

## Onderzoeksgroep: STATISTIEK

### A Identiteit van de deelnemende onderzoekers

Aerts Marc, Alonso Ariel, Beunckens Caroline, Bijmens Luc, Bogaerts Sofie, Bollaerts Kaatje, Braekers Roel, Bruckers Liesbeth, Burzykowski Tomasz, Buyse Marc, Callaert Herman, Callaert Kris, Cortiñas Abrahantas José, Creemers An, Duchateau Luc, Faes Christel, Geys Helena, Lin Dan, Haldermans Philippe, Hens Niel, Jacobs Tom, Jansen Ivy, Janssen Paul, Kadankova Tetyana, Laenen Annouschka, Legrand Catherine, Lesaffre Emmanuel, Litière Saskia, Maringwa John, Massonnet Goele, Molenberghs Geert, Namata Harriet, Pryseley Assam Nkouibert, Renard Didier, Serroyen Jan, Shkedy Ziv, Sotto Cristina, Straetemans Roel, Thijs Herbert, Tibaldi Fabian, Tilahun Eshete Abel, Valkenburg Dirk, Vandersmissen Veerle, Van Effelterre Thierry, Van Sanden Suzy, Van Steen Kristel, Veraverbeke Noël, Verbeke Geert, Wang Lichun, Weyler Joost, Wouters Kristien, Wouters Luc.

### B Titel(s) van het (de) onderzoeksproject(en)

- a. Mathematische statistiek
- b. Biostatistiek

### C Beschrijving van de ontwikkelde onderzoeksactiviteit(en) per project

- Research on statistical education (HC)
- Resampling methods (NV, PJ, Jan Swanepoel)
- Kernel estimators with reduced bias (NV, PJ, Jan Swanepoel)
- Relative hazard rate estimation for censored and left truncated data (NV, PJ, Ricardo Cao, Elisa Molanes)
- Conditional mean and median residual life (NV)
- Quantiles under dependent censoring (NV)
- Extension of the conditional Koziol Green model to dependent censoring (RB, NV)
- Conditional mixture model for censoring (RB, NV)
- Linear mixed models in population genetics (RB, Paul Markel)
- Fitting frailty models using Bayesian techniques (Catherine Legrand, Richard Sylvester, Vincent Ducrocq, Luc Duchateau, PJ)
- Heterogeneity in disease free survival among centers (PJ, Catherine Legrand, Richard Sylvester, Luc Duchateau, Patrick Therasse)
- Validation of prognostic indices (PJ, Catherine Legrand, Richard Sylvester, Luc Duchateau)
- Inference on the association parameter in copula models (PJ, GMa, TB)
- Diagnostics for association in survival models (PJ, GMa, TB, Luc Duchateau)
- Modeling infectious diseases (MA, ZS, GM, CF, NH, JC, KB, HN, Pierre Van Damme en Philippe Beutels (Universiteit Antwerpen), Frank Boelaert (European Food Safety Authority), Koen Mintiens en Stefan Roels (Centrum voor Onderzoek in de Dierengeneeskunde en Agrochemie), Dirk Berkvens (Instituut voor Tropische Geneeskunde), Patrick Cras (Universiteit Antwerpen), Claude Saegerman (Universiteit Luik), Peter Teunis en Jacco Wallinga (RIVM, Bilthoven))
- Microbioal risk assessment and food safety (MA, ZS, CF, JC, KB, HN, Koens Mintiens en Stefan Roels (Centrum voor Onderzoek in de Dierengeneeskunde en Agrochemie), Dirk

- Berkvens (Instituut voor Tropische Geneeskunde), Patrick Cras (Universiteit Antwerpen), Claude Saegerman (Universiteit Luik), Peter Teunis en Jacco Wallinga (RIVM, Bilthoven)
- Model selection (MA, NH, Jeffrey Simonoff (New York University))
  - Missing data (MA, GM, HT, NH, IJ, AC, Geert Verbeke, Mike Kenward (London School of Hygiene and Tropical Medicine))
  - Mixed models (MA, GM, JS, Geert Verbeke)
  - Medical diagnostic testing (MA, NH, Kostas Fokianos (University Cyprus), Frank Buntinx (K.U. Leuven))
  - Use of historical data (MA, CF, JM, HG)
  - Missing data and sensitivity analysis (GM, MA, HT, IJ, CB, CS, Geert Verbeke, Kristel Van Steen, Els Goetghebeur, Mike Kenward, Stijn Vansteelandt)
  - Missing data in clinical trials (GM, Mike Kenward, Raymond J Carroll, Craig Mallinckrodt, CB, IJ)
  - Pattern-mixture models (GM, HT, Mike Kenward, CB)
  - Surrogate markers (GM, TB, HG, FT, JC, AA, ZS, Tony Vangeneugden, Didier Renard, Christelle Darstein, PA, AT)
  - Neuron Synchronization (Carmen Cadarso, HG, GM, AA, CF)
  - Logistic mixed models in item response theory subject to incompleteness (GM, Geert Verbeke, Paul De Boeck, Yuri Goegebeur)
  - Models for discrete repeated measures (GM, Geert Verbeke, Tony Vangeneugden, AL)
  - Incomplete data in longitudinal surveys (GM, HT, VV)
  - Methods for clustered data (MA, HG, CF, GM)
  - Models for infectious diseases (MA, ZS, GM, NH)
  - Models for correlated survival times (GM, FT)
  - Methods for optimization in statistics (GM, Geert Verbeke, Iven Van Mechelen, Francis Tuerlinckx)
  - Methods of the analysis of microarray data (TB, SV, DL)
  - Methods of the analysis of proteomics data (TB, DV, KW)
  - Mixed-models for multivariate failure-time data (TB, JC, GMa, PJ)
  - Bootstrap for multivariate failure-time data (TB, GMa, PJ)
  - Validation of surrogate endpoints in multiple randomized clinical trials (TB, Marc Buyse)
  - Meta-analysis of clinical trials (TB, Marc Buyse)
  - Modelling prevalence and force of infection on case notification and serological data (NH, MA, ZS, KB, HN, Frank Boelaert)
  - A multivariate modelling approach for bivariate serological data (NH, MA, ZS, Pierre Van Damme, Philippe Beutels)
  - Incomplete data: indirect MNAR in the selection model framework (NH, HT)
  - Incomplete data: the EM-algorithm by the method of weights (NH, Kennedy Otvombe)
  - Model selection based on presmoothing (NH, MA, Jeffrey Simonoff)
  - Model selection for incomplete and design based samples (NH, MA, GM)
  - The Receiver Operator Characteristic Curve (NH, MA, Kostas Fokianos)
  - Analysis of infectious disease data, analysis of gene expression data (ZS)
  - Boundary problems for Lévy processes (TK, NV)
  - Normalization of micro-array data with linear mixed models (PH, ZS, SV)
  - Flexible modelling and fractional polynomials (CF, NH, MA, KB, ZS, Koen Mintiens, Frank Boelaert, Hans Laevens)
  - Penalized splines (CF, Luc Bijmens, Wim Lammers)
  - Model averaging estimator (CF, MA, HG)
  - Effective number of degrees of freedom (CF, GM, MA)
  - Longitudinal data. Nonlinear mixed models. Dose response models (RS)

