Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

A Toxicology and Characterization Study of Microplastics[1] AMY PARKER, KELLEY SULLIVAN, Ithaca College, N/A COLLABORATION — Plastic is everywhere. Microplastic particles are found in our toothpaste and soap, and are also created when larger plastics degrade under natural forces and sunlight. Studies have shown that filter feeders in aquatic systems eat microplastics, which transports plastic up the food chain. We used fluorescence microscopy to characterize the size, shape, and types of plastic found in several personal care products in order to create a clear picture of a significant source of microplastics found in our local Cayuga Lake ecosystem in Upstate New York. We also studied toxin absorption and emission of these plastics using environmentally relevant concentrations of BPA. For Neutrogena face scrub, the microplastics were polyethylene and roughly pill shaped. The majority of these microplastics are either smaller than 0.1 mm2, or were distributed in a bell-shaped curve about 0.5 mm2. The concentration of a solution of environmentally relevant BPA that microplastics were immersed in decreased by 13% over a 12-hour period. These results indicate that these microplastics pose a threat to organisms in the environment – they are small enough and shaped appropriately to be mistaken as prey, and they absorb toxins quickly. As the number of microplastics exponentially build up in the environment, the food chain will be negatively affected.

[1]Ithaca College DANA Student Internship program

Amy Parker
Ithaca College

Date submitted: 11 Nov 2016 Electronic form version 1.4