"Large Signal Analysis of Differential Triode Amplifier"

Abstract

"The author presents a mathematical model (basically a sine-series function) for the input/output voltage characteristic of a differential vacuum-tube triode amplifier. The results show that, similar to transistor-based differential amplifiers, the vacuum triode differential amplifier generates only odd-order harmonic and intermodulation components. The results also show that the amplitudes of these components are strongly dependent on the amount of cathode feedback and the amplitudes of the input tones. Moreover, the third-order intermodulation component is dominant and is higher than the third-harmonic component by about 12 dB over a wide range of the input voltage".