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Bertrand Eynard, Motohico Mulase and Brad Safnuk* (`brad.safnuk@cmich.edu`),
Mathematics Department, Central Michigan University, Mt Pleasant, MI 48858. *The Laplace transform of the cut-and-join equation and the Bouchard-Marino conjecture on Hurwitz numbers.*

We calculate the Laplace transform of the cut-and-join equation of Goulden, Jackson and Vakil. The result is a polynomial equation that has the topological structure identical to the Mirzakhani recursion formula for the Weil-Petersson volume of the moduli space of bordered hyperbolic surfaces. We find that the direct image of this Laplace transformed equation via the inverse of the Lambert W-function is the topological recursion formula for Hurwitz numbers conjectured by Bouchard and Marino using topological string theory. (Received September 21, 2009)