

# A general method to find the spectrum and eigenspaces of the $k$ -token graph of a cycle

Mónica Reyes

Universitat de Lleida

## Abstract

The  $k$ -token graph  $F_k(G)$  of a graph  $G$  is the graph whose vertices are the  $k$ -subsets of vertices from  $G$ , two of which being adjacent whenever their symmetric difference is a pair of adjacent vertices in  $G$ .

In this talk, we propose a general method to find the spectrum and eigenspaces of the  $k$ -token graph  $F_k(C_n)$  of a cycle  $C_n$ . The method is based on the theory of lift graphs and the recently introduced theory of over-lifts.