

**Wiener Biometrische Sektion
der Internationalen Biometrischen Gesellschaft
Region Österreich – Schweiz**

<http://www.meduniwien.ac.at/wbs/>

Einladung zum

Biometrischen Kolloquium

am Dienstag, dem 19. April 2011 um 15:00 Uhr (s.t.)

im Seminarraum (Ebene 3, Raum 88.03.513) des
Zentrums für Medizinische Statistik, Informatik und Intelligente
Systeme (CeMSIIS) der Medizinischen Universität Wien
Spitalgasse 23, 1090 Wien
(Plan siehe <http://www.muw.ac.at/cemsiis/allgemeines/anschrift/>)

Vortragender:

Prof. Frank Bretz (Novartis Pharma AG, Basel, CH):

Graphical approaches to multiple test procedures

und

On the efficiency of two-stage adaptive designs

In der Pause zwischen den beiden Vorträgen wird Kaffee und Kuchen bereitgestellt.

Wir freuen uns auf zahlreichen Besuch.

Georg Heinze
Präsident

Graphical approaches to multiple test procedures

Frank Bretz

Methods for addressing multiplicity are becoming increasingly more important and several multiple test procedures have been developed in the recent past that allow one to map the relative importance of different study objectives as well as their relation onto an appropriately tailored multiple test procedure, such as fixed-sequence, fallback, and gatekeeping procedures. In this presentation we focus on graphical approaches that can be applied to common multiple test problems, such as comparing several treatments with a control, assessing the benefit of a new treatment for more than one endpoint, and combined non-inferiority and superiority testing. Using graphical approaches, one can easily construct and explore different test strategies and thus tailor the test procedure to the given objectives of an experiment. The resulting procedures are represented by directed, weighted graphs, where each node corresponds to an elementary hypothesis, together with a simple algorithm to generate such graphs while sequentially testing the individual hypotheses. The presented methods will be illustrated with several case studies using the graphical user interface from the gMCP package in R, which is freely available on CRAN.

On the efficiency of two-stage adaptive designs

Frank Bretz

In this presentation we develop a method to investigate the efficiency of adaptive locally optimum designs from a theoretical point of view. We focus on two-stage adaptive designs, where after the first stage the accrued data is used to determine a locally optimum design for the second stage. Based on an explicit expansion of the information matrix, we compare the variance of the maximum likelihood estimates obtained from a two-stage adaptive design and a non-adaptive design. For several one-parameter models, we provide explicit expressions for the relative efficiency of these two designs, which is seen to depend sensitively on the statistical problem under investigation. In particular, we show that in nonlinear regression models with moderate or large variances the first stage sample size of an adaptive design should be chosen sufficiently large in order to address variability in the interim parameter estimates. These theoretical findings support the results of recent simulation studies conducted to compare adaptive designs in more complex situations.