1128-68-154   **Arun V Sathanur*** (`arun.sathanur@pnnl.gov`). *Accelerating the mining of influential nodes in a complex network via community detection.*

A wide array of natural and artificial complex systems such as social, biological, cyber and power networks are characterized by interconnected entities that are best analyzed by graph-based approaches. A particular problem that has received a lot of interest is the identification of the set of influential nodes in a given complex network that have maximal impact on the network according to a given criterion. This has been tackled formally in the literature by the so-called influence maximization problem that exploits the sub-modular nature of the reachability-based objective function. However, these algorithms are associated with high computational cost. In this talk, we present some initial results on exploiting the existence of communities in complex networks to accelerate the mining of influential seeds. For a specific variant of the influence maximization problem, we show a formulation based on random walk with restart that allows us to compute the node-to-node influence in a complex network and point out how community detection can help accelerate this process as well. (Received February 23, 2017)