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**Dohyun Ahn, Nan Chen and Kyoung-Kuk Kim\*** (catenoid@kaist.ac.kr), 291 Daehak-ro, Yuseong-gu, Daejeon, 34141, South Korea. *Systemic Risk Quantification via Shock Amplification in Financial Networks*.

We consider the Eisenberg-Noe model for financial networks, focusing on random shocks to financial institutions. Using duality, we characterize shock amplification caused by the network structure and the condition when a specific group of banks (e.g., SIFI) fails. This finding enables us to improve our understanding of shock propagation in financial networks. To be specific, we obtain robust bounds of default probabilities when only partial network information is available, and we observe that the link structure of the network contains crucial information. This is also confirmed by looking at asymptotic default probabilities in a small shock regime. With such analytical tools, systemic risk capital which prevents the default of target banks is discussed using chance-constrained optimization. All the claims are numerically illustrated by an actual European banking network. (Received January 27, 2020)