

ANNALES DE L'INSTITUT FOURIER

K. L. CHUNG

K. MURALI RAO

Erratum : A new setting for potential theory (part 1)

Annales de l'institut Fourier, tome 30, n° 3 (1980), p. 1-2 (feuilles volantes)

http://www.numdam.org/item?id=AIF_1980__30_3_0_0

© Annales de l'institut Fourier, 1980, tous droits réservés.

L'accès aux archives de la revue « Annales de l'institut Fourier » (<http://annalif.ujf-grenoble.fr/>) implique l'accord avec les conditions générales d'utilisation (<http://www.numdam.org/conditions>). Toute utilisation commerciale ou impression systématique est constitutive d'une infraction pénale. Toute copie ou impression de ce fichier doit contenir la présente mention de copyright.

NUMDAM

Article numérisé dans le cadre du programme
Numérisation de documents anciens mathématiques

<http://www.numdam.org/>

Annales de l'Institut Fourier

ERRATUM

"A NEW SETTING FOR POTENTIAL THEORY (part 1)"

Article paru dans le tome 30 (1980), fascicule 3, pp. 167-198

Mémoire de K. L. CHUNG & K. MURALI RAO

On p. 181, (26) should read as follows :

$$(26) \quad P_G P_K = P_K .$$

Proof that (a) \Rightarrow (b) should be revised as follows.

Suppose Z is polar and K be given. Let L be compact, $L \subset K \cap Z^c$. By Proposition 1 of §1, there exists h such that $h > 0$ everywhere and $Uh \leq 1$. Let $s = P_K Uh$, then $s = \lim_n P_{D_n} Uh$ where $D_n \uparrow K$. By Corollaries 1 and 4 of Theorem 2 (continued), we have

$$P_{D_n} Uh = U\mu_n, \quad \mu_n \subset \overline{D_n}, \quad \mu_n(Z) = 0 .$$

Hence $s = \lim_n U\mu_n$, and $U\mu_n \leq P_{D_n} Uh < \infty$ for all n . Apply Theorem 2 (continued) under (c₁) to obtain $\{\mu_n\}$ converging vaguely to μ , such that $s = U\mu$ and $\mu(Z) = 0$, the last assertion by (b) of Theorem 2. We have $\mu \subset K$ by vague convergence. Thus

$$s = U\mu, \quad \mu \subset K, \quad \mu(Z) = 0 ,$$

and therefore $s = W\mu$. For any (open) $G \supset K$, we have then

$$P_G s = P_G W\mu = W\mu = s$$

where the second equation is due to the round property of w and the fact μ is supported by $K \subset G$. Thus by the argument on p. 70 of [5] :

.../...

$$0 = P_K U h - P_G P_K U h \geq E \left\{ \int_{T_K}^{T_G + T_K \circ \theta} h(X_t) dt ; T_G = T_K ; X(T_G) \in K \setminus K^r \right\}$$

which implies that

$$\forall x : P^x \{ T_G = T_K ; X(T_G) \in K \setminus K^r \} = 0 .$$

This implies easily that for any $f \in b\mathcal{E}_+$:

$$P_G P_K f = P_K f$$

which is (26).

N.B. The mistake was to suppose that $P_G P_K 1 = P_K 1$ implies $P_G P_K = P_K$. This was partly caused by a statement on p. 71 of [5] which apparently asserts that $P_G P_K \leq P_K$ in general. Dellacherie gave a trivial counter-example to the last assertion, which is left as an exercise.

 First display on p. 168 should read :

$$\lim_{t \rightarrow \infty} P^x \{ T_K \circ \theta_t < \infty \} = 0 .$$