- Longitudinal and missing data. LOCF/CC versus MAR. GLMM/(Weighted) GEE. Missing data models for categorical data (BRD, Dale-Dale). Selection versus pattern-mixture models for categorical data. Sensitivity analysis. Global vs local influence. Significance of highly influential subjects (IJ, GM, HT, CB, NH)
- Bioinformatics. Microarrays. Sequence alignment. Hidden Markov models. Gene-pathway findings (IJ, TB, Natalia Kwasnikowska, Kerstin Koch, Jan Van den Bussche, Frank Neven)
- Resampling schemes for frailty models (GMa, PJ, TB)
- Fitting frailty models via linear mixed models using model transformation (GMa, PJ, TB)
- Analysis of microarray data (SV, DL)
- Analysis of SAGE data (SV, DV, PH)
- PCR experiments (SV, DL)
- Analysis of nerve regenerative experiments (SV)
- Comparison of estimation procedures for multivariate frailty models (JC)
- Classification of drug based on sleeping behaviour data (JC)
- Spline models with a mixed effect formulation (JC)
- Classification techniques (JC)
- Linear flexible and mixture discriminant analysis (JC)
- Neural networks, support vector machine, trees and bagging and boosting methods (JC)
- Surrogate marker validation. Validation of psychiatric scales. Biomarkers validation (AA, SL, AL, GM, Didier Renard, Christelle Darstein)
- Biomarker selection using COFRADIC data: deconvolution and feature extraction for mass spectral serum profiles (DV, TB)
- Inference for misspecified GLM models (SL, AA, GM)
- Analysis of incomplete longitudinal study for IDDI (CB)
- Two SAS book chapters about incomplete data (CB)
- Microbial risk assessment and food safety. Estimation of risks over a plausible set of candidate models using frequentist model averaging techniques (HN, MA, CF)
- Analysis on experiment of Arabidopsis thaliana (DL, Ann Cuypers, Karen Smeets, Biomed)
- Breast cancer microarray experiment (DL, Luc Michiels, Biomed)
- Analysis on mass spectra data (DL, Luc Krols, Peakadilly NV, Belgium, DV, TB)
- Implementation of SAM in the microarray pipeline (DL, TB and Rudi Verbeek)
- Multivariate projection methods to explore microarray data (DL, Luc Bijmens, Luc Wouters)
- A microarray experiment in a factorial design (DL, TB, Pieter Peeters and Hinrich Goehlmann)
- Implementation of classification and gene selection methods in the microarray pipelines (DL, Rudi Verbeek)
- Application of SAM and Dunnett on a microarray experiment (DL, ZS, TB, Dhammika Amaratunga)
- Analysis of a dose response experiment (DL, ZS, An De Bondt and Hinrich Goehlmann)
- Biomarker of gene expression for a continuous response (DL, ZS, An De Bondt and Marc Hampson)
- Applying linear mixed models to estimate reliability in clinical trial data with repeated measurements. Extensions to categorical data. (AL, AA, GM, Tony Vangeneugden)
- Use of historical control studies in pre-clinical safety studies (JM)
- Flexible modelling using penalized splines (JM)
- Analysis of crossover studies (JM)
- Testing quality control: SAS macro for accuracy (PA)
- Automatic Poisson peak harvesting for high throughput identification (PA, TB, DV)
- Implementations in R (PA)

- Coordination of registration in Mental Health Care: Minimal Psychiatric Data. Research on the feasibility for a revised MPG registration instrument including information on waiting times, origin of the patient, patient satisfaction, workload, cooperation in care networks, efficacy, effectiveness and efficiency (AL, LB, GM)
- Registration in institutions for Sheltered Living in Limburg (AL)
- Registration of workload and waiting lists in ambulant community mental health care centers (AL, LB)
- Ontwikkeling van een methodologie voor kwantitatieve beoordeling van zoonotische risico's toegepast op het model Salmonella bij varkens (KB, MA, ZS, George Daube (UL), Lieven De Zutter (UGent), Koen Grijspeerdt (CLO), Koen Mintiens (CODA), Herman Van Oyen (WIV))
- Modeling of serial correlation in mixed-effects models (JS)
- Modeling multiple longitudinal profiles using mixed-effects models (JS)
- Discriminant analysis based on longitudinal profiles (JS)
- Surrogate marker validation (AT, JS, Luc Bijmens)
- Project vervanging van de census door administratieve databanken en enquêtes: aandachtspunten die van belang zijn bij het vervangen van administratieve databronnen door enquêtegegevens (VV)
- Aanpassing van de vragenlijst "de Veiligheidsmonitor" (gerechtelijke politie) en het vergelijken van de resultaten met de criminaliteitsstatistieken (VV)
- Analyses for SPIL-RPL (samenwerking Psychiatrische Initiatieven Limburg-Registratie Project Limburg) (LB, GM, AL, JS)
- Psychiatric epidemiology (LB, GM, AL, JS)
- Psychotropic drug classification based on sleep-waking behavior of rats: Fractional polynomial mixed models and random spline models to model the irregular longitudinal profiles of the rats. Linear, non-parametric and flexible discriminant analysis for classification (KW, GM, JC)

