1173-00-237 **Alisina Azhang*** (aazhan1@lsu.edu), 3033 July St. Apt.210, Baton Rouge, LA 70808. *Rigid Connections on the Projective Line with Elliptic Toral Singularities.* Preliminary report.

We generalize two studies of rigid G-connections on $\mathbb{P}^1$ which have an irregular singularity at origin and a regular singularity at infinity with unipotent monodromy: one is the work of Kamgarpour-Sage which classifies rigid homogeneous Coxeter G-connections with slope $\frac{r}{h}$, where h is the Coxeter number of G, and the other is the work of Chen, which proves the existence of rigid homogeneous elliptic regular G-connections with slope $\frac{1}{m}$, where m is an elliptic number for G. In our work, similar to Chen, we look for rigid homogeneous elliptic regular G-connections, but we allow the slope to have a numerator greater than 1. However, for the present purpose, we essentially restrict to the case where G is either Sp_{2n} or SO_{2n+1}. For Sp_{2n}, we show that Kamgarpour-Sage connections and Chen connections exhaust all the rigid homogeneous elliptic regular connections. For SO_{2n+1}-connections, having introduced the notion of "generalized Chen connections," we classify all rigid connections of this type. We conjecture that any rigid homogeneous elliptic regular SO_{2n+1}-connection is in this form. (Received September 21, 2021)