Corrections

(May 22, 2009)

8, -10, Rubinstein
106, 5, $N \geqslant 0$
207, 4, $\mu_1(B_i^{(n)})\mu_2(B_j^{(n)}) \longrightarrow \tilde{\mu}(B_i^{(n)} \times B_j^{(n)})$
258, -6, $(D, \mathscr{D}(D))$
271, 10, Section 6.4, ... Lemma 6.21 is due to
271, -12, is taken
343, 11, Corollary 6.62
349, 8, in the definition of $\widetilde{\mathscr{W}}$, add "$w \in L^2(\pi)$ if $k = \infty$"
391, -11, random field
391, -8,

$$p_{V+t}(\bar{x}_{(V+t)^c}, dx_{V+t}) = p_V((\theta_t \bar{x})_{V^c}, dx_V), \quad t \in \mathbb{Z}^d,\ \theta_t \bar{x} := (\bar{x}_{s-t} : s \in \mathbb{Z}^d),$$

391, -7, suppose
392, 4, remove "for every $\delta > 0$"
472, add condition "Ψ is locally bounded" in the statement of Lemma 13.6.
473, the proof of Lemma 13.6 is replaced by

Proof: We consider the integral form in (13.9) only since the differential form can be reduced to the integral one. Suppose first that equality in (13.9) holds. Define $Y = \int_0^\bullet \Psi W^* ds$. Then Y is absolutely continuous. By (13.9), we obtain $Y' - \Psi Y = \Psi\Phi$. Set $Z = \exp\big[-\int_0^\bullet \Psi ds\big] Y$. Then $Z' = \exp\big[-\int_0^\bullet \Psi ds\big]\Psi\Phi$. Noticing $Z(0) = 0$ and the absolute continuity of Z, we see that

$$Z(t) = \int_0^t \exp\left[-\int_0^s \Psi(\xi)d\xi\right]\Psi\Phi ds.$$

Next, by definition of Z and the exchangeability of $\Psi(s)\Psi(t)$, we have

$$Y(t) = \int_0^t \exp\left[\int_s^t \Psi(\xi)d\xi\right]\Psi\Phi ds.$$

Thus, by definition of Y and equality (13.9), we get

$$\begin{aligned} W^*(t) &= \Phi(t) + \int_0^t \exp\left[\int_s^t \Psi(\xi)d\xi\right]\Psi(s)\Phi(s)ds \\ &= \Phi(t) - \int_0^t \left(\frac{d}{ds}\exp\left[\int_s^t \Psi(\xi)d\xi\right]\right)\Phi(s)ds. \end{aligned}$$

This proves the equality assertion.

To compare W with W^*, without loss of generality, assume that $c < \infty$. Define operators A and B on the space of nonnegative functions: $AW = \int_0^{\bullet} \Psi W ds$, $BW = \Phi + AW$. Since $\Psi \geqslant 0$, B is order-preserving. By (13.9) and induction, we have $W \leqslant B^n W$. Next, since Ψ is bounded on $[0, c]$, the spectral radius $r(A) = 0$. Therefore $A^n \to 0$ and

$$B^n W = \sum_{k=0}^{n-1} A^k \Phi + A^n W \to (I - A)^{-1}\Phi = W^* \qquad \text{as } n \to \infty,$$

since W^* is the unique fixed point of B. ■

476, -10, $\mathscr{L}ip(E) \longrightarrow \mathscr{L}ip(E_0)$

477, -3 ~ -6 is replaced by

$$\begin{aligned} P(t)P(s)f(x) &= \lim_{n\to\infty} P_n(t)P(s)f(x) \quad \big(\text{since } x \mapsto P(s)f(x) \text{ is continuous}\big) \\ &\overset{(\varepsilon)}{=} \lim_{n\to\infty} \int_{E_0^N} P_n(t,x,dy)P(s)f(y) \quad \big(\text{by (13.14)}\big) \\ &\overset{(\varepsilon)}{=} \lim_{n\to\infty} \lim_{m\to\infty} \int_{E_0^N} P_n(t,x,dy) \int_{E^{\Lambda_m}} P_m\big(s, y^{\Lambda_m}, dz\big) f(z) \\ &\qquad\qquad \big(\text{by (13.12)}\big) \end{aligned}$$

478, -8, $\rho_u\big(x_u^{(m)}, x_u\big) \longrightarrow \rho_u\big(x_u^{(n)}, x_u\big)$

479, (13.17), $x_1, x_2 \in E_0$

479, -1, lim $\longrightarrow$ sup, $c_{uv} \longrightarrow c_{uv}^+$. Actually, it is better to use $c_{uv}^+ = c_{uv} \vee 0$ instead of $|c_{uv}|$ throughout this chapter.