## **D Mededelingen van resultaten van het onderzoekswerk**

### **1 Doctoraats- en aggregaatsthesisen**

#### ***11 In de onderzoeksgroep behaalde doctoraten***

- 10 juni 2005: Niel Hens. "Non- and semi-parametric techniques for handling missing data". Supervisor: Marc Aerts. Co-supervisor: Geert Molenberghs
- 24 juni 2005: Ivy Jansen. "Flexible model strategies and sensitivity analysis tools for non-monotone incomplete categorical data" Supervisor: Geert Molenberghs. Co-supervisor: Marc Aerts
- 25 november 2005: Catherine Legrand. "Assessing heterogeneity in multicenter clinical trials using the frailty model". Supervisor: Paul Janssen. Co-supervisor: Luc Duchateau
- 20 december 2005: Kristel Van Steen. "Genomic screening methodology for common diseases and complex traits". Supervisor: Geert Molenberghs. Co-supervisor: Nan Laird, Harvard School of Public Health

#### ***12 (Co)promoties van doctoraten, niet behaald aan de UHasselt***

**Noël Veraverbeke**

23 juni 2005. Northwest University, Potchefstroom, Zuid Afrika. Ph.D. examiner voor Gerhard Koekemoer. "A new method for transforming data to normality with application to density estimation". (promotor: Jan Swanepoel)

11 juli 2005. University of La Coruña, Spain. Jurylid voor Amalia Jácome Pumar. "Presmoothed distribution and density estimation with censored data" (promotor: Ricardo Cao)

1 december 2005. University of Santiago de Compostela, Spain. Jurylid voor Juan Carlos Pardo Fernández. "Tests in nonparametric regression based on the error distribution" (promotor: Wenceslao González Manteiga)

**Geert Molenberghs**

23 november 2005. Universiteit Maastricht, Nederland. Ph. D. thesis committee of Bjorn Winkens. "Optimal design and analysis of clinical trials with repeated measures". (promotor: Martijn Berger)

**13 Lidmaatschappen van jury's van buitenlandse doctoraten****Noël Veraverbeke**

18 augustus 2005. Université catholique de Louvain. Jurylid voor Cédric Heuchenne. "Mean preservation in censored regression using preliminary nonparametric smoothing". (promotor: Ingrid Van Keilegom)

**14 Lidmaatschappen van jury's van binnenlandse doctoraten****2 Wetenschappelijke publicaties****Internationale wetenschappelijke publicaties****20 Gepubliceerde artikels in internationale tijdschriften (opgenomen in de JCR<sup>1</sup> of in een door de Onderzoeksraad erkende alternatieve tijdschriftenlijst)**

Braekers, R. and Veraverbeke, N. (2005). Bootstrapping the conditional survival function estimator in the partial Koziol-Green model. *Journal of Nonparametric Statistics*, 17, 299-318.

Braekers, R. and Veraverbeke, N. (2005). Cox's regression model under partially informative censoring. *Communications in Statistics - Theory and Methods*, 34, 1793-1811.

Braekers, R. and Veraverbeke, N. (2005). A copula-graphic estimator for the conditional survival function under dependent censoring. *Canadian Journal of Statistics*, 33, 429-447.

Janssen, P., Swanepoel, J. and Veraverbeke, N. (2005). Bootstrapping modified goodness-of-fit statistics with estimated parameters. *Statistics and Probability Letters*, 71, 111-121.

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<sup>1</sup> JCR : Journal Citation Reports (als afzonderlijke publicatie van de Science Citation Index en van de Social Sciences Citation Index, opgemaakt door het Institute for Scientific Information).

