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**Nonmedian direct products of graphs with loops.** (English) Zbl 1363.05215  
*Ars Comb.* 122, 169-180 (2015).

Summary: A median graph is a connected graph in which, for every three vertices, there exists a unique vertex  $m$  lying on the geodesic between any two of the given vertices. We show that the only median graphs of the direct product  $G \times H$  are formed when  $G = P_k$ , for any integer  $k \geq 3$  and  $H = P_l$ , for any integer  $l \geq 2$ , with a loop at an end vertex, where the direct product is taken over all connected graphs  $G$  on at least three vertices or at least two vertices with at least one loop, and connected graphs  $H$  with at least one loop.

**MSC:**

- 05C75 Structural characterization of families of graphs
- 05C76 Graph operations (line graphs, products, etc.)
- 05C12 Distance in graphs

**Keywords:**

product of graphs; direct product; median graph