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Oleg V. Borodin, Alexandr V. Kostochka, A. O. Ivanova and Gexin Yu. *Decompositions
of planar graphs into a forest and another graph.*

We consider decompositions of a planar graph G into a forest and a graph with small maximum degree. He, Hou, Lih, Shao, Wang and Zhu gave upper bounds on the minimum possible maximum degree of the graph other than the forest under restrictions on the cycle structure of G . They used bounds on so called minimax degree of a graph. We have improved some of these results. In particular, we have showed that a planar graph of girth at least 9 can be decomposed into a forest and a matching, and that a planar graph without 4-cycles can be decomposed into a forest and a graph of maximum degree 5. We have also found exact bounds on minimax degrees of graphs embeddable into the plane and the torus with restrictions on the cycle structure. This is joint work with O. Borodin, A. Kostochka, A. Ivanova, and G. Yu. (Received February 11, 2008)