On the regularity of minimizers of multiple integrals

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We show that the singular set of a Lipschitzian minimizer of a general quasiconvex integral is uniformly porous. Consequently its Hausdorff dimension is strictly smaller than the space dimension. The proof of porosity is based on a Carleson type estimate for the excess. In turn, this estimate is a consequence of a Caccioppoli inequality and general properties of Sobolev maps. Finally, we discuss the situation for minimizers of general convex integral functionals, where a variational difference-quotient method can be used to prove higher differentiability. The talk is based on joint work with Giuseppe Mingione (University of Parma).