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**John D Jasper\*** ([john.jasper@uc.edu](mailto:john.jasper@uc.edu)), **Matthew Fickus**, **Dustin G Mixon** and **Jesse D Peterson**. *Steiner systems, equiangular tight frames, and strongly regular graphs.*

An equiangular tight frame (ETF) is a set of unit vectors whose coherence achieves the Welch bound. Though they arise in many applications, there are only a few known methods for constructing ETFs. This leaves many open questions, especially for the study of complex ETFs. The situation for real ETFs is much better understood due to the connection with certain strongly regular graphs (SRGs). Indeed, our understanding of real ETFs owes a great deal to the work of graph theorists on SRGs. In this talk we discuss two ways that the study of ETFs is giving back to the graph theory community. First, we discuss a new construction of ETFs which uses Steiner triple systems as the essential ingredient. By the previously mentioned connection to SRGs we obtain a new infinite class of SRGs. Second, we establish a new connection between SRGs and a special class of ETFs. We use this new connection to establish new existence/nonexistence results for SRGs. (Received September 22, 2015)