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Joshua A Rice*, 2219 Melrose Ave, Ames, IA 50010. *General Lines in Projective Space and the Koszul Property.*

A graded k -algebra R is said to be Koszul if the minimal R -free graded resolution of k is linear. Let R be the coordinate ring of s -points in \mathcal{P}^n . Kempf proved that R is Koszul if the s points are in general linear position and $s \leq 2n$. Further, Conca, Trung and Valla showed that if the points are generic, then R is Koszul if and only if $s \leq 1 + n + \frac{n^2}{4}$. In this talk we discuss the Koszul property of the homogeneous coordinate ring R of a set of m lines in the complex projective space \mathcal{P}^n . We show R is Koszul if $n+1 \geq 4m$ or $2m+1 = n$ and is not Koszul when $m > \frac{1}{72} \left(3(n^2+10n+13) + \sqrt{3(n-1)^3(3n+5)} \right)$. (Received August 09, 2021)