- Cao, R., Janssen, P. and Veraverbeke, N. (2005). Relative hazard rate estimation for right censored and left truncated data. *TEST*, 14, 257-280.
- Cao, R., López-de-Ullibarri, I., Janssen, P. and Veraverbeke N. (2005). Presmoothed Kaplan-Meier and Nelson-Aalen estimators. *Journal of Nonparametric Statistics*, 17, 31-56.
- Duchateau, L. and Janssen, P. (2005). Pairwise nonparametric equivalence tests in 3x3 crossover trails: should we adjust for period? *Statistics in Medicine*, 24, 1525-1536.
- Duchateau, L., Opsomer, G., Dewulf, J. and Janssen, P. (2005). The nonlinear effect (determined by the penalised partial likelihood approach) of milk-protein concentration on time to first insemination in Belgian dairy cows. *Preventive Veterinary Medicine*, 68, 81-90.
- Duchateau, L. and Janssen, P. (2005). Understanding heterogeneity in mixed, generalized mixed and frailty models. *The American Statistician*, 59, 143-146.
- Legrand, C., Ducrocq, V., Janssen, P., Sylvester, R. and Duchateau, L. (2005). A Bayesian approach to jointly estimate center and treatment by center heterogeneity in a proportional hazards model. *Statistics in Medicine*, 24, 3789-3804.
- Hens, N., Aerts, M., Molenberghs, G., Thijs, H. and Verbeke, G. (2005). Kernel weighted influence measures. *Computational Statistics and Data Analysis*, 48, 467-487.
- De Ridder, J., Molenberghs, G. and Aerts, C. (2005). Estimating stellar oscillation-related parameters and their uncertainties with the moment method. *Applied Statistics*, 54, 333-348.
- Molenberghs, G. (2005). Presidential Address: XXII International Biometric Conference, Cairns, Australia, July 2004: Biometry, biometrics, biostatistics, bioinformatics, ... *Bio-X. Biometrics*, 61, 1-9.
- Vangeneugden, T., Laenen, A., Geys, H., Renard, D. and Molenberghs, G. (2005). Applying concepts of generalizability theory on clinical trial data to investigate sources of variation and their impact on reliability. *Biometrics*, 61, 295-304.
- Katsambas, A., Abeck, D., Haneke, E., van de Kerkhof, P., Burzykowski, T., Molenberghs, G. and Marynissen, G. (2005). The effects of foot disease on quality of life: results from the Achilles Project. *Journal of the European Academy of Dermatology and Venerology*, 19, 191-195.
- Wouters, L., Göhlmann, H.W., Bijmens, L., Kass, S.U., Molenberghs, G. and Lewi, P.J. (2005). Response to "use of principal component analysis and of the GE-biplot for the graphical exploration of gene expression data". *Biometrics*, 61, 632-634.
- Jansen, I., Hens, N., Molenberghs, G., Aerts, M., Verbeke, G. and Kenward, M.G. (2005). The nature of sensitivity in missing not at random models. *Computational Statistics and Data Analysis*, 50, 830-858.
- Shkedy, Z., Molenberghs, G., Van Craenendonck, H., Aerts, N., Steckler, T. and Bijmens, L. (2005). A hierarchical binomial-Poisson model for the analysis of a cross-over design for correlated binary data when the number of trials is dose-dependent. *Journal of Biopharmaceutical Statistics*, 15, 225-239.
- Serroyen, J., Molenberghs, G., Verhoye, M., Van Meir, V. and Van der Linden, A. (2005). Dynamic manganese enhanced (DME) MRI signal intensity processing based on non-linear mixed modeling to study changes in neuronal activity. *Journal of the Agricultural, Biological, and Environmental Statistics*, 10, 170-183.
- Verbeke, G. and Molenberghs, G. (2005). Longitudinal and incomplete clinical studies. *Metron*, 63, 143-176.
- Shkedy, Z., Straetemans, R., Molenberghs, G., Desmidt, M., Vinken, P., Goeminne, N., Coussemont, W., Van den Poel, B. and Bijmens, L. (2005). Modeling anti-KLH ELISA data using two-stage and mixed effects models in support of immunotoxicological studies. *Journal of Biopharmaceutical Statistics*, 15, 205-223.

- Shkedy, Z., Vandersmissen, V., Molenberghs, G., Van Craenendonk, H. and Aerts, N., Steckler, T., and Bijmens, L. (2005). Behavioral testing of antidepressant compounds: an analysis of crossover design for correlated binary data. *Biometrical Journal*, 47, 286-298.
- Shkedy, Z., Aerts, M., Molenberghs, G., Beutels, P. and Van Damme, P. (2005). Modelling age-dependent force of infection from prevalence data using fractional polynomials. *Statistics in Medicine*, 00, 000--000.
- Vandenbroeck, P., Wouters, L., Molenberghs, G., Van Gestel, S., Bijmens, L. (2005). Teaching statistical thinking to life scientists - a case-based approach. *Journal of Biopharmaceutical Statistics*, 16, 61-75.
- Alonso, A., Molenberghs, G., Geys, H. and Buyse, M. (2005). A unifying approach for surrogate marker validation based on Prentice's criteria. *Statistics in Medicine*, 00, 000-000.
- Ombelet, W., Peeraer, K., De Sutter, P., Gerris, J., Bosmans, E., Martens, G., Ruysinck, G., Defoort, P., Molenberghs, G., Gyselaers, W. (2005). Perinatal outcome of ICSI pregnancies compared with a matched group of natural conception pregnancies in Flanders (Belgium): a cohort study. *Reproductive Biomedicine Online*, 11, 244-253.
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## Overige wetenschappelijke publicaties

### 25 Overige artikels

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- Veraverbeke, N. (2005). Nonparametric regression with censored data. In: *Liber Amicorum R. Delanghe*. Editors: F. Brackx and H. De Schepper. Academia Press, Gent, pp. 239-248 (ISBN 90-382-0853-7)

- Veraverbeke, N. (2005). Hazard rate estimation. In: *Encyclopedia of Statistical Sciences*, 2nd edition. Editors: S. Kotz, C.B. Read, N. Balakrishnan and B. Vidakovic. John Wiley (6p) (ISBN 0-471-15044-4)

- Molenberghs, G. (2005). Intention-to-treat. In: *Encyclopedia of Statistics in Behavioral Sciences*, Volume 2 (E-L), 928-929.

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## **26 Artikels in proceedings**

- Jansen, I., Beunckens, C., Molenberghs, G., Verbeke, G., and Mallinckrodt, C. (2005). Generally applicable modes of analyses for incomplete binary longitudinal clinical trial data. 2004 Proceedings of the American Statistical Association, Biopharmaceutical section [CD-ROM], Alexandria, VA: American Statistical Association, pp. 689-696.

