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Lisa Schneider* (lmschneider@salisbury.edu). *Weight Functions and Multiplicities Associated to Demazure Flags*. Preliminary report.

In this talk, we will present results concerning weighted multiplicities associated to Demazure flags of Demazure modules for the current algebra $\mathfrak{sl}_2[t]$. While we know exactly when a Demazure flag of a Demazure module exists in this setting, the appearance of combinatorial objects (in generating functions of multiplicities and specializations of those generating functions) portrays an interesting connection between representation theory and number theory. We will first briefly introduce the notion of a Demazure flag and the associated q -multiplicities. Then, we will define a weight function and weighted multiplicities. For small levels, we will discuss some known closed forms for generating functions of these weighted multiplicities. Observing patterns in small levels, we will conjecture a generalization of the closed forms as well as relationships to interesting combinatorial objects. (Received September 26, 2017)