1084-14-44 **Amin Gholampour*** (aminghh@math.umd.edu), Department of Mathematics, University of Maryland, 1301 Mathematics Bldg, College Park, MD 20743. *Donaldson-Thomas invariants of Torsion 2-dimensional sheaves and modular forms.*

We study the Donaldson-Thomas invariants of the stable sheaves with 2-dimensional supports in a threefold. The DT invariants are defined by integrating over the virtual fundamental class (when exists). In the case where the ambient threefold is a smooth K3 surface fibration we express the DT invariants of the sheaves supported on the fibers in terms of the Euler characteristics of the Hilbert scheme of points on the K3 surface and the Noether-Lefschetz numbers of the fibration. We show that these invariants have modular properties as predicted by string theory. This is a joint work with Artan Sheshmani. (Received August 12, 2012)