- Mallinckrodt, C.H., Detke, M.J., Kaiser, C.J., Watkin, J.G., Molenberghs, G. and Carroll, R.J. (2005). Comparing methodologies for assessing onset of action in neuropsychiatric clinical trials. 2004 Proceedings of the American Statistical Association, Biopharmaceutical Section [CD-ROM], Alexandria, VA: American Statistical Association, pp. 772-781.
- Thijs, H., Molenberghs, G., Beunckens, C., Kenward, M.G., Mallinckrodt, C. and Carroll, R.J. (2005). Missing data: a sensitivity analysis. Proceedings of Quality of Life Symposium.
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- Faes, C., Hens, N., Aerts, M., Shkedy, Z., Geys, H., Mintiens, K., Laevens, H., Boelaert, F. (2005). Modelling the Herd-specific force of infection for BoHV-1: the influence of clustering. In: Proceedings of the Annual Conference of the Society for Veterinary Epidemiology and Preventive Medicine, Nairn, Scotland. (ISBN: 0-948073-69-1)
- Aerts, M., Bollaerts, K., Faes, C., Hens, N. and Shkedy, Z. (2005). Estimation of the force of infection and related parameters. In: Proceedings of the VEE-studiedag 2005. Diepenbeek, Belgium. R. Geers and J. Vanden heede (Eds). Vereniging voor Epidemiologie & Economie. (ISBN: 90-5989-088-4)
- Hens, N., Faes, C., Bollaerts, K., Aerts, M. and Shkedy Z. (2005). Estimating the force of infection from serological data: the impact of clustering, incomplete data and diagnostic uncertainty. In: Proceedings of the VEE-studiedag 2005. Diepenbeek, Belgium. R. Geers and J. Vanden heede (Eds). Vereniging voor Epidemiologie & Economie. (ISBN: 90-5989-088-4)

### ***27 Uitgaven van publicaties of proceedings als editor***

### ***28 Uitgaven van wetenschappelijke boeken***

- Burzykowski, T., Molenberghs, G., and Buyse, M. (2005). The evaluation of surrogate endpoints. New York: Springer-Verlag. ISBN: 0-387-20277-3
- Molenberghs, G. and Verbeke, G. (2005). Discrete Longitudinal Data. New York: Springer-verlag. ISBN 0-387-25144-8
- Dmitrienko, A., Molenberghs, G., Christy Chuang-Stein, J.L. and Offen, W.W. (2005). Analysis of Clinical Trial Data Using SAS: A Practical Guide. Cary: SAS Publishing. ISBN: 1-59047-504-6

## **3 Congressen en voordrachten**

### ***31 Organisatie van internationale wetenschappelijke congressen of zomerschool***

Workshop on "Current Trends and Recent Advances in Survival Analysis", International Livestock Research Institute, Addis Ababa, Ethiopia, 23-28 augustus 2005.  
Organisator: Paul Janssen.

Co-organisatoren: Noël Veraverbeke (UHasselt) en Luc Duchateau (Ugent).

QMMS Workshop (Quantitative Methods in Sociological Sciences) on "Theory and Practice in the Analysis of Longitudinal Data". Universiteit Hasselt, 5-14 oktober 2005. Organisatie van UHasselt en Universiteit van Southampton, UK.

Two-day course and 1-day workshop "Interval Censoring and Medical Applications", K.U.Leuven, 15-17 november 2005.

Organisatoren: Emmanuel Lesaffre (K.U.Leuven), Ingrid Van Keilegom (UCL) en Noël Veraverbeke (UHasselt).

### **32 Voordrachten op internationale wetenschappelijke congressen**

#### **Noël Veraverbeke**

12-13 mei 2005. Franqui Foundation Workshop, Brussels.

Modified goodness-of-fit statistics with estimated parameters. (13 mei)

13-15 juli 2005. ISNI 2005. International Seminar on Nonparametric Inference, La Coruña, Spain.

Extensions of the Kaplan-Meier estimator. (13 juli)

24-27 augustus 2005. Workshop Current Trends and Recent Advances in Survival Analysis, Addis Ababa, Ethiopia.

Drie voordrachten:

- Estimating survival distributions (24 augustus)
- Regression models for survival data (24 augustus)
- Multivariate data and copulas (25 augustus)

1-4 september 2005. International Workshop Statistical Modelling and Inference in Life Sciences, Potsdam, Duitsland. Nonparametric estimation of the survival function under dependent or partially informative censoring (1 september)

31 oktober - 4 november 2005. 52nd Annual Conference of the South African Statistical Association, Grahamstown, Zuid Afrika.

Drie voordrachten:

- Survival Analysis (31 oktober)
- Multivariate data and copulas (31 oktober)
- Estimation under dependent or partially informative censoring (4 november) (Keynote closing lecture)

#### **Paul Janssen**

24-27 augustus 2005. Workshop Current Trends and recent Advances in Survival Analysis, Addis Ababa, Ethiopia.

Twee voordrachten;

- Multivariate survival data and frailty densities (25 augustus)
- Semiparametric frailty models (27 augustus)

31 oktober - 4 november 2005. 52nd Annual Conference of the South African Statistical Association. Grahamstown, Zuid Afrika.

- Twee voordrachten:
- Parametric frailty models (31 oktober)
- Semiparametric frailty models (31 oktober)

### **Geert Molenberghs**

6-8 januari 2005. Seventh Annual Winter Workshop on Longitudinal Data Analysis. University of Florida, USA. The use of score tests for inference on variance components (8 januari)

7-11 augustus 2005. Joint Statistical meetings, Minneapolis, USA. Formal and informal mixed model selection when data are incomplete. (9 augustus)

10-13 mei 2005. Eastern Mediterranean Region Conference. EMR2005. International Biometric Society. Corfu, Greece. Sensitivity analysis tools for incomplete data (12 mei)

4-8 juli 2005. 48a Reunião Anual da RBRAS, Brazilian Region of the International Biometric Society Londrina, Brasil. Keynote opening lecture. Incomplete data in longitudinal trials (4 juli)

26-27 september 2005. Statistical Innovations in clinical Trials. Société française de Statistique Paris, France. Will genomics revolutionize clinical trials? (26 september)

12-14 oktober 2005. Scientific Meeting of the Argentinian Biometry Group (GAB2005). Corrientes, Argentina. Keynote address. Biometry, biometry, biostatistics, bioinformatics, ... Bio-X. (12 oktober)

