

# Optimal Sensor Placement for Data Assimilation Problems

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We consider optimal sensor placement for state and parameter estimation problems. This work is motivated by an engineering application, where the goal is to estimate the displacement in a certain point from temperature measurements. To make this estimation more robust, we simultaneously estimate uncertain parameters, to keep the model up-to-date. Therefore we use self-calibrating data assimilation techniques. The quality of the estimation depends strongly on the position of the measurement devices. We present optimal experimental design techniques for such data assimilation problems to obtain the optimal sensor positions. Numerical examples are included.

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