1163-05-653 **Brigitte Servatius*** (bservat@wpi.edu). *Equitable edge partitions and Kirchhoff graphs.* Preliminary report.

Kirchhoff graphs are geometric graphs whose edge vectors satisfy a cycle-vertex cut orthogonality condition. They arise naturally as circuit diagrams for chemical reaction networks. We define equitable arc partitions on multidigraphs and show that the partition obtained from an embedded Kirchhoff graph by edge vector equality is equitable. For equitable arc partitions of multidigraphs, realization questions as Kirchhoff graphs arise. This is joint work with Joseph Fehribach, Tyler Reese and Randy Paffenroth. (Received September 10, 2020)