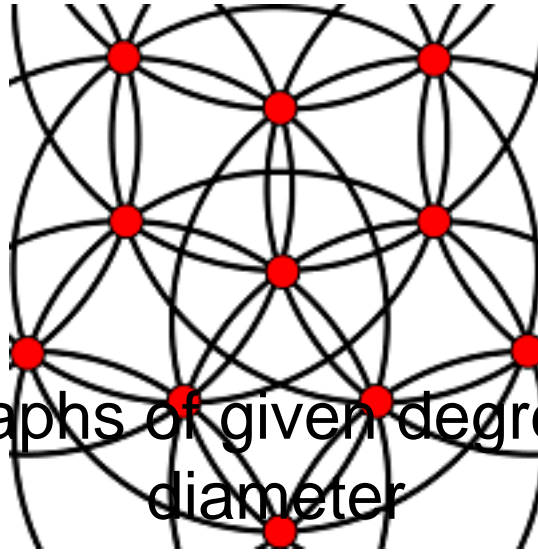


CSASC 2013



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VT graphs of given degree and diameter

Content :

A $(k;D)$ -graph is a (finite, simple) k -regular graph of diameter D .

The Degree/Diameter

Problem is the problem of determining the order $n(k;D)$ of the largest $(k;D)$ -graphs. The

well-known Moore bound serves as an upper bound on the order of

$(k;D)$ -graphs. In terms of

k and D , it can be stated as follows: $M(k; D) = 1 + k + k(k - 1) +$

$\dots + k(k$

$- 1)^{D-1}$.

In our talk we show that for any fixed degree $k \geq 3$ and any positive integer K the

largest vertex-transitive $(k;D)$ graph has size at most $M(k;D) - K$ for

almost all (in the

asymptotic sense) diameters D .

This is a joint work with G. Exoo R. Jajcay and J. Širáň

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