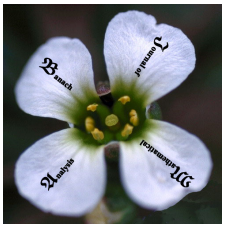

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Σ-CONVERGENCE

GABRIEL NGUETSENG[1] AND NILS SVANSTEDT[2*]

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Abstract. We discuss two new concepts of convergence in L^p-spaces, the so-called weak Σ-convergence and strong Σ-convergence, which are intermediate between classical weak convergence and strong convergence. We also introduce the concept of Σ-convergence for Radon measures. Our basic tool is the classical Gelfand representation theory. Apart from being a natural generalization of well-known two-scale convergence theory, the present study lays the foundation of the mathematical framework that is needed to undertake a systematic study of deterministic homogenization problems beyond the usual periodic setting. A few homogenization problems are worked out by way of illustration.

[1] University of Yaounde 1, Department of Mathematics, P. O. Box 812 Yaounde, Cameroon.
E-mail address: nguetseng@uy1.uninet.cm

[2] University of Gothenburg, Department of Mathematical Sciences, SE-412 96 Gothenburg, Sweden.
E-mail address: nilss@chalmers.se

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* Corresponding author.
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