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**Xiaoya Zha\*** (xzha@mtsu.edu), Department of Mathematical Sciences, Middle Tennessee State University, Murfreesboro, TN 37132. *Maximum connectivity and genus connectivity of surfaces.*

It is well known that planar graphs can be at most 5-connected and toroidal graphs can be at most 6-connected. Cooke obtained an upper bound on the possible connectivity of a graph embedded in any given surface (orientable or non-orientable). Results from map color theory (the genera of complete graphs) show that this upper bound is attained by a complete graph. This tight upper bound is called the *maximum connectivity* of a surface. This leads to two natural questions. (1) For each surface, is the complete graph that attains the maximum connectivity the unique graph embeddable on that surface with that connectivity? (2) For many surfaces, the complete graph that attains the maximum connectivity in fact has a lower genus. So, for each surface one may ask for the maximum connectivity among graphs with genus embeddings in that surface (called the *genus connectivity* of the surface). It is interesting that the genus connectivity does not increase monotonically with genus, while maximum connectivity does. In this talk we will discuss the status of work on these two questions. (Received January 17, 2012)