Statistica Sinica: Preprint
doi:10.5705/ss.202016.0209

Kennedy and O'Hagan (2001) propose a model for calibrating some unknown parameters in a computer model and estimating the discrepancy between the computer output and physical response. This model is known to have certain identifiability issues. Tuo and Wu (2016) show that there are examples for which the Kennedy-O'Hagan method renders unreasonable results in calibration. In spite of its unstable performance in calibration, the Kennedy-O'Hagan approach has a more robust behavior in predicting the physical response. In this work, we present some theoretical analysis to show the consistency of predictor based on their calibration model in the context of radial basis functions.