Planar graphs without 4-cycles and close triangles are \((2,0,0)\)-colorable. Preliminary report.

The search for conditions under which planar graphs are 3-colorable, or “nearly” 3-colorable, has a long history. In this talk, we present one such result. A graph is \((2,0,0)\)-colorable if it can be colored with three colors so that one color class induces a subgraph with maximum degree 2, and each of the other two color classes form independent sets. We show that all planar graphs without 4-cycles and no less than two edges between triangles are \((2,0,0)\)-colorable. This is joint work with Gexin Yu and Heather Hoskins. (Received July 19, 2017)