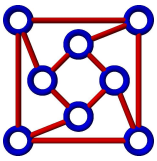

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VŠB – Technical University Ostrava, 17. listopadu 2172/15, Ostrava–Poruba

THEORETICAL AND COMPUTATIONAL APPROACH TO (k, g)-SPECTRA

Leonard Chidiebere Eze*, Dominika Mihálová, Robert Jajcay, and Tatiana Jajcayová

For each pair of parameters (k, g), where $k \geq 3$ and $g \geq 3$, the complete set of possible orders of connected k-regular graphs with girth g is referred to as *the spectrum of orders of* (k, g)*-graphs*, or *the* (k, g)*-spectrum*. Finding the (k, g)-spectrum for a specific pair of parameters (k, g) is extremely difficult, as it requires determining the minimum order $n(k, g)$ of the smallest connected k-regular graph with girth g. In this talk, we present some theoretical results on determining (k, g)-spectra together with some algorithms for generating (k, g)-spectra. For some specific parameter pairs, we explicitly list the (k, g)-spectra that we have determined and the associated algorithms.

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