

# Errata

This is a list of errata in the published version of **Fermionic Functional Integrals and the Renormalization Group** by Joel Feldman, Horst Knörrer and Eugene Trubowitz. The authors thank Yvan Saint-Aubin, Gustavo de Oliveira and Yoshitsugu Sekine for pointing them out.

Page vii : The two references to Section 1.1 should be to Chapter 1.

Page 2, line 10 :  $a_1 = \dots$  should be  $a_1 = \dots$ .

Page 7, line 2 :  $(1 + \frac{1}{\lambda} b_1 b_2)$  should be  $(1 + \frac{1}{\lambda_m} b_{2m-1} b_{2m})$ .

Page 7, denominator of the last line :  $\sum_{ij} a'_1 T_{ij}^{-1} a'_j$  should be  $\sum_{ij} a'_i T_{ij}^{-1} a'_j$

Page 9, line 7 : Delete unmatched right parenthesis.

Page 10, line 6 :  $(\frac{\partial}{\partial a_\ell})$  should be  $(\frac{\partial}{\partial a_\ell} a_1)$

Page 10, line -5 : = missing.

Page 13, line 2 : “-” should be “=”.

Page 15, line 13 :  $\bar{\psi}_{\mathbf{x},\sigma}$  should be  $\bar{\psi}_{x,\sigma}$ .

Page 15, line 16 : In the integral in the numerator on the right hand side,  $\bar{\psi}_{x_\ell, \sigma_\ell}$  should be  $\bar{\psi}_{x_\ell, \sigma_\ell}$ .

Page 15, line -15 : The first  $\psi_{x,\sigma}$  should be a  $\psi_{k,\sigma}$ . Also add “and  $\hat{u}(\mathbf{k})$  is the Fourier transform of  $u(\mathbf{x})$ ” to this sentence.

Page 16, line 2: Missing ) between  $\sigma_\ell$  and  $\Omega$ .

Page 18, line 2 :  $Z_j$  should be  $Z_J$ .

Page 18, line 9 :  $Z_1$  is  $Z_J$ .

Page 18, line 11 :  $Z_j$  is  $Z_J$ .

Page 19, lines 9 and 13 :  $P(> 0)W$  should be  $P(>0)W$ .

Page 23, line 2: The first  $\partial/\partial b_{i_n}$  should be  $\partial/\partial b_{i_1}$ .

Pages 25 and 93, Problem 1.23:  $d\mu_S(\psi)$  should be  $d\mu_S(a)$ .

Page 25, line -5: “...there is Hilbert...” should be “...there is a Hilbert...”.

Page 26, line 23 : The second “=” in “ $\alpha_i = u_i = + \dots$ ” should not be there.

Page 27, line 6 : “orthogonal” should be “unitary” and “determinant one” should be “determinant of modulus one”.

Page 27, line 7 :  $L [\langle u', v_j \rangle] M^\dagger = [\langle v'_i, v'_j \rangle]$  should be  $L [\langle u_i, v_j \rangle] M^\dagger = [\langle u'_i, v'_j \rangle]$

Page 27, line 9 : The two expressions involving determinants should be put between absolute value signs. Page 28, line 6:  $\phi(\ell'_j \kappa'_j)$  should be  $\phi(\ell'_j, \kappa'_j)$ .

Page 28, line 7: Missing  $\psi(\ell_i, \kappa_i)$  after  $\prod_{i=1}^m$ .

Page 29, line 16:  $\Psi((i', \mu'), \kappa_{i', \mu'})$  should be  $\Psi((i', \mu'), \kappa_{i', \mu'})$ .

Page 29, line 18: “ $\psi_{\sigma_i, e_i}$ ,” should be  $\psi_{\sigma_i, e_i}$ .

Page 32, line 14 :  $S(f)$  should be  $\mathcal{S}(f)$ .

Page 34, line 9 :  $\sum_{\substack{j \in \mathcal{M}_r \\ j_i = k}}$  should be  $\sum_{\substack{j \in \mathcal{M}_r \\ j_i = k}}$ .

Page 34, line 15 : “underseparate” should be “under separate”.

