Abstract Submitted
for the SES19 Meeting of
The American Physical Society

Investigating magnetization dynamics in Y-shaped nanostructures via micromagnetic simulations. PASQUALE FERRARO, ARON GUERRERO, H. J. JASON LIU, Georgia Southern University — Recently, scalable magnetic devices have shown potential to be useful in future electronics. One such device is known as a magnonic device, which uses spin waves or magnons to transfer spin information. On their own, spin waves are only detectable for a short distance, typically a few micrometers in metallic materials due to intrinsic damping. In this work, we are using micromagnetic simulations to study the interference of spin waves and their effects on propagation length. Micromagnetic simulations allows for the analysis of spin dynamics in magnetic materials with specific structural geometries. One type of structure that we are investigating is a Y-shaped nanostructure. Current relaxation studies with this structure show that the magnetization is aligned with the geometric boundaries. I will discuss our current progress towards generating spin waves in the Y-shaped nanostructure in both the forward volume configuration and the backward volume configuration, as well as, experimental development of these structures.

Pasquale Ferraro
Georgia Southern University

Date submitted: 30 Sep 2019 Electronic form version 1.4