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**TERMEH KOUSHA**, University of Ottawa

*Asymptotic behavior and moderate deviation principle for the maximum of a Dyck path*

By using a representation of the Catalan number, relying on the spectral properties of an associated adjacency matrix, we find the distribution of the maximum of Dyck path for the case where the length of the Dyck path is proportional to the square root of the height. We also consider other cases and find moderate and large deviation principles for the law of the maximum of random Dyck path for those cases.