A \{C_m^n, C^n_s\}-factorization asks for a 2-factorization of \(K_v\) (or \(K_v - I\)), where \(r\) of the 2-factors consists of \(m\)-cycles and \(s\) of the 2-factors consists of \(n\)-cycles. This is the Hamilton-Waterloo Problem (the HWP) with uniform cycle sizes \(m\) and \(n\). The HWP is an extension of the Oberwolfach problem which asks for isomorphic 2-factors. We will focus on the HWP with uniform cycle sizes; results on the various lengths of cycles as well as some generalizations to multipartite graphs and also having more non-isomorphic 2-factors will be presented.

Results are from the joint works with Keranen, Odabasi, and Ozbay.