## 1163-15-1210 Helena Šmigoc\* (helena.smigoc@ucd.ie), Stephen Kirkland and Thomas Laffey. On the Karpelevič Region.

A classic result of Karpelevič describes  $\Theta_n \subset \mathbb{C}$ , the set consisting of all eigenvalues of all stochastic matrices of order n. We will provide an alternative characterisation of  $\Theta_n$  that for each  $\theta \in [0, 2\pi)$  identifies the point on the boundary of  $\Theta_n$  with argument  $\theta$ . We will further prove that if  $n \in \mathbb{N}$  with  $n \geq 2$ , and  $t \in \Theta_n$ , then t is a subdominant eigenvalue of some stochastic matrix of order n. Finally, we will discuss some properties of stochastic matrices with eigenvalues on the boundary of  $\Theta_n$ . (Received September 15, 2020)