

I hope to make the talk as accessible as possible, but some background would certainly be required. However, should any questions concerning background or terminology arise, then please ask, as I am more than happy to make sure the concepts discussed are as clear as possible.

- *Matrix theory*: Eigenvalues/eigenvectors; matrix factorizations; determinants; rank: Some concepts will simply be assumed, but some will be reviewed depending on the special situation in which they are introduced.
- *Totally nonnegative matrices*: This area will arise a number of times during this workshop, and I will introduce some basic terms, properties and discuss more advanced topics concerning this class of matrices, but I will try to keep the subject matter as self-contained as possible. A useful reference along these lines might be: *Fallat, Shaun M., Bidiagonal factorizations of totally nonnegative matrices. Amer. Math. Monthly 108 (2001), no. 8, 697-712.*
- *Combinatorics/graph theory*: basic working knowledge of graphs and digraphs: This topic is not central to the talk, but it will arise in places.
- *Cauchon algorithm*: I intend to introduce and discuss this algorithm (which has other names) and explain its connection to the recent work that I will present near the end of the talk. Should one wish to read up on this topic, then I suggest the following reference: *Launois, S.; Lenagan, T. H., From totally nonnegative matrices to quantum matrices and back, via Poisson geometry. Perspectives in Lie theory, 443-461, Springer INdAM Ser., 19, Springer, Cham, 2017.*