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*Computational Methods for Solving Inverse Problems in Imaging.*

Discrete linear and nonlinear inverse problems arise from many different imaging systems. These problems are ill-posed, which means, in most cases, that the solution is very sensitive to the data. Because the data usually contain errors produced by the different imaging system parts (e.g., cameras, sensors, etc.), robust and reliable regularization methods need to be developed for computing meaningful solutions. In many imaging systems, massive amounts of data are produced which makes the storage of data and the computational cost of the inversion process intractable. In this talk, we will look at different imaging systems, formulate the corresponding mathematical models, develop regularization methods, and show some numerical results. (Received August 30, 2020)