

Almost mixed Moore graphs and their spectra

Ignacio Lopez Lorenzo

Universitat de Lleida

nlopez@matematica.udl.es

Josep Maria Miret

Universitat de Lleida

josepmaria.miret@udl.cat

Almost mixed Moore graphs appear in the context of the *Degree/Diameter problem* as a class of extremal mixed graphs, in the sense that their order is one less than the Moore bound for mixed graphs. In this talk we will give some necessary conditions for the existence of almost mixed Moore graphs derived from the factorization in $\mathbb{Q}[x]$ of their characteristic polynomial. In this context, we deal with the irreducibility of certain polynomials $\Phi_i(x) \circ f(x)$, where $\Phi_i(x)$ denotes the i -th cyclotomic polynomial.