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Resonance graphs on perfect matchings

Let G be a graph on a surface, and $\mathcal{F}$ is a set of faces bounded by even cycles. The resonance graph of G with respect to $\mathcal{F}$, denoted by $R(G;\mathcal{F})$, is a graph such that its vertex set is the set of all perfect matchings of G and two vertices M_1 and M_2 are adjacent if and only if the symmetric difference $M_1 \oplus M_2$ is a cycle bounding some face in $\mathcal{F}$. In this talk, we will focus on resonance graphs for graphs on surfaces. This talk is based on joint work with Niko Tratnik.