1127-05-312   **Csaba Biro***, Department of Mathematics, University of Louisville, and **E Bonnet**, **D Marx**, **T Miltzow** and **P Rzazewski**. *Coloring units disk graphs is probably quite hard.*

Many classical hard algorithmic problems on graphs, like coloring, clique number, or the Hamiltonian cycle problem can be sped up for planar graphs resulting in algorithms of time complexity $2^{O(\sqrt{n})}$. We study the coloring problem of unit disk intersection graphs, where the number of colors is part of the input. We conclude that, assuming the Exponential Time Hypothesis, no such speedup is possible. In fact we prove a series of lower bounds depending on further restrictions on the number of colors. Generalizations for other shapes and higher dimensions were also achieved. (Received February 06, 2017)