Inference of biased models: a quasi-instrumental variable approach

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The research of this talk is motivated by variable selection for linear regression models who are not exactly sparse in the sense that the coefficients of the insignificant variables are not exactly zero. In this case, working models are often biased and thus consistent estimation and accurate prediction could not be expected. In this talk, a novel remodelling method is proposed to produce an unbiased model when quasi-instrumental variables are introduced. The root-n estimation consistency and the asymptotic normality can be achieved, and the prediction accuracy can be promoted as well. The performance of the new method is examined through simulation studies.