Distance-regular graphs with classical parameters

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In this talk we study distance-regular graphs with classical parameters (D, b, α, β) . There are many examples of distance-regular graphs with classical parameters. For b = 1 they were classified by Terwilliger in the the 1990's. So from now on we assume $b \ge 2$.

It is known that $\alpha \leq b^3$ if the diameter D is at least 9. In 1999 Metsch showed that $\beta \leq b^{5+2D}$, or the graph is known.

In this talk we will improve it to $\beta \leq b^{5+D}$, or the graph is known. We will also show that this bound is close to be tight.

(This talk is based on joint work with Chenhui Lv.)