Higher order asymptotics for Generalized Fiducial Inference

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R. A. Fisher's fiducial inference has been the subject of many discussions and controversies ever since he introduced the idea during the 1930's. The idea experienced a bumpy ride, to say the least, during its early years and one can safely say that it eventually fell into disfavor among mainstream statisticians. However, it appears to have made a resurgence recently under various names and modifications. For example under the new name generalized inference fiducial inference has proved to be a useful tool for deriving statistical procedures for problems where frequentist methods with good properties were previously unavailable. Therefore we believe that the fiducial argument of R.A. Fisher deserves a fresh look from a new angle.

In this talk we investigate the properties of generalized fiducial distribution using higher order asymptotics and provide suggestions on some open issues in fiducial inference such as the choice of data generating equation.