MICHELLE WACHS, University of Miami

The Stanley-Stembridge e-Positivity Conjecture and Beyond

In October 2024, Tatsuyuki Hikita posted a proof of the longstanding 1993 Stanley–Stembridge conjecture that the chromatic symmetric function of the incomparability graph of a $(3+1)$-free poset is e-positive. Two years later, a proof of the e-positivity part of the Shareshian–Wachs refinement was included as $\#169$ in the October 6, 2026 Open AI dump. The unimodality part of the conjecture was left open. In this talk I will discuss these developments and some broader conjectures that are also still open.