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**Diana Schepens\*** ([diana.schepens@gmail.com](mailto:diana.schepens@gmail.com)), **Ross Carlson**, **Jeff Heys**, **Ashley Beck** and **Tomas Gedeon**. *Emergence of Cooperativity in Microbial Consortia*.

Metabolic cross-feeding between microbes is observed in many microbial communities. It has been experimentally observed that cross-feeding synthetic communities have an increased level of fitness and cell growth as compared to wild type cells. There are also numerous examples of cross-feeding communities in nature.

We developed a model to analyze the conditions under which cross-feeding emerges in a microbial community. Specifically, we consider how over-production rates in community specialists affect the emergence of cooperation in microbial consortia. We also analyze the different behavior resulting from models which use passive transport of metabolites compared to models that incorporate active transport. (Received September 22, 2017)