

## EXTENSIONS OF FATOU'S INEQUALITY

LIVIU C. FLORESCU

*Abstract.* Using some compacity techniques in the space of integrable functions we obtain an expression of the gap in the Fatou's inequality. Also, we derived as corollaries some results of H.-A. Klei.

*Mathematics subject classification (2000):* 28A20, 46E30.

*Key words and phrases:* Young measures, biting lemma, modulus of uniform integrability.

## REFERENCES

- [1] BROOKS, J. K. AND CHACON, R. V., *Continuity and compactness of measures*, Adv. Math., **37** (1980), 16–26.
- [2] FLORESCU, L. C.,  $w^2$  – Pseudouniformities and biting lemma, Boll. Un. Mat. Ital. A (7) 7-A (1993), 87–96.
- [3] FLORESCU, L. C., Weak compactness results on  $L^1$ , An. Ştiinț. Univ. Al. I. Cuza Iași Mat. (N.S.), t.XLV, f.1 (1999), 75–86.
- [4] FLORESCU, L. C. ET GODET-THOBIE, C., Quelques propriétés des mesures de Young, An. Ştiinț. Univ. Al. I. Cuza Iași Mat. (N.S.), t.XLVI, f.2 (2000), 393–412.
- [5] KLEI, H.-A., Measure convergent sequences in Lebesgue spaces, Bull. Austral. Math. Soc. **54** (1996), 197–202.
- [6] KLEI, H.-A., Fatou's identity and Lebesgue's convergence theorem, Proc. A.M.S. **127** (1999), 2297–2302.
- [7] ROSENTHAL, H. P., Sous-espaces de  $L^1$ , Lectures Univ. Paris VI (1979).
- [8] SAADOUNE, M. AND VALADIER, M., Extraction of a “good” subsequence from a bounded sequence of integrable functions, J. Convex Anal. **2** (1995), 345–357.
- [9] VALADIER, M., A course on Young measures, Rend. Istit. Mat. Univ. Trieste, XXVI (1994), Supplemento, 349–394.