

# Oracle inequalities for network models and sparse graphon estimation

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## Abstract

In the last decade, network analysis has become an important research field driven by applications. We study the twin problems of estimating the connection probability matrix of an inhomogeneous random graph and the graphon of a  $W$ -random graph. We consider classes of block constant matrices and step function graphons and establish the minimax estimation rates with respect to different distances:  $l_1$ ,  $l_2$  and the cut metric. We also extend our study to the case of unbounded graphons.

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