Physics of Long-Range Interacting Systems.

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A. Campa, T. Dauxois, D. Fanelli, S. Ruffo,

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We have found the following typos that we let you modify in your copy of the book.

Please let us know any other typo, you will dig out by sending a message to Thierry.Dauxois@ens-lyon.fr.

ERRATA

- p. 41
  - The line just above Eq. (2.15) should be modified as "obtained by equating to zero the coefficient $A_c \equiv \left(-\beta+1+\frac{e^{\beta\Delta}}{2}\right)/(e^{\beta\Delta}+2)$ of x^2, i.e. by the relation"
  - Eq. (2.15) should read
  $$A_c \propto \beta - \frac{1}{2}e^{\beta\Delta} - 1 = 0.$$
  - the line between Eq. (2.15) and Eq. (2.16) should be modified as "provided that the coefficient $B_c \equiv \frac{\beta^3 e^{-2\beta\Delta}}{12(1+2e^{-\beta\Delta})^2}\left(4-e^{\beta\Delta}\right)$ of x^4 is positive, i.e. provided that"
  - Eq. (2.16) should read
  $$B_c \propto 4 - e^{\beta\Delta} > 0.$$
  - First sentence below Eq. (2.16) should read "The tricritical point is obtained when $A_c = B_c = 0$. This gives $\Delta = \ln(4)/3 \simeq 0.4621$ and $\beta_c = 3$".
- p. 66, Second line after Eq. (3.19) should be modified as "the second step consists in the computation".
- p. 121, between (5.42) and (5.43), the sentence should be:
  Using this expression, we obtain the following expansion for the entropy.
- p. 201
  - Eq. (9.47) should read
  $$\frac{\partial f}{\partial t} + p\frac{\partial f}{\partial \theta} - \frac{\mathrm{d}\langle v\rangle}{\mathrm{d}\theta}\frac{\partial f}{\partial p} = 0,$$
  - and Eq. (9.47) should read
  $$\langle v\rangle(\theta)[f] \quad = \quad 1 - m_x[f]\cos\theta - m_y[f]\sin\theta\ ,$$
- p. 202,
  - Eq. (9.54) should read
  $$s_{LB}(\varepsilon) = \max_{\bar{f}}\left(s_{LB}(\bar{f})\middle| h(\bar{f}) = \varepsilon; P(\bar{f}) = 0; \int \mathrm{d}\theta\mathrm{d}p\,\bar{f} = 1\right).$$
  - Eq. (9.55) should read
  $$\delta s_{LB} - \frac{\beta}{\omega f_0}\delta h - \frac{\lambda}{\omega f_0}\delta P - \frac{\mu}{\omega f_0}\delta\left(\iint \mathrm{d}\theta\mathrm{d}p\,\bar{f}\right) = 0,$$

- p. 223
  - Eq. (10.11) should read
  $$\Delta\phi(\mathbf{r},t) = 4\pi\mathcal{G}mn(\mathbf{r}).$$
  - Eq. (10.12) should read
  $$\phi(\mathbf{r},t) = -\mathcal{G}\int \mathrm{d}\mathbf{r}'\,\frac{mn(\mathbf{r}')}{|\mathbf{r}-\mathbf{r}'|}.$$
  - Eq. (10.16) should read this
  $$\frac{1}{r^2}\frac{\mathrm{d}}{\mathrm{d}r}\left(r^2\frac{\mathrm{d}\phi}{\mathrm{d}r}\right) = 4\pi\mathcal{G}mB\exp(-\beta m\phi).$$
- p. 224
  - the definition should be $B = A(2\pi m/\beta)^{3/2}$.
  - the definition should be $r_1 = (4\pi\mathcal{G}mn_0\beta)^{1/2}\ r$.
- p. 289, Eq. (13.4) should read
  $$f_e(\mathbf{r},\mathbf{v}) = A'\exp\left(-\frac{\frac{1}{2}mv^2 - e\phi(\mathbf{r})}{k_BT}\right).$$
- p. 294
  - in Eq. (13.27), the subscript i in the definition of the $E_0(\mathbf{r}_i,t)$ has to be removed so that equation should read
  $$\begin{aligned}\frac{\partial f_0^s(\mathbf{r},\mathbf{v},t)}{\partial t} + \mathbf{v}\cdot\nabla_{\mathbf{r}}f_0^s(\mathbf{r},\mathbf{v},t) &+ \frac{q_s}{m_s}(\mathbf{E}_0(\mathbf{r},t) + \mathbf{v}\times\mathbf{B}_0(\mathbf{r},t))\cdot\nabla_{\mathbf{v}}f_0^s(\mathbf{r},\mathbf{v},t)\\ &= -\frac{1}{N}\frac{q_s}{m_s}\langle(\delta\mathbf{E} + \mathbf{v}\times\delta\mathbf{B})\cdot\nabla_{\mathbf{v}}\delta f^s(\mathbf{r},\mathbf{v},t)\rangle.\end{aligned}$$
  - in Eq. (13.28), the subscript i in the definition of the $E_0(\mathbf{r}_i,t)$ has to be removed, so that equation should read
  $$\frac{\partial f_0^s(\mathbf{r},\mathbf{v},t)}{\partial t} + \mathbf{v}\cdot\nabla_{\mathbf{r}}f_0^s(\mathbf{r},\mathbf{v},t) + \frac{q_s}{m_s}(\mathbf{E}_0(\mathbf{r},t) + \mathbf{v}\times\mathbf{B}_0(\mathbf{r},t))\cdot\nabla_{\mathbf{v}}f_0^s(\mathbf{r},\mathbf{v},t) = 0,$$
- p. 302, the first line should be modified as
  "where $\phi_{\max} = E_0/k$ is the maximum of the potential."