Abstract: "On regularizing properties of non-degenerate Brownian noise in coupled FBSDE"

We apply the theory of decoupling fields, which was developed to study general forward-backward systems in a Brownian setting, to construct global solutions for a special class of coupled problems characterized by a non-degenerate noise component (in the martingale part of the forward equation) and some additional conditions. The non-degeneracy "regularizes" this problem, which is actually ill-posed if the noise component vanishes. We study this effect with purely stochatic methods, i.e. without making use of PDE theory. As an application we name various PDE, which can be reduced to FBSDE of this class via decoupling fields.