ADAPTIVE ESTIMATION OF FUNCTIONALS UNDER SPARSITY

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Adaptive estimation of functionals in sparse mean model and in sparse regression exhibits some interesting effects. This talk focuses on estimation of the $\ell_2$-norm and of the variance of the noise. In these problems, the ignorance of the noise level causes changes in the minimax optimal rates. Moreover, the form of the noise distribution also influences the optimal rate. For example, when adaptation to the noise level is considered the rates differ depending on whether the noise is Gaussian or sub-Gaussian without a precise knowledge of the distribution. Finally, for the sparse mean model, the sub-Gaussian rate cannot be attained adaptively to the noise level on classes of noise distributions with polynomial tails, independently on how fast is the polynomial decay. This is a joint work with O. Collier and L. Comminges.