Enumeration of extensions of the cycle matroid of a complete graph

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The growth of the number of matroids on $n$ elements is known to grow doubly exponentially in $n$. This growth can be studied by considering extensions and coextensions, so it is natural to ask which classes of matroids have a doubly exponential number of extensions or coextensions and which do not. In this talk, we will investigate the class of matroids that are a single extension of the cycle matroid of a complete graph on $n + 1$ vertices. I will show that this class is, surprisingly, doubly exponential in $n$.

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