Page 34, line -2 :  $\bigcup_{r \leq 0}$  should be  $\bigcup_{r \geq 0}$ .

Page 35, line 2 and Theorem 2.6 : In line 2 “D” is used but after that it becomes “D”.

Page 35, line -3 :  $C_{L}a_J$  should be  $c_{L}a_J$

Page 36, line 6 :  $\frac{l}{\ell!}$  should be  $\frac{1}{\ell!}$  and  $\prod_{i=1}^l$  should be  $\prod_{i=1}^{\ell}$ .

Page 36, line 10:  $w_{l_i, r_i + s_i}$  should be  $w_{l_i, r_i + s_i}$ .

Page 37, line 1:  $R$  should be  $\mathbf{R}$ .

Page 37, line 8: “ $J_i, K_i$ ” should be  $J_i \cdot K_i$ .

Page 37, line 12 : Missing a ) in the left hand side.

Page 37, line -9 :  $J_i, (k_i) \cdot \tilde{K}_i$  should be  $J_i(k_i) \cdot \tilde{K}_i$ .

Page 38, line 7 : There should not be a period at the end of the line.

Page 39, lines -5, -6 and -7 :  $(i_1)\tilde{I}$  should be  $(i_1) \cdot \tilde{I}$ .

Page 40, line -7:  $\mathbf{R}$  should be  $\mathbf{R}$ .

Page 40, line -6:  $w_{\ell_i, r_i + s_i}$  should be  $w_{l_i, r_i + s_i}$ .

Page 42, lines 4 and 5 :  $(k)\tilde{L}$  should be  $(k) \cdot \tilde{L}$ .

Page 42, line 5:  $\sum_{\substack{L \in \mathcal{M}_{l-1} \\ J \in \mathcal{M}_r}}$  should be  $\sum_{\substack{\tilde{L} \in \mathcal{M}_{l-1} \\ J \in \mathcal{M}_r}}$ .

Page 42, line 9 : Missing a  $\|$  to the left of the integral sign.

Page 42, line -8 :  $\|\Omega(w)\|_{\alpha F}$  should be  $\|\Omega(W)\|_{\alpha F}$ .

Page 43, line -8: “Bu Theorem 2.6” should be “By Theorem 2.6”.

Page 45, line 16: Missing a prime on the second  $x$ . Should be  $\psi_{x, \sigma} \bar{\psi}_{x', \sigma'}$ .

Page 45, line -4 :  $v \in C_0^\infty([M^{-2}, M^2])$  should be  $\nu \in C_0^\infty([M^{-2}, M^2])$ .

Page 46, line 4: “ $0 > x < 1$ ” should be “ $0 < x < 1$ ”.

Page 46, line 7: Missing a prime on the second  $x$ . Should be  $\int \psi_{x, \sigma} \psi_{x', \sigma'} d\mu_S(\psi)$ .

Page 46, equation in the middle of the page :  $S^j$  should be  $S^{(j)}$

Page 47, line -10 and -9 : The partial derivatives with respect to  $p_1$  and  $p_2$  should be with respect to  $p_0$  and  $p_1$ .

Page 47, line -6 :  $\partial Q(p)/\partial p_i(p)$  should be  $\partial Q(p)/\partial p_i$ .

Page 47, last line :  $P_{\sigma, \sigma'}^{\alpha_0, \alpha_1}$  should be  $P_{\sigma, \sigma'}^{(\alpha_0, \alpha_1)}$

Page 48, line 7 : The last  $\nu'$  should be a  $\nu''$ .

Page 48, line 9 and twice more down the page : The partial derivatives with respect to  $p_1$  and  $p_2$  should again be with respect to  $p_0$  and  $p_1$ .

Page 49, line -2 :  $J(I \setminus J)$  should be  $J.(I \setminus J)$ .

Page 49, line -1 :  $JK$  should be  $J.K$ .

Page 52, line -8:  $\|W\|_j \geq 1/3$  should be  $\|W\|_j \leq 1/3$ .

Page 53, line 16 :  $C(j)$  should be  $C^{(j)}$ .

Page 55, line -5 :  $\sum_{\sigma, s'}$  should be  $\sum_{\sigma', s'}$ .