26-28 oktober 2005. International Workshop on Statistical Methodology in Clinical and Nonclinical R&D. Drug Information Association. Nice, France. The statistical evaluation of surrogate endpoints in clinical trials (27 oktober)

9-11 november 2005. Meeting of the Central American and Caribbean Region of the International Biometric Society. La Habana, Cuba. Biometry, biometrics, biostatistics, bioinformatics, ..., Bio-X. (10 november)

9-16 december 2005. Meeting of the Sub-Saharan Network of the International Biometric Society. Addis Ababa, Ethiopia. Biometry, biometrics, biostatistics, bioinformatics, ..., Bio-X. (14 december)

### **Marc Aerts**

27 oktober - 1 november 2005. 3rd IASC World Conference on Computational Statistics and Data Analysis, CSDA, Limassol, Cyprus. Model selection based on presmoothing

### **Tomasz Burzykowski**

17-19 februari 2005. Euregional Conference on "Building Information Society in Healthcare in Euregion Niemen". Bialystok, Polen. New experimental techniques in genomics: challenges for data-management and analysis

16-17 juni 2005. Sixth International Seminar on Statistics and Clinical Practice. International Center of Biocybernetics, Warsaw, Polen. Performance of Classification methods in microarray setting

**Ziv Shkedy**

8-10 januari 2005. Euroconference of the Eastern Mediterranean Region of the IBS. Corfu, Greece. Contact pattern in age-structured population

3-17 september 2005. Mathematical Modelling of Infectious Diseases: Dynamics and Control. University of Singapore. Model based estimated of long-terms persistence of induced hepatitis A antibodies (invited speaker, 9 september)

3-17 september 2005. Mathematical Modelling of Infectious Diseases: Dynamics and Control. University of Singapore. Estimating the force of infection in serological data (invited speaker, 15 september)

**Roel Braekers**

20-22 mei 2005. Joint BeNeLuxFra Conference in Mathematics. Universiteit Gent. A non-parametric copula-graphic estimator for the conditional survival function under dependent censoring (invited speaker)

24-28 juli 2005. 25th European Meeting of Statisticians. Oslo, Norway. Nonparametric regression under a fixed design with a copula for the dependent censoring

**Suzy Van Sanden**

5-8 april 2005. IBS, Multi-Region conference. University of Leicester, UK. The use of background signal in transformation of cDNA-microarray measurements

**Ariel Alonso**

10-12 mei 2005. Eastern Mediterranean Region Conference. EMR2005. International Biometric Society. Corfu, Greece. Validation of surrogate markers in multiple randomized clinical trials with repeated measurements: canonical correlation approach

5-8 april 2005. IBS, Multi-Region Conference. University of Leicester, UK. Prentice's approach and the meta-analytic paradigm: a reflection on the role of statistics in the evaluation of surrogate endpoints (invited speaker)

**Saskia Litière**

10-12 mei 2005. Eastern Mediterranean Region Conference. EMR2005. International Biometric Society. Corfu, Greece. The impact of a misspecified random effects distribution on maximum likelihood estimation in generalized linear mixed models

**Niel Hens**

27 oktober - 1 november 2005. 3rd IACS World Conference on Computational Statistics and Data Analysis, CSDA, Limassol, Cyprus. Constrained flexible weighted generalized estimating equations

**Caroline Beunckens**

10-12 mei 2005. Eastern Mediterranean Region Conference. EMR2005. International Biometric Society. Corfu, Greece. A latent class mixture model for dealing with incomplete longitudinal data

**Jan Serroyen**

5-8 april 2005. IBS, Multi-Regional Conference. University of Leicester, U.K. Dynamic manganese enhanced MRI signal intensity processing based on on-linear mixed modelling to study changes in neuron activity

**Goele Massonnet**

21-26 augustus 2005. 14th European Young Statisticians Meeting. Debrecen, Hongarije. Parametric bootstrap schemes for frailty models (invited speaker)

**Tetyana Kadankova**

21-26 augustus 2005. 14th European Young Statisticians Meeting. Debrecen, Hongarije. Two-sided exit problem for general Lévy processes. Theory and application (invited speaker)

**Christel Faes**

5-8 april 2005. IBS, Multi-Regional Conference. University of Leicester, U.K. A GLMM approach to study the spatial and temporal evolution of spikes in the small intestines

**33 Voordrachten in het buitenland op uitnodiging van instellingen of organisaties****Noël Veraverbeke**

25 oktober 2005. University of Stellenbosch, Zuid Afrika. Conditional residual life under random censorship

27 oktober 2005. University of Witwatersrand, Johannesburg, Zuid Afrika. Conditional residual life under random censorship

28 oktober 2005. University of Kwazulu Natal, Durban, Zuid Afrika. Conditional residual life under random censorship

**Geert Molenberghs**

31 januari - 2 februari 2005. Erasmus Medical Center, Rotterdam, Nederland. Missing values in clinical research (met H. Thijs)

20 maart 2005. Spring Meeting of the Eastern North American Region, Austin, Texas, USA. Surrogate Marker evaluation

23 maart 2005. American Statistical Association Learn Stat Program, University of Maryland, USA. Mixed models and incomplete data (met G. Verbeke)

24 maart 2005. University of Michigan, Ann Arbor, MI, USA. The use of score tests for inference on variance components (met G. Verbeke)



26 maart 2005. University of Michigan, Ann Arbor, MI, USA. Longitudinal and incomplete data (met G. Verbeke)

12 april 2005. MONOLIC Research Group, Paris, France. Handling incomplete data in longitudinal studies

23 mei 2005. University of Glasgow, UK. The use of score tests for inference on variance components

25 mei 2005. University of Glasgow, UK. Handling incomplete data in longitudinal studies

1-3 juni 2005. Autonomous University of Catalonia, Barcelona, Spain. Longitudinal data, mixed models, and incomplete data (met G. Verbeke)

15-16 juni 2005. University of Neuchâtel, Switzerland. Incomplete Data.

