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Hugh Roberts Geller* (hrgeller@sewanee.edu) and **Rebecca R.G.** *Classifying Two Generated Neural Ideals*. Preliminary report.

The study of neural rings and ideals is an application of algebraic geometry and coding theory to the study of neural networks. By studying neuron firings, one can define a binary code and its corresponding neural ideal. Neural ideals were introduced by Curto, Itskov, Veliz-Cuba, Youngs and are generated by pseudo-monomials. Using polarizations from Güntürkün, Jeffries, and Sun we study these ideals using monomial ideal techniques. In this talk, we show how to determine which 2-generated neural ideals are in canonical form. This is joint work with Dr. Rebecca R.G. of George Mason University. (Received January 24, 2022)