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An affirmative answer to a question of Ciliberto. (English) [Zbl 0805.14026](#)
Manuscr. Math. 81, No. 3-4, 437-443 (1993).

Here (answering in particular a question posed in print by *C. Ciliberto*) the author gives a very interesting example of nondegenerate smooth projective submanifold $X \subset \mathbb{P}^{2n+1}$, $n \geq 9$, $\dim(X) = n$, with K_X ample (hence X not ruled by lines), such that the tangent variety $\text{Tan}(X)$ has dimension $\leq 2n - 1$ and such that for a general $P \in X$, the embedded tangent space $T_P X$ intersects X at some points $\neq P$. The key for the construction is the fact that for $m \geq 3$ the secant variety $\text{Sec}(G(m, 1))$ of the Plücker embedding of the Grassmannian $G(m, 1)$ of lines in \mathbb{P}^m has dimension $\leq 2 \dim(G(m, 1)) - 3$ (hence $\text{Tan}(G(m, 1)) = \text{Sec}(G(m, 1))$).

Reviewer: [E.Ballico \(Povo\)](#)

MSC:

[14N05](#) Projective techniques in algebraic geometry
[14M15](#) Grassmannians, Schubert varieties, flag manifolds

Keywords:

[tangent variety](#); [embedded tangent space](#); [Plücker embedding](#); [Grassmannian](#)

Full Text: [DOI](#) [EuDML](#)

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