5-7 juli 2005. 48a Reunião Anual du RBRAS, Brazilian Region of the International Biometric Society, Londrina, Brasil. Models for repeated discrete data.

7 augustus 2005. Joint Statistical Meetings, Minneapolis, MN, USA. Models for repeated discrete data (met G. Verbeke)

8 augustus 2005. Joint statistical Meetings, Minneapolis, MN, USA. Statistical methods in clinical trials (met Chuang-Stein C., Dmitrienko, A.)

11 oktober 2005. University of Buenos Aires, Argentina. The use of score tests for inference on variance components

12-14 oktober 2005. Annual Meeting of the Argentinian Region of the International Biometric society, Corrientes, Argentina. Introduction to longitudinal data analysis

19-21 oktober 2005. Heidelberg University, Germany. Longitudinal and incomplete data analysis (met G. Verbeke)

31 oktober 2005. North Carolina State University, North Carolina, USA. Formal and informal model selection when data are incomplete

1 november 2005. Duke University, North Carolina, USA. Formal and informal model selection when data are incomplete

### **Marc Aerts**

18 februari 2005. Instituto de Medicina Tropical "Pedro Kouri", La Habana, Cuba. Modelling infectious diseases and microbial risk assessment (Aerts, Shkedy)

18 november 2005. Food and Drug Administration, Rockville, MD, USA. Statistical evaluation of surrogate endpoints in clinical trials

13-13 december 2005. Conference of the Sub Saharan Network of the International Biometric Society, Addis Ababa, Ethiopia. Longitudinal and incomplete data (met G. Verbeke)

**José Cortiñas**

18-19 augustus 2005. CENCEC, La Habana, Cuba. Survival analysis

**Niel Hens**

2 november 2005. University of Cyprus, Nicosia, Cyprus. Applications of nonparametric techniques in infectious disease modelling and missing data (Aerts - Hens)

**Tomasz Burzykowski**

16 december 2005. EMEA/CHMP Biomarkers Workshop. London, UK. Numerical validation of biomarkers in oncology

**Ziv Shkedy**

18 februari 2005. Institute of Tropical Medicine 'Pedro Kouri', La Habana, Cuba. Analysis of infectious disease data: serology and longitudinal setting

**Helena Geys**

2005 Joint Meeting of the pathdata key users, New Jersey, USA. Statistical tests in pathdata and future needs.

12 mei 2005. Johnson & Johnson Seminar. Rariton, USA. Flexible modelling of correlated binary data for estimation of neuron firing rates and synchrony between neurons

**34 Presentatie van posters op internationale wetenschappelijke congressen****Niel Hens**

30 maart - 1 april 2005. Annual Conference of the Society for Veterinary Epidemiology and Preventive Medicine. Nairn, Scotland. Modelling the herd-specific force of infection for BoHV-1: the influence of missing data (Hens, Faes, Aerts, Shkedy, Geys, Mintiens, Laevens, Boelaert)

30 maart - 1 april 2005. Annual Conference of the Society for Veterinary Epidemiology and Preventive Medicine. Nairn, Scotland. Modelling the herd-specific force of infection for BoHV-1: the influence of clustering (Faes, Hens, Aerts, Shkedy, Geys, Mintiens, Laevens, Boelaert)

**Dan Lin**

5-8 april 2005. IBS. Multi-Region Conference. University of Leiceister, UK. Performance of classification methods in a microarray setting

8-9 september 2005. 7th Annual Johnson & Johnson Pharma Statistical Conference. Princeton, USA. Investigation and classification methods in microarray setting. (Lin, Straetemans, Van Sanden, Bijmens, Stubbs, Goehlmann, Burzykowski)

**Jan Serroyen**

8-9 september 2005. 7th Annual Johnson & Johnson Pharma Statistical Conference. Princeton, USA. Analysis of repeated time-to-event data in a delayed non-matching to position experiment

**Roel Straetemans**

29 augustus - 2 september 2005. 35th ICS Annual Meeting. Montréal, Canada. The NK1 antagonist R116301 induces a greater increase in bladder capacity compared to oxybutynin without affecting voiding efficiency (Moreaux, Van den Berg, Meulemans, Straetemans, Ver Donck, Coulie)

**Tomasz Burzykowski**

13-17 juli 2005. Annual meeting of the American Society for Clinical Oncology. Orlando, USA. Progression-free survival (PFS) as a surrogate for overall survival (OS) in patients with advanced colorectal cancer

8-10 december 2005. 28th Annual San Antonio Breast Cancer Symposium. San Antonio, USA. Effects of taxanes alone or in combination with anthracyclines on tumor response, progression-free survival and overall survival in first-line chemotherapy of patients with metastatic breast cancer: an analysis of 4,256 patients randomized in 12 trials

8-10 december 2005. 28th Annual San Antonio Breast Cancer Symposium. San Antonio, USA. A quantitative study of tumor response and progression-free survival as surrogate endpoints for overall in first-line treatment of metastatic breast cancer

**Ziv Shkedy**

5-8 april 2005. IBS Multi-Region Conference. University of Leicester, UK. Analysis of microarray data in dose-response setting: resampling based multiple testing

**Kristien Wouters**

8-9 september 2005. 7th Annual Johnson & Johnson Pharma Statistical Conference. Princeton, USA. Psychotropic drug classification based on sleep-waking behavior

**John Maringwa**

8-9 september 2005. 7th Annual Johnson & Johnson Pharma Statistical Conference. Princeton, USA. Two-group comparison in cardiovascular safety experiments using penalized splines

**Helena Geys**

8-9 september 2005. 7th Annual Johnson & Johnson Pharma Statistical Conference. Princeton, USA. Flexible modelling of correlated multivariate data with applications in toxicology studies

