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K.-Y. Lam and **X. Wang*** (xueying@math.wsu.edu), Department of Mathematics and Statistics, Washington State University, Pullman, WA 99163, and **T. Zhang**. *Traveling waves for a class of diffusive disease-transmission models with network structures.*

In this paper, the necessary and sufficient conditions for the existence of traveling wave solutions are derived for a class of diffusive disease-transmission models with network structures. The existence of traveling semi-fronts is obtained by Schauder's fixed-point theorem and these traveling semi-fronts are shown to be bounded by transforming the boundedness problem into the classification problem of non-negative solutions to a linear elliptic system on \mathbb{R} . To overcome the reducibility problem arising in the proofs, a Harnack's inequality for positive supersolutions on \mathbb{R} is proved. (Received September 21, 2018)