

**The Weizmann Institute of Science  
Faculty of Mathematics and Computer Science**

**Foundations of Computer Science Seminar**

Room 155, Ziskind Building  
on Monday, May 20, 2024  
at 11:15

**David Wajc**  
Technion

will speak on

**Online Edge Coloring**

**Abstract:**

Vizing's Theorem provides an algorithm that edge colors any graph of maximum degree  $\Delta$  using  $\Delta+1$  colors, which is necessary for some graphs, and at most one higher than necessary for any graph. In online settings, the trivial greedy algorithm requires  $2\Delta-1$  colors, and Bar-Noy, Motwani and Naor in the early 90s showed that this is best possible, at least in the low-degree regime. In contrast, they conjectured that for graphs of superlogarithmic-in- $n$  maximum degree, much better can be done, and that even  $(1+o(1))\Delta$  colors suffice online. This would make edge coloring a rare problem, for which "online is (nearly) as easy as offline". In this talk I will outline the history of this conjecture, and its recent resolution, together with extensions of a flavor resembling classic and recent results on \*list\* edge-coloring and "local" edge-coloring.

Talk based in part on joint works with many wonderful and colorful collaborators, including Sayan Bhattacharya, Joakim Blikstad, Ilan R. Cohen, Fabrizio Grandoni, Seffi Naor, Binghui Peng, Amin Saberi, Aravind Srinivasan, Ola Svensson and Radu Vintan.