1172-30-235   **Jacob S Christiansen*** (`jacob_stordal.christiansen@math.lth.se`), Lund. *Chebyshev Polynomials in the Complex Plane.*

About half a year ago, we celebrated the 200th birthday of P. L. Chebyshev. Among his many inventions and contributions to mathematics are the so-called Chebyshev polynomials which are widely used in numerical analysis. These are the monic polynomials, T_n, which minimize the sup-norm on a given compact interval.

Inspired by work of Fekete and Szegő, we study these polynomials with the interval being replaced by an infinite compact set $\mathsf{E} \subset \mathbb{C}$. Closed formulas are no longer at hand, but there is an almost complete picture of the asymptotics when $\mathsf{E} \subset \mathbb{R}$.

Contrarily, the theory for complex regions and arcs is much harder. I'll present various results on the zeros of T_n, illustrated by plots, and then proceed to discuss estimates on the approximation error.

The talk is based on joint work with B. Simon (Caltech), P. Yuditskii (JKU), and M. Zinchenko (UNM) as well as joint work in progress with O. Rubin (Lund). (Received August 30, 2021)