Corrections to "Statistical Mechanics and Random Matrices"

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- In section 5.1, μ and μ_Φ are the same. Γ_1 is the carré du champ; it was defined page 54 and corresponds to the Euclidean norm ofthe gradient.

- The formula for the Harish-Chandra-Itzykson integral

$$I_N^{(2)}(A, B) = \int e^{N\operatorname{tr}(AUBU^*)} dU$$

  p. 214 is missing a factor. In fact, with $A = \operatorname{diag}(a_1, \ldots, a_N)$ and $B = \operatorname{diag}(b_1, \ldots, b_N)$, and $\Delta(x)$ the Vandermonde determinant $\Delta(x) = \prod_{i<j}(x_i - x_j)$ we wrote

$$I_N^{(2)}(A, B) = \frac{\det(e^{a_i b_j})_{1 \leq i,j \leq N}}{\Delta(a)\Delta(b)}.$$

  The true formula is
$$I_N^{(2)}(A, B) = \Delta(\rho) \times \frac{\det(e^{a_i b_j})_{1 \leq i,j \leq N}}{\Delta(a)\Delta(b)}$$

  with $\rho_{ii} = i - 1$, $1 \leq i \leq N$. This additional term however does not give any contribution on the scale e^{N^2} and thus this error does not affect the rest of teh section.

- In Definition 20.9, $\limsup_{N\to\infty} P_N(d(Z_N, \tilde{Z}_N) > \delta) = -\infty$ should be replaced by
  $\limsup_{N\to\infty} a_N^{-1} \log P_N(d(Z_N, \tilde{Z}_N) > \delta) = -\infty$.