

One surveys here a few nonlinear diffusion models in image restoration and denoising with main emphasis on that described by nonlinear parabolic equations of gradient type. The well-posedness of the corresponding Cauchy problem as well as stability of the derived finite difference scheme is studied from perspectives of nonlinear semigroup theory. As a matter of fact, most of denoising PDE procedures existing in literature though apparently are efficient at the experimental level, are however mathematically ill posed and our effort here is to put them on more rigorous mathematical basis.