**4 Expert- en referee-opdrachten****41 Lidmaatschappen van editorial board van internationale tijdschriften****Noël Veraverbeke**

National correspondent voor International Association for Statistical Education (IASE)

**Paul Janssen**

Associate editor 'Statistica Neerlandica' (2003- )

**Geert Molenberghs**

Associate editor 'Biostatistics' (1999- )  
Wiley Series in Probability and Statistics Editor

**Marc Aerts**

Associate editor 'Biometrics'  
Associate editor 'Statistical Modelling'

**42 Referee-opdrachten van publicaties op aanvraag van editorial board van internationale tijdschriften**

**Noël Veraverbeke**

- Communications in Statistics (2)
- Bulletin Belgian Mathematical Society
- Scandinavian Journal of Statistics
- Statistical Papers
- Metrika
- Statistics
- ICOTS (2)
- Short Book Reviews (10)
- Mathematical Reviews (8)

**Paul Janssen**

- Annals of Statistics
- Journal of Applied Mathematics and Decision Sciences
- Journal of Nonparametric Statistics (3)
- Lifetime Data Analysis
- Statistica Neerlandica (Associate Editor: 4)
- ISNI Conference (5)

**Geert Molenberghs**

- Biostatistics (14)
- Biometrika (3)
- Biometrics
- Applied Statistics
- Journal of the Royal Statistical Society, Series B (3)
- Journal of the American Statistical Association (5)
- Lifetime Data Analysis
- Statistica Sinica
- Journal of Agricultural, Biological, and Environmental Statistics (2)
- Communications in Statistics (Theory and Methods) (4)
- Computational Statistics and Data Analysis (2)
- Acta Horticultura (3)
- Metrika
- Test
- Applied Psychological Measurement
- Psychological Methods
- Archives of General Psychiatry
- Biostatistics (Associate Editor: 14)
- Guest co-editor of a Springer book on statistical methods in health sciences (17)
- Book (SAS Publishing)

- Book Proposal (Wiley, as advisor, 5)

#### **Niel Hens**

- Biometrics
- Journal of Agricultural, Biological and Environmental Statistics

#### **Tomasz Burzykowski**

- Statistics in Medicine (2)
- Journal of Clinical Oncology (2)
- Bioinformatics
- Applied Statistics

#### **Ziv Shkedy**

- Computational Statistics and Data Analysis

#### **Marc Aerts**

- Biometrics
- Nonparametric Statistics
- Computational Statistics and Data Analysis

#### **Christel Faes**

- Journal of Agricultural, Biological and Environmental Statistics
- Computational Statistics and Data Analysis

#### **José Cortiñas**

- Journal of Agricultural, Biological and Environmental Statistics

#### **Roel Braekers**

- Journal of the Royal Statistical Society, Ser. B

#### **Ariel Alonso**

- Clinical trials

#### **Caroline Beunckens**

- Book review (Chapman & Hall)

#### **Ivy Jansen**

- Journal of Statistical Computation and Simulation

#### **Herbert Thijs**

- Social and Preventive Medicine (2)
- Journal of Agricultural, Biological and Environmental Statistics
- Biometrical Journal
- Pharmaco Economics
- Biostatistics

### **43 Referee-opdrachten van projecten, ingediend bij internationale onderzoeks-programma's**

#### **Noël Veraverbeke**

- Lid Commissie ZAP benoeming VUB (augustus 2005)
- Lid Commissie ZAP benoeming UCL (februari 2005)

#### **Geert Molenberghs**

- Faculty member promotion (UK: 1)
- Faculty member appointment (UK: 1)
- INSERM Visiting Group to Unité Thierry Moreau, France
- International Centre for Mathematical Sciences workshop
- Myrto Lefkopoulou Distinguished Lectureship Award 2005-2006, Harvard, Boston, U.S.A.
- Project proposal for "Agence Nationale de Recherche", Paris, France

#### **Niel Hens, Marc Aerts, Christel Faes**

- Organisatie VEE Studiedag, Diepenbeek 'Survey Methodology' 27 oktober 2005

#### **Herbert Thijs**

- Independent data monitoring committee for J&J PRD

### ***44 Lidmaatschappen van scientific committee van internationale congressen***

#### **Noël Veraverbeke**

- International Workshop Statistical Modelling and Inference in Life Sciences. 1-4 september 2005. Potsdam, Germany.

#### **Geert Molenberghs**

- Eastern Mediterranean Region Conference. EMR 2005. International Biometric Society. Corfu, Greece. 10-13 mei 2005
- Statistical Innovations in Clinical Trials. Société Française de Statistique. Paris, France. 26-27 september 2005

#### **Paul Janssen**

- International Seminar on Nonparametric Inference, La Coruña, Spain. 13-15 juli 2005

### ***45 Referee-opdrachten t.a.v. internationale congressen***

### ***46 Lidmaatschappen van wetenschappelijke commissies in binnen- en buitenland***

#### **Noël Veraverbeke**

- President van de Belgische Vereniging voor Statistiek (2002-2005)
- Lid van de Hoge Raad voor Statistiek (benoemd op 8 november 1998)
- Lid van het Wetenschappelijk Comité van de enquête 2001 (2001- )
- Lid van de Scientific Council van Eurandom, Eindhoven, Nederland (2004-2005)
- Lid van de stuurgroep van de FWO Wetenschappelijke Onderzoeksgemeenschap Wiskunde (1996- )
- Lid van de jury van de Vlaamse Wiskunde Olympiade (1985- )
- Vertegenwoordiger van FWO-Vlaanderen in de vergaderingen van Mathematics Representatives of the European Union (Paris 2003, Stockholm 2004, Berlin 2005)

- Jurylid Prijs Ontwikkelingssamenwerking (2005- )
