



# Double-scaling limits of random matrices and minimal $(2m, 1)$ models: the merging of two cuts in a degenerate case

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Titre	Double-scaling limits of random matrices and minimal $(2m, 1)$ models: the merging of two cuts in a degenerate case
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Auteur	Marchal, O. [1], Cafasso, Mattia [2]
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Mots-clés	correlation functions [3], matrix models [4], Painlevé equations [5], topological expansion [6]
Résumé en anglais	<p>In this paper, we show that the double-scaling-limit correlation functions of a random matrix model when two cuts merge with degeneracy <math>2m</math> (i.e. when <math>y \sim x^{2m}</math> for arbitrary values of the integer <math>m</math>) are the same as the determinantal formulae defined by conformal <math>(2m, 1)</math> models. Our approach follows the one developed by Bergère and Eynard in (2009 arXiv:0909.0854 [7]) and uses a Lax pair representation of the conformal <math>(2m, 1)</math> models (giving a Painlevé II integrable hierarchy) as suggested by Bleher and Eynard in (2003 <i>J. Phys. A: Math. Gen.</i> 36 3085). In particular we define Baker-Akhiezer functions associated with the Lax pair in order to construct a kernel which is then used to compute determinantal formulae giving the correlation functions of the double-scaling limit of a matrix model near the merging of two cuts.</p>
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Titre abrégé	Double-scaling limits of random matrices and minimal $(2m, 1)$ models

## Liens

[1] [http://okina.univ-angers.fr/publications?f\[author\]=391](http://okina.univ-angers.fr/publications?f[author]=391)

- [2] <http://okina.univ-angers.fr/mattia.cafasso/publications>
- [3] [http://okina.univ-angers.fr/publications?f\[keyword\]=19883](http://okina.univ-angers.fr/publications?f[keyword]=19883)
- [4] [http://okina.univ-angers.fr/publications?f\[keyword\]=19884](http://okina.univ-angers.fr/publications?f[keyword]=19884)
- [5] [http://okina.univ-angers.fr/publications?f\[keyword\]=19882](http://okina.univ-angers.fr/publications?f[keyword]=19882)
- [6] [http://okina.univ-angers.fr/publications?f\[keyword\]=19881](http://okina.univ-angers.fr/publications?f[keyword]=19881)
- [7] <http://arxiv.org/abs/0909.0854>
- [8] <http://okina.univ-angers.fr/publications/ua155>
- [9] <http://dx.doi.org/10.1088/1742-5468/2011/04/P04013>

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