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*Jensen-Polya Criterion for the Riemann Hypothesis and
Related Problems*

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Abstract: In this talk, I will summarize forthcoming work with Griffin, Ono, and Zagier. In 1927 Polya proved that the Riemann Hypothesis is equivalent to the hyperbolicity of Jensen polynomials for Riemann's Xi-function. This hyperbolicity has been proved for degrees $d \leq 3$. We obtain an arbitrary precision asymptotic formula for the derivatives $\Xi^{(2n)}(0)$, which allows us to prove the hyperbolicity of 100% of the Jensen polynomials of each degree. We obtain a general theorem which models such polynomials by Hermite polynomials. This general condition also confirms a conjecture of Chen, Jia, and Wang.

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