1142-57-73 **Nick Salter*** (nks@math.columbia.edu) and **Lei Chen** (chenlei1991919@gmail.com). *Section problems for configurations of points on the Riemann sphere.*

Given a configuration of n distinct points in $\mathbb{C}$, it is easy to add an additional m distinct points for any $m \geq 1$ that you like: simply add the new points "near infinity". The question of how to add m new points to a configuration of n points becomes substantially more subtle when the ambient space $\mathbb{C}$ is replaced by the Riemann sphere S^2. In work from 2005, Gonçalves and Guaschi found that for any rule for adding m points to n on the sphere, n and m must satisfy some peculiar number-theoretic relations: for instance, they showed that rules for producing 6 new points from 4, or 20 new points from 6, *might* exist, but that no such rules exist for producing 7 from 4 or 21 from 6.

In this talk we will give a complete description of the pairs (n, m) for which an "m from n" rule exists. In the case where the original configuration has at most 4 points, we will use ideas from algebraic geometry to produce a wide variety of rules, including a rule for producing 6 new points from 4 hinted at above. Conversely, by using ideas from the theory of mapping class groups, we will see that there are many fewer rules when $n \geq 6$: e.g. there is no "20 from 6" rule, but there is a "120 from 6" rule. (Received August 28, 2018)