1127-30-41   **Boris Hanin*** (`bhanin@mit.edu`). *Pairing between zeros and critical points of random polynomials.*

Consider a polynomial $p_N(z)$ in one complex variable. The Gauss-Lucas Theorem says that the critical points of p_N lie inside the convex hull of its zeros. But how are critical points actually distributed inside the convex hull if p_N is chosen at random? The purpose of this talk is to explain that in fact each critical point of p_N typically comes paired with a single zero. The distance between a critical point and its paired zero is on the order of N^{-1}, which is much smaller than the typical $N^{-1/2}$ spacing between order of N independently selected points on the sphere. In the first part of my talk, I will give a heuristic interpretation for this pairing by relating zeros and critical points to electrostatics on the Riemann sphere. In the second part, I explain what rigorous theorems are now available and state a few open problems. (Received January 07, 2017)