

Total positivity, loop groups and electrical networks

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The Edrei-Thoma theorem characterizes totally positive functions, and plays an important role in character theory of the infinite symmetric group. The Loewner-Whitney theorem characterizes totally positive elements of the general linear group, and is fundamental for Lusztig's theory of total positivity in reductive groups. I will explain a common generalization of the two theorems. I will also explain the striking similarity between this problem and inverse problem in electrical networks on a cylinder. The talk is based on joint work with Thomas Lam.