Title: Towards network structured Lasserre hierarchy for stability analysis

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Abstract: Technological evolution of electrical power networks is bringing upon new practical challenges in the field of stability analysis of large scale nonlinear systems. Exploiting sparsity structure of networks is a rich approach that might allow for the application of accurate numerical schemes to high dimensional problems. In this talk, I will present some contributions towards that direction, for Lasserre hierarchy based set approximation. More precisely, I will first address the problem of sparse volume computation, and then I will switch to approximating regions of attractions of a sparse differential system, as a byproduct of the sparse volume problem.