n$ . For the case  $n=6$ , we present a precise conjecture for the coefficients at square level. Furthermore, we report on the ongoing computation in the quintic case.