Centrum Zastosowań Matematyki

Instytut Matematyczny Polskiej Akademii Nauk

zapraszają na

SEMINARIUM CZM

wspólne z

KONWERSATORIUM DLA DOKTORANTÓW

W piątek, 25 maja 2007 roku o godz. 15.00

w IM PAN, ul. Śniadeckich 8, sala 403 (IV piętro)

prof. Sergei Pereverzyev (Johann Radon Institute for Computational and Applied Mathematics (RICAM), Austria)

wygłosi wykład

Adaptive Regularization Algorithms in Learning Theory

(based on joint work with L. Rosasco and E. De Vito (Univ. Genova))

We investigate the problem of an adaptive parameter choice for regularization learning algorithms. In the theory of ill-posed problems there is a long history of choosing regularization parameters in optimal way without a priori knowledge of a smoothness of the element of interest. But known parameter choice rules cannot be applied directly in Learning Theory. The point is that these rules are based on the estimation of the stability of regularization algorithms measured in the norm of the space where unknown element of interest should be recovered. But in the context of Learning Theory this norm is determined by an unknown probability measure, and is not accessible.
In the talk we are going to present a new parameter choice strategy consisting in adaptive regularization performed simultaneously in a Hypothesis space and in a space equipped with an empirical norm. Both these spaces are accessible and a new parameter choice rule called the balancing principle can be used there. Then a parameter for the regularization in the inaccessible space is chosen as the minimal among the parameters selected for above mentioned accessible spaces. We prove that under rather mild assumptions such strategy guarantees an optimal order of the risk. Our analysis covers the capacity independent learning algorithms, but some capacity dependent results can be also obtained in a similar way. Before the presentation of the main results we will give a brief introduction to Statistical Learning Theory.

Wykład poprzedzi półgodzinne spotkanie przy kawie i ciastkach.

Organizatorzy