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Jesse Leo Kass and **Kirsten Graham Wickelgren*** (kwickelgren3@math.gatech.edu). *An arithmetic count of the lines on a cubic surface.*

A celebrated 19th century result of Cayley and Salmon is that a smooth cubic surface over the complex numbers contains exactly 27 lines. Over the real numbers, it is a lovely result of Finashin–Kharlamov and Okonek–Teleman that while the number of real lines depends on the surface, a certain signed count of lines is always 3. We extend this count to an arbitrary field k using an Euler number in $A1$ -homotopy theory. The resulting count is valued in the Grothendieck-Witt group of non-degenerate symmetric bilinear forms. This is joint work with Jesse Kass. (Received February 07, 2018)