

# NDMI028 - LAK

November 14, 2024 – Spectra of graphs II

## In class problems

30. Determine  $\text{Sp}(C_n)$ .
31. Determine  $\text{Sp}(P_n)$ .
32. Suppose you know the spectrum of a connected  $r$ -regular graph. What can you say about the spectrum of its complement?
33. Let  $\lambda_1$  be the maximum eigenvalue of a graph  $G$ , and let  $\bar{d}(G)$  be its average degree. Show that  $\max\{\sqrt{\Delta(G)}, \bar{d}(G)\} \leq \lambda_1 \leq \Delta(G)$ .