

**Title:** Cycle decomposition of complete graphs of small orders

**Speaker:** Muhammad Javed, Ryerson University

**Abstract:** In 1981, Alspach conjectured that it is possible to decompose the complete graph on  $n$  vertices into  $t$  cycles of specified length  $m_1, m_2, \dots, m_t$  when  $n$  is odd and into a perfect matching and  $t$  cycles when  $n$  is even, whenever the necessary conditions, i.e.,  $3 \leq m_1, m_2, \dots, m_t \leq n$  and  $m_1 + m_2 + \dots + m_t = n \lfloor \frac{n-1}{2} \rfloor$ , are satisfied. Recently, Bryant, Horsley and Pettersson gave a complete solution. This proof of Alspach's Conjecture, however, relies on a claim of Balister that he had verified Alspach's Conjecture for  $n \leq 14$  by computer, though without publishing any supporting material. In this talk we will present an independent validation of Balister's claim. We also give some partial results on the corresponding problem of cycle decomposition of the complete symmetric digraph.