Relaxations of coloring squares of graphs

Choi, Ilkyoo
Hankuk University of Foreign Studies

Time: October 7th, 10:00 - 11:00
Zoom meeting ID: 836 5498 6545   Password: 121323
Link: https://zoom.us/j/83654986545

Abstract:

Less than a year ago, the following two notions of relaxations of coloring squares of graphs were formally introduced by Petruševski and Škrekovski, and by Fabrici, Lužar, Rindošová, and Soták: an *odd c-coloring* (resp. *proper conflict-free c-coloring*) of a graph is a proper *c*-coloring such that each non-isolated vertex has a color appearing an odd number of times (resp. exactly once) on its neighborhood.

We will survey some results around these parameters and our contributions. In particular, we show that for $c \geq 5$, every graph G with $mad(G) \leq \frac{4c}{c+2}$ has a proper conflict-free *c*-coloring, unless G contains a 1-subdivision of the complete graph on $c + 1$ vertices. We also provide results when $c = 4$ and for planar graphs with girth restrictions. Our results completely resolve Cranston's conjecture in a much stronger form, and also improves upon results of Caro, Petruševski, and Škrekovski. This is joint work with Eun-Kyung Cho, Hyemin Kwon, and Boram Park.