1155-68-377 **Austin Conner**, Department of Mathematics, Texas A&M University, Mailstop 3368, College Station, TX 77843-3368, **Alicia Harper**, Department of Mathematics, Texas A&M University, Mailstop 3368, College Station, TX 77843-3368, and **Joseph M Landsberg*** (jml@math.tamu.edu), Department of Mathematics, Texas A&M University, Mailstop 3368, College Station, TX 77843-3368. *The punctual Hilbert scheme and matrix multiplication.*

In 1968 V. Strassen discovered the usual way we multiply matrices is not the most efficient one. This raised the question as to just how efficiently matrices can be multiplied, and led to the astounding conjecture that for large matrices, it is almost as easy to multiply them as to add them. After giving a brief history of the problem, I will explain new uses of algebraic geometry and representation theory that have advanced lower bounds in this central question in computer science. (Received January 20, 2020)