

Esercizio 1. Let M be a graph with the property that for every finite $A \subseteq M$ there is a $c \in M$ such that $A \subseteq r(c, M)$. This holds in particular when M is a random graph. Prove that for every finite coloring of the edges of M , there is an infinite monochromatic complete subgraph.

Esercizio 2. Chi vuole, in alternativa, può provare la seguente versione più generale dell'esercizio 1.

Let M be as in the exercise above. A star in M is a subgraph whose edges all share a common vertex. We say that a coloring of the edges of M is locally finite if there is a k such that every star has at most k colors.

Prove that for every locally finite coloring of the edges of M , there is an infinite monochromatic complete subgraph.