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Counting lines on projective surfaces

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Abstract. In this note we prove a new bound on the number of lines on a smooth surface of degree $d \geq 3$ in $\mathbb{P}^3$. Building on work of Segre, we provide a rigorous justification of an idea of his while at the same time improving his bound. Our result gives the lowest known bound for $d \geq 6$, and it is valid both in characteristic 0 and in positive characteristic $p > d$.

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