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**Alessio Sammartano.** *Relations between the  $2 \times 2$  minors of a generic matrix.*

I will explain the proof of a conjecture of Bruns-Conca-Varbaro, describing the minimal relations between the  $2 \times 2$  minors of a generic matrix. Interpreting these relations as polynomial functors, and applying transpose duality as in the work of Sam-Snowden, this problem is equivalent to understanding the relations satisfied by  $2 \times 2$  generalized permanents. The proof then combines Koszul homology calculations on the minors side, with a study of subspace varieties on the permanents side, and with the Kempf-Weyman technique (on both sides). Joint work with H. Huang, M. Perlman, C. Polini, and A. Sammartano. (Received February 03, 2020)