KNOTS AND MODULAR FORMS

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Abstract. Invariants are used to study knots and connect the theory of knots to other areas of mathematics, such as number theory. Examples include the colored Jones polynomials (CJP), a sequence of polynomials defined for every knot. For alternating knots, it is known that the coefficients of the CJP stabilize, and thus, they converge to a well-defined power series, the so-called tail of the CJP. Some of these power series turn out to have modular behavior, meaning that they satisfy certain symmetry properties. In this talk, we present a general formula for the tail for a class of knots in terms of modular objects, and argue that the tail for other knots does not have any modular behavior at all. This talk is based on joint work with Robert Osburn (UCC). We will not assume any knowledge of knot theory or modular forms.