Hedging in a Degenerate Market Model

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We review the recent developments in Malliavin calculus for degenerate diffusions. An important application is the hedging portfolio in a semimartingale market model where the asset prices are diffusion processes with a singular volatility matrix. We first prove a version of the Clark-Ocone type formula for functionals of degenerate diffusions under an equivalent change of measure. Intermediate calculations are provided for the Gross-Sobolev type derivative of the payoff function in the case of exotic options. (Joint work with İ. Demirel and A.S. Üstünel, and supported by Tubitak Project No. 118F403).