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The asymptotic behavior of certain power-law functionals involving variable exponents is studied in the framework of Mosco convergence. The convergence results are applied to model the growth of sandpiles in which the allowed slope of the sand depends explicitly on the position in the sample. Joint work with M. Mihailescu, M. Perez-Llanos, and J.D. Rossi. (Received September 21, 2010)