

Dense graphs with large odd girth

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Generalizing a result from Häggkvist and Jin for the case $k = 3$, it can be shown that every graph of order n with odd girth at least $2k + 1$ and minimum degree $\delta \geq 3n/4k$ is either homomorphic with C_{2k+1} or can be obtained from the Möbius ladder with $2k$ spokes by vertex duplications. The key tools used in our observations are simple characteristics of maximal odd girth $2k + 1$ graphs.

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