Page 59, line 13 :  $\sum_{i \in \mathcal{J}} |\alpha_i|$  should be  $\sum_{i \in \mathcal{J}} |\alpha_i|$

Page 61, line 15:  $d^{d+1}$  should be  $d^{d+1}k$ .

Page 61, line -12:  $C_f \in \mathbb{R}$  can be  $C_f \geq 0$ .

Page 62, line 5 : “and  $L^1$  function” should be “an  $L^1$  function”

Page 67, eq. (B.1') : second “=” should not be there.

Page 69, line 5 : first sum  $\sum_{\ell=1}^{k-1}$  should be  $\sum_{\ell=1}^{k-1}$

Page 69, triple choice defining  $i$  : “=” is missing.

Page 80, line 3 :  $t^{t-m}$  should be  $t^{n-m}$ .

Page 80, line -10 :  $\{$  should be  $\{$ .

Page 81, line 4 : “a  $h$  tends” should be “as  $h$  tends”.

Page 88, line 11:  $\psi_{i-r}$  should be  $\bar{\psi}_{i-r}$ .

Page 89, line 7: “as desired” should be “as desired.”.

Page 89, line 9:  $b_i(\psi, \bar{\psi})$  should be  $b_i(\zeta, \bar{\zeta})$ .

Page 90, lines -10, -11:  $Z_j$  and  $\mathcal{G}_J(a)$  should be  $Z_J$  and  $\mathcal{G}_J(c)$ .

Page 93, line 3 :  $e^{(\sum_{ij} c_i(S_{ij}+T_{ij}))/2} c_j$  should be  $e^{\frac{1}{2} \sum_{ij} c_i(S_{ij}+T_{ij})} c_j$ .

Page 93, last line:  $\prod_{\mu=1}^{e_i-1}$  should be  $\prod_{\mu=1}^{e_1-1}$ .

Page 94, line -4:  $S(\ell, \ell')$  should be  $S_{\ell, \ell'}$ .

Page 96, lines -3, -4:  $R$  should be  $\mathbb{R}$ .

Page 99, line 9 :  $\ell \leq 3$  should be  $\ell \geq 3$ .

Page 99, Problem 2.2.:  $f \star g$  should be  $f * g$  throughout.

Page 99, line -4:  $\mathcal{M}_{R+S-2}$  should be  $\mathcal{M}_{r+s-2}$ .

Page 100, line 8: Missing “ $j_i = \ell$ ” below the summation.

Page 101, line 13 :  $\zeta^{H+|J|}$  should be  $\zeta^{|H+|J|}$ .

Page 101, line -4: first “=” should not be there (between  $F$  and  $G$ ).

Page 102, line 10 : The first factor in the integrand should be  $:W(b):_b$ .

Page 102, line -7 :  $\tilde{K} \cdot (k)$  should be  $\tilde{K} \cdot (k)$ .

Page 102, last line: “=” should be  $\leq$ .

Page 103, line 4 :  $F^{s_m-2}$  should be  $F^{s+m-2}$ .

Page 103, line 11: Under the first sum sign,  $\mathcal{M}_{S-1}$  should be  $\mathcal{M}_{s-1}$ .

Page 103, line -4 :  $h_{J'}$  should be  $h_{j'}$ .

Page 104, line -7:  $\nu_1$  should be  $\nu_3$ .

Page 105, line -6 :  $\begin{pmatrix} p_0^2 + p_1^2 & 0 \\ p_0^2 + p_1^2 & 0 \end{pmatrix}$  should be  $-\begin{pmatrix} p_0^2 + p_1^2 & 0 \\ 0 & p_0^2 + p_1^2 \end{pmatrix}$

Page 106, line 11: Missing “=” after  $\|\alpha\|$ .

Page 106, line -10:  $W_{rI \setminus J}$  should be  $W_{I \setminus J}$ .

Page 107, line 13 :  $\mathfrak{U}_\cap$  should be  $\mathfrak{U}_\cup$ .

Page 111, line -5: The first  $i_n$  under the summation should be  $i_1$ .

Page 112, line 13:  $S_{21}$  should be  $S_{21}$ .