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1003-49-1447 **Daniel Vasilii*** (dvasiliu@math.msu.edu), A327 Wells Hall, Department of Mathematics, Michigan State University, East Lansing, MI 48824, and **Baisheng Yan**. *A restricted lower semicontinuity problem with linear constraints.*

For problems relevant to solid-solid phase transitions in the Material Science one can model the so called microstructure through Young measures. In these situations it is important to study the sequences satisfying

$$\text{dist}(Du_k(x), K) \rightarrow 0 \tag{1}$$

for almost every $x \in \Omega$ where $\Omega \subset \mathbb{R}^n$ and $K \subset \mathbb{M}^{n \times n}$. The condition (1) is equivalent to the fact that the associated Young measure is being supported on the set K . It is very useful in practice to study the weak lower semicontinuity of functionals $I(u) = \int_{\Omega} f(Du)dx$ along sequences u_k satisfying constraints like (1) for a given set K . We studied this problem with the set K being a linear subspace \mathcal{L} which satisfies a certain constant dimension condition. We proved that the weak lower semicontinuity of the functional I restricted only to sequences whose gradients approach the linear subspace \mathcal{L} is equivalent to a generalized version of quasiconvexity which we call \mathcal{L} -quasiconvexity. (Received October 05, 2004)