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Circular chromatic number of signed graphs

A circular r-coloring of a signed graph (G, σ) is an assignment φ of points of a circle of circumference r to vertices of G such that for positive edge uv, $\varphi(u)$ and $\varphi(v)$ have distance at least 1, and for negative edge uv, $\varphi(v)$ and the antipodal of $\varphi(u)$ have distance at least 1. The circular chromatic number of (G, σ) is $\chi_c(G, \sigma) = \inf\{r \mid (G, \sigma)$ admits a circular r-coloring$\}$. We bound the circular chromatic number of several classes: signed k-chromatic graphs, signed d-degenerate graphs and signed planar graphs. This is joint work with Reza Naserasr and Xuding Zhu.