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Enzo Wandler* (enzo.wandler@wsu.edu). *α -adjacency- A generalization of Skew Adjacency.*

B. Shader and W. So introduced the idea of the skew adjacency matrix. Their idea was to give an orientation δ to a simple undirected graph G from which a skew adjacency matrix $S(G^\delta)$ is created. The α -adjacency matrix extends this idea to an arbitrary field \mathbb{F} . To study the underlying undirected graph, the average α -characteristic polynomial can be created by averaging the characteristic polynomials over all the possible orientations. In particular, a Harary-Sachs theorem for the average α -characteristic polynomial is derived and used to determine a few features of the graph from the average α -characteristic polynomial. (Received September 17, 2019)