William J Keith* (wjkeith@mtu.edu). On Bergeron’s $bc - ad$ unimodality conjecture.

In 2016 Bergeron offered a conjecture which included the positivity and unimodality of the differences $\left[ \frac{b+c}{c} \right]_q - \left[ \frac{a+d}{d} \right]_q$ under the condition that $bc = ad$, $c > d$. Using the KOH theorem, Stanley and Zanello were able to prove this claim for small $d$. In this talk we prove positivity by an explicit injection when the difference between $c$ and $d$ is small. (Received August 09, 2020)