

LOWER SEMICONTINUITY AND RELAXATION RESULTS IN BV FOR INTEGRAL FUNCTIONALS WITH BV INTEGRANDS

M. AMAR, V. DE CICCO, AND N. FUSCO

ABSTRACT. New L^1 -lower semicontinuity and relaxation results for integral functionals defined in $BV(\Omega)$ are proved, under a very weak dependence of the integrand with respect to the spatial variable x . More precisely, only the lower semicontinuity in the sense of the 1-capacity is assumed in order to obtain the lower semicontinuity of the functional. This condition is satisfied, for instance, by the lower approximate limit of the integrand, if it is BV with respect to x . Under this further BV dependence, a representation formula for the relaxed functional is also obtained.

KEYWORDS: Semicontinuity, Relaxation, BV functions, Capacity.

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DIPARTIMENTO DI METODI E MODELLI MATEMATICI, UNIVERSITÀ DI ROMA “LA SAPIENZA”, VIA A. SCARPA 16, 00161 ROMA, ITALY

E-mail address: amar@dmmm.uniroma1.it

DIPARTIMENTO DI METODI E MODELLI MATEMATICI, UNIVERSITÀ DI ROMA “LA SAPIENZA”, VIA A. SCARPA 16, 00161 ROMA, ITALY

E-mail address: decicco@dmmm.uniroma1.it

DIPARTIMENTO DI MATEMATICA E APPLICAZIONI, UNIVERSITÀ DI NAPOLI “FEDERICO II”, COMPLESSO DI MONTE SANT’ANGELO, VIA CINTIA, 80126 NAPOLI, ITALY

E-mail address: nicola.fusco@unina.it