1012-13-31   **David A Cox**, **Alicia Dickenstein** and **Hal Schenck*** (`schenck@math.tamu.edu`), H. Schenck, Mathematics Department, Texas A&M University, College Station, TX 11843-3368. *Bigraded algebra and incomplete linear systems on $\mathbb{P}^1 \times \mathbb{P}^1$.*

We study the commutative algebra of three bihomogeneous polynomials p_0, p_1, p_2 of degree $(2,1)$ in variables $x, y; z, w$, assuming that they never vanish simultaneously on $\mathbb{P}^1 \times \mathbb{P}^1$. Unlike the situation for $\mathbb{P}^2$, the Koszul complex of the p_i is never exact. We describe how bigraded commutative algebra differs from the classical graded case and indicate some of the theoretical tools needed to understand the free resolution of the ideal generated by p_0, p_1, p_2. (Received August 02, 2005)