1086-57-127 **R. Taylor McNeill*** (rtm2@rice.edu). *A new filtration of the Magnus kernel of the Torelli group.*

For a surface Σ, the Torelli group is the group of orientation preserving homeomorphisms of Σ that induce the identity on homology. The Magnus representation represents the action on F/F'' where $F = \pi_1(\Sigma)$ and F'' is the second term of the derived series. For many years it was unknown whether the Magnus representation of the Torelli group is faithful. In recent years there have been many developments on this front including the result of Church and Farb that the kernel of the Magnus representation, denoted K, is infinitely generated. I show that, not only is K highly non-trivial but that it also has a rich structure as a group. Specifically, I define an infinite filtration of K by subgroups, called the higher order Magnus subgroups, M_n. I show that for each n the quotient M_n/M_{n+1} is infinitely generated. To do this, I define a Johnson type homomorphism on each higher order Magnus subgroup quotient and show it has a highly non-trivial image. (Received July 26, 2012)