

Coloring planar graphs: the distributed version

Marthe Bonamy

University of Bordeaux, France

According to the celebrated Four Color Theorem, planar graphs can be colored with at most 4 colors, and the proof gives a (sequential) quadratic algorithm finding such a coloring. In the distributed setting, every vertex must output its own colour while, roughly, minimizing communication with the rest of the graph. This can be seen as a way of measuring whether the reason a property is true is local or necessarily global. We discuss efficiently coloring planar graphs, and more generally sparse graphs, in the distributed setting with as few colors as possible.