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Sommario/riassunto	Long description: In the calculus of variations, the goal is to explore extrema of a given integral functional. From origins of the problem, it might be expected that the functional can be adequately simplified by neglecting some small quantities. A way to rigorously justify such an approximation is the Gamma-convergence that ensures convergence of corresponding (global) extrema. The main motivation of this work is to investigate properties of doubly indexed integral functionals that Gamma-converge for one index fixed. In other words, for two possible approximations we would like to determine whether we may perform them consecutively and if they commute. Our examples are taken from material science with homogenization being one of these two processes. In the first part we are considering a setting related to the elastic regime. However, our assumptions are fairly general and allow for applications in different areas. The second part is devoted to problems in the Hencky plasticity. They are considerably different due to special growth properties of the density.