Title : Periodic capital injections based on the claim frequency

Abstract : The literature on the various risk models related to capital injection problem has grown considerably in recent years. Most proposed models implicitly assume that the decision on capital injections are made according to the continuous monitoring of the insurer's surplus. However, it is costly and unrealistic in practice. Therefore, in this talk we propose the periodic capital injection strategy in which surplus level is recovered to a predetermined minimum solvency level z whenever it is below level z after every Nth claim. We also assume that an immediate capital injection with the penalty involving the deficit is required when ruin occurs. Furthermore, with the aid of the discounted density of surplus at claim instants, higher order ordinary differential equation with an integral-type boundary condition is derived for the expected discounted capital injection when the claim size distribution is a combination of exponentials. Lastly, some numerical examples are presented to illustrate how the strategy based on N has impact on the expected discounted capital injection amount. This is a joint work with Ran Xu.