Sum rules papers - Errata

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AMRX paper, [7]

p. 301 line 21 :

$$a_1 = \frac{\sqrt{(1+\kappa_1)(1+\kappa_2)}}{(2+\kappa_1+\kappa_2)^{3/2}}\ ,\ a_k = \frac{\sqrt{(1+\kappa_1+\kappa_2)(1+\kappa_1)(1+\kappa_2)}}{(2+\kappa_1+\kappa_2)^2}\ (k\geq 2)$$

$$b_1 = \frac{1+\kappa_1}{2+\kappa_1+\kappa_2}\ ,\ b_k = \frac{1}{2}\left(1+\frac{\kappa_1^2-\kappa_2^2}{(2+\kappa_1+\kappa_2)^2}\right)\ (k\geq 2)\,. \tag{0.1}$$

p. 301, bottom :

$$\mathcal{F}_J(x) = \begin{cases} \displaystyle\int_{u^+}^{x} (2+\kappa_1+\kappa_2)\frac{\sqrt{(t-u^+)(t-u^-)}}{t(1-t)}\,dt \text{ if } u^+ \leq x < 1, \\ \displaystyle\int_{x}^{u^-} (2+\kappa_1+\kappa_2)\frac{\sqrt{(t-u^+)(t-u^-)}}{t(1-t)}\,dt \text{ if } 0 < x \leq u^- \end{cases} \tag{0.2}$$

JFA paper [2]

p. 14, top : replace both formulas by 0.2 above.

p. 15 line 9 : p.266 or 289 instead of 287

p. 16 line 5 : $o(h^2)$ instead of $o(h)$

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Unit circle paper, RMTA [3]

p. 3 *(A.R. : I don't know the line)* Ref. [50] has to be replaced by [51]. Actually [50] has not to be quoted anywhere.

p. 11 line 3 and p.12 line -11 : replace $1/\pi$ by $1/(2\pi)$.

p.21 formula 4.9 :

$$\mathcal{F}^-_{HP}(e^{i\theta}) := \int_\theta^{\theta_{\mathtt{d}}} (1+\mathtt{d}) \frac{\sqrt{\sin^2\left(\theta_{\mathtt{d}}/2\right) - \sin^2(\varphi/2)}}{\sin(\varphi/2)}\, d\varphi \tag{0.3}$$

p. 22 line 1: Delete "$g \leq 1$" .

p. 24 , in Lemma 4.8 and in (4.20): $\Sigma_{i=0}^{n-1} \rightsquigarrow \Sigma_{i=1}^{n-1}$

p. 30 line 9: "First, assume that the support of Σ is infinite" has to be replaced by "First assume that Σ is nontrivial, that is, $\mathrm{tr}\langle\langle\varphi,\varphi\rangle\rangle > 0$ for all nonzero polynomials φ (see Chapter 2 of [1])".

p. 30 line -3: "matrix measures on $\mathbb{T}$ with infinite support" has to be replaced by "nontrivial normalized matrix measures on $\mathbb{T}$".

p. 35 line 6: read $-\boldsymbol{\alpha}_2^\dagger\boldsymbol{\alpha}_1$ instead of $-\boldsymbol{\alpha}_1\boldsymbol{\alpha}_2^\dagger$.

p. 38: In Theorem 6.9, Corollary 6.10 and Conjecture 6.11, "with infinite support" has to be replaced by "be nontrivial".

Block paper, Bernoulli [4]

p. 5 line -8: "First suppose that Σ has infinite support." has to be replaced by "First suppose that Σ is nontrivial."

p. 6 line 5: "However, ..." has to be replaced by "However, we will still be able to define a Jacobi matrix J_n as in (1.8), such that $\Sigma^X = \Sigma^{J_n}$, and then $A_1, \dots A_{n-1}$ and $B_1, \dots, B_n$ may still be defined."

p. 6: In Lemma 2.1 "Suppose Σ is a matrix measure with infinite support in $[0,\infty)$." has to be replaced by "Suppose Σ is a nontrivial matrix measure with support in $[0,\infty)$."

p. 10 line 5 : $o(|H\|^2)$ instead of $o(\|H\|)$

Jacobi paper, RMTA [5]

Lemma 2.2, formula (2.20)

$$U_k = (M_k^+ - M_k^-)^{-1}(M_k - M_k^-), \quad 1 \leq k \leq 2n-1\,.$$

Replace formulas (3.6)-(3.7) by 0.2 above.

A few lines before Corollary 3.3

$$\mathcal{F}_J^{\pm}(u^{\pm}+h) = (2+\kappa_1+\kappa_2)\frac{2\sqrt{u^+-u^-}}{3u^{\pm}(1-u^{\pm})}h^{3/2} + o(h^{3/2})\,.$$

Multi-cut paper, JFA [6]

p. 5 line 1

$$r_n = (b_1, a_1, \ldots, b_{n-1}, a_{n-1}, b_n)\,.$$

p. 10, formula (3.6)

$$F(x) = \begin{cases} \displaystyle\int_2^x A(t)\sqrt{t^2-4}\,dt & \text{if } x > 2 \\ \displaystyle\int_x^{-2} A(t)\sqrt{t^2-4}\,dt & \text{if } x < -2\,. \end{cases}$$

p. 11, after (3.14), read twice (A3) instead of (A2).

References

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[2] F. Gamboa, J. Nagel, and A. Rouault. Sum rules via large deviations. *J. Funct. Anal.*, 270(2):509 – 559, 2016.

[3] F. Gamboa, J. Nagel, and A. Rouault. Sum rules and large deviations for spectral measures on the unit circle. *Random Matrices Theory Appl.*, 6(1), 2017.

[4] F. Gamboa, J. Nagel, and A. Rouault. Sum rules and large deviations for spectral matrix measures. *Bernoulli*, 25(1):712–741, 2019.

[5] F. Gamboa, J. Nagel, and A. Rouault. Sum rules and large deviations for spectral matrix measures in the Jacobi ensemble. *Random Matrices Theory Appl.*, 10(1), 2021.

[6] F. Gamboa, J. Nagel, and A. Rouault. Sum rule via large deviations: Extension to polynomial potentials and the multi-cut regime. *J. Funct. Anal.*, (282), 2022.

[7] F. Gamboa and A. Rouault. Large deviations for random spectral measures and sum rules. *Applied Mathematics Research eXpress*, 2011(2):281–307, 2011.