1117-05-323 **Peter Dankelmann*** (pdankelmann@uj.ac.za), Department of Pure and Applied Mathematics, University of Johannesburg, PO Box 524, Johannesburg, 2006, South Africa, and **Rocio M. Casablanca**. *Wiener index and average eccentricity of the strong product of graphs.*

The Wiener index $W(G)$ of a connected graph G is the sum of the distances between all unordered pairs of vertices. The average eccentricity of G is the arithmetic mean of the eccentricities of the vertices of G, where the eccentricity of a vertex v is the maximum of the distances from v to all other vertices of G.

A well-known result states that among all connected graphs of given order the path is the unique graph that maximises the Wiener index. Casablanca, Favaron and Kouider generalised this result: Consider for an arbitrary but fixed connected graph H the Wiener index of the strong product $W(G \boxtimes H)$, where G is chosen from a collection of graphs. If G is chosen from all connected graphs of order n, then $W(G \boxtimes H)$ is maximised if G is a path.

We generalise this result by showing that if G is chosen from all connected graphs of given order and size, then $W(G \boxtimes H)$ is maximised if G is a so-called path-complete graph. We further show that if G is chosen from all $2r$-connected graphs of given order, where $r \in \mathbb{N}$, then $W(G \boxtimes H)$ is maximised if G is the rth power of a cycle.

We give similar results on the average eccentricity of strong products. (Received January 17, 2016)