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Emilie Hogan* (emilie.hogan@pnnl.gov) and **John R Johnson**. *A generalized graph metric for mitigating cyber attacks.*

Cybersecurity is a vibrant research area for many mathematicians and computer scientists. As combinatorialists, we model a cyber network as a directed graph, derived from real cyber network data. In this talk I will present our network model and explain how certain types of attacks can be realized within this model. I will also describe the mathematics behind our mitigation strategy for one specific cyber attack. This will include an integer-valued weight function on user credentials which increases as credentials become more important to an attacker. To prove that our mitigation strategy is computable on a computer with m bits of precision (e.g., $m = 64$) we show that when credentials are distributed uniformly we achieve the largest weighting function. (Received November 18, 2014)