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Vasiliki Velona - Learning a partial correlation graph using only a few covariance queries.

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In settings where the covariance matrix is too large to even store, we would like to learn the partial correlation graph with as few covariance queries as possible (in a partial correlation graph, an edge exists if the corresponding entry in the inverse covariance matrix is non-zero). In recent work with Gabor Lugosi, Jakub Truskowski, and Piotr Zwiernik, we showed that it is possible to use only a quasi-linear number of queries if the inverse covariance matrix is sparse enough, in the sense that the partial correlation graph resembles a tree on a global scale. I will explain these results and discuss extensions and applications.