

---

**NISHAD KOTHARI**, University of Campinas (UNICAMP)

*Constructing  $K_4$ -free bricks that are Pfaffian*

Lovász (1983) showed that every nonbipartite matching covered graph contains at least one of  $K_4$  and the triangular prism  $\overline{C_6}$  as a conformal minor. Kothari and Murty (2016) gave a complete characterization of planar  $K_4$ -free graphs. It now remains to characterize the nonplanar  $K_4$ -free bricks. Since then, we have discovered two operations that may be used to construct nonplanar  $K_4$ -free bricks. These constructions also yields Pfaffian bricks. We conjecture that all  $K_4$ -free bricks are Pfaffian.