Networks for which nodes are of a heterogeneous nature are a common occurrence in the world around us. They occur in nature, in neural networks, in telecommunications, and most in social networks. The epidemic spread of information, genes, viruses etc. is an important study object in all these different applications. Importantly, one might want to control the epidemic process, either by making it spread faster, slower or preventing it from spreading altogether.

In this talk, I will look into the paradigm of risk-sensitive control. Firstly I will study the large deviations of a class of multi-type random networks, and put these to use by considering risk-sensitive control problems. I will illustrate the theory by covering different examples, where the risk-sensitivity will be both of the risk-averse and risk-seeking kind.