1117-05-46 **Victor Falgas-Ravry*** (victor.falgas-ravry@vanderbilt.edu), Department of Mathematics, Vanderbilt University, 1326 Stevenson Center, Nashville, TN 37240, and **Teeradej Kittipassorn**, **Dániel Korándi**, **Shoham Letzter** and **Bhargav P. Narayanan**. *Separating path systems.*

Let G be a graph on n vertices. A family $\mathcal{F}$ of paths in G constitutes a *separating path system* of G if for every pair of distinct edges e, f in $E(G)$ there exists a path p in $\mathcal{F}$ which contains exactly one of e and f. How small a separating path system can we find?

This question was asked by G.O.H. Katona, with motivation coming from the problem of link-failure detection in networks. We conjecture that all graphs on n vertices have a a separating set system of size at most Cn, for some constant $C \geq 1$. We prove this is true for almost all n-vertex graphs and $C = 48$. We also obtain optimal bounds in the special case of trees.

This is joint work with T. Kittipassorn, D. Korándi, S. Letzter and B.P. Narayanan. Similar results were independently obtained by J. Balogh, B. Csaba, R.R. Martin and A. Pluhár. (Received December 23, 2015)