

## **TUBULAR MODELLING APPROACH TO STATISTICAL METHOD FOR OBSERVATIONAL STUDIES**

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Information geometry has been successfully established the asymptotic theory in statistical inference incorporating basic notions of consistency, sufficiency, efficiency and so forth. However this is based on tacit assumptions for randomness or ignorability of missingness, or other types of incomplete observations, for which any theory is still under construction. In my talk I tackle the difficult problem at the presence of observational bias from non-randomness or non-ignorability. We have to consider a situation in which a true distribution is not always in a given statistical model  $M$ , so semiparametric modelling of a tubular neighbourhood enveloping  $M$  is given using the Kullback-Leibler divergence. As a result I will present a comprehensive discussion accommodating the conventional confidence interval into the present situation by doubling-the-variance rule (Copas and Eguchi, JRSSB, 2005).