

SONDERKOLLOQUIUM ZUM 100. GEBURTSTAG  
VON OLGA TAUSSKY-TODD

Donnerstag, 18. Januar 2007

Beginn 17:15 Uhr

Raum B305

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**Olga Taussky-Todd's ideals – theory and applications**

In the early days of mathematical research, theory and applications were developed in parallel, and there was no clear separation of pure and applied mathematics. It seems that we are again going in this direction – but this was certainly not the case in the time of Olga Taussky-Todd, when the tendency was towards specialization, and separation of theoretical and applied research. Hence it is quite remarkable that Olga Taussky-Todd's research – algebra, number theory, numerical analysis – concerns both pure and applied questions. She did not consider these topics as distinct, she often used the same methods in algebra and in numerical analysis.

In this talk, we will recall a few ideas Olga Taussky-Todd was especially fond of, such as some connections between number fields, ideals and matrices. We then elaborate on a generalization of one of her ideas, that leads to the notion of “ideal lattices”. It will be showed that this notion is useful in algebraic number theory, in geometry of numbers, and in information theory. In particular, we will obtain some results concerning a conjecture of Minkowski, on Euclidean minima of number fields, and will construct some space-time codes adapted to the Rayleigh fading channel.