1135-I5-2480 **Wanda Strychalski**, **Laura Miller**, **Sarah Bryant*** (sarahbryant456@gmail.com), **Baasansuren Jadamba**, **Eirini Kilikian**, **Xiulan Lai**, **Leili Shahriyari**, **Rebecca Segal** and **Ning Wei**. *Why So Fast? Investigation of the Superfast Discharge of Nematocysts.* Preliminary report.

In April 2017, the Mathematical Biosciences Institute hosted the AWM Women Advancing Math Bio workshop. This workshop drew together nearly 50 women to tackle six complex math bio projects. In this talk, I will speak about my participation in this program and share preliminary results from my group project. We are investigating the discharge mechanics of nematocysts, a type of specialized organelle that shoots a harpoon-like projection into prey. This discharge is extremely fast and therefore understudied. Recent advances in electronic microscopy and high frame rate recording have allowed for improved measurements of nematocysts and their rate of discharge. Using IBAMR (Immersed Boundary Adaptive Mesh Refinement), an open-source library with an implementation of the immersed boundary with Cartesian grid adaptive mesh refinement, we were able to run simulations to better understand the discharge mechanics. Preliminary results point to a need for extremely fast discharge in order for the nematocysts to overcome the dampening of movement in water seen at small scales and actually allow the harpoon-like nematocysts to reach the prey rather than merely push it away. (Received September 26, 2017)