485, -10, $\Omega P(s) \longrightarrow \Omega P(t)$

492, -5,

$$\begin{aligned} &c_2' p_w(x,y) + \bigg[c_2''\bigg(1 - p(w,w) - \sum_{v\notin\Lambda_n} p(w,v)\bigg) - c\,p(w,w)\bigg] \\ &\longrightarrow \bigg\{c_2' + \bigg[c_2''\bigg(1 - p(w,w) - \sum_{v\notin\Lambda_n} p(w,v)\bigg) - c\,p(w,w)\bigg]\bigg\} p_w(x,y) \end{aligned}$$

494, 1, $E_m \subset E_0 \longrightarrow E_m \subset E_{00}$ is dense in E_0 with respect to p

498, -8, $\overline{K}_3' \longrightarrow \overline{K}_2'$

498, -5, $\Omega(\|\cdot\|_m)(x) \longrightarrow \int q(x,dy)\|y - x\|_m$

499, 6, $N^1 = N^1(m) \longrightarrow N^1$

499, 7, $N^2 \longrightarrow N^2 = N^2(m)$

499, 13, $x_u < N - 1 \longrightarrow x_u \leqslant N - 1$

500, -14, $(s,x) \in H_n \longrightarrow x \in H_n$

502, $8 \sim 12$, $c_2 \longrightarrow c_2 + cM$

503, -9, $\delta_1 \longrightarrow \beta_{m_0}$

507, -5, $|P(t)f(x) - P(t)f(y)| \longrightarrow |P(t)f(x^{(1)}) - P(t)f(x^{(2)})|$

515: 3, 16; 519: -6; 524: -2; 534: -1 $\mathscr{L}ip(E_0)(E_0) \longrightarrow \mathscr{L}ip(E_0)$

518. Remove the last sentence "for every ..." in each assertion of Theorem 14.3.

518, -6, $P_n(t,x,\cdot) \longrightarrow P^\Lambda(t,x,\cdot)$

526, 10, (14.19)$\longrightarrow$(14.20)

527, 11, (12.24)$\longrightarrow$(14.24)

531, 7-11, replace all $\rho(X-Y)$ by $\rho(X,Y)$

535, -6, $f = \sum_{y' \in \mathbb{Z}_+} \longrightarrow f = \sum_{y' \in E}$

547, Lemma 15.9, $\leqslant 80/81$

558, 19, $x^3 + px^2 + q = 0 \longrightarrow x^3 + px + q = 0$

562, -6, replace the first sentence by "Since we can couple the components of the simple random walk independently by Example 5.50,"

563, 4, $\mathbb{P}^u[T_0 > t] \leqslant C/\sqrt{t}$. To see this, we need only to modify the above coupling in the case of $|u_1 - u_2| = 1$ as follows

563, 11, $\widetilde{\mathbb{P}}^{0,1}[T > t, \tilde{\tau}_1 \leqslant t] \longrightarrow \widetilde{\mathbb{P}}^{0,1}[T > t, \tilde{\tau}_1 \geqslant t]$

563, 12, $\mathbb{P}^2 \longrightarrow \mathbb{P}^1$

563, 13, $\mathbb{P}^2[T_0 > t] \longrightarrow \mathbb{P}^u[T_0 > t]$

573, 18, **25** no. 2, 136–166

573, -19, **30**A no. 2,

573, -3, **28** no. 2,

574, 3, replace the item "Chen, M.F. (1991g)" by the following.

Chen, M. F. (1992), *Stochastic processes from Yang-Mills lattice field*, in "Prob. and Stat. (Tianjin, 1988/1989)", Z.P.Jiang, S.J.Yan, P.Cheng & R.Wu (Eds.), 23–31, Nankai Ser. Pure Appl. Math. Theoret. Phys., World Sci. Publ.

574, 10, On the ergodic region

574, 17, **42** no. 23, 2465

574, -18, **87** no. 2,

575, 17, replace the item "Chen, M. F., Huang, L. P. and Xu, X. J. (1991)" by the following.

Chen, M. F., Huang, L. P. and Xu, X. J. (1992), *Continuum limit for reaction diffusion processes with several species*, in "Prob. and Stat. (Tianjin, 1988/1989)", Z.P.Jiang et al (Eds.), 23–31, Nankai Ser. Pure Appl. Math. Theoret. Phys., World Sci.

575, -24, **95** no. 3

575, -8, **26**A

576, 8, LNM 1501, Springer, 1991

576, 17, **2** no. 1

577, 25, Comm. Math. Phys. 104 no.1, 87–102.
580, 4 $\sim$ 13,

Hou, Z. T. and Chen, M. F.(1979a), *Markov processes and field theory*, in "Reversible Markov Processes" (in Chinese), edited by M. Qian and Z. T. Hou, 194–242.

Hou, Z. T. and Chen, M. F.(1979b), *On strong Markov property* (in Chinese), Journal of Railway Science and Engineering. no. 1, 1–6.

Hou, Z. T. and Chen, M. F.(1979c), *Some examples of symmetrizable Q-processes* (in Chinese), Journal of Railway Science and Engineering. no. 4, 9–20.

Hou, Z. T. and Chen, M. F.(1980a), *Markov Processes and field theory* (Abstract), Kuoxue Tongbao **25** no. 10, 807–811.

Hou, Z. T. and Chen, M. F.(1980b), *On the symmetrizability of a class of Q-processes* (in Chinese), J. Beijing Normal Univ. no. 3/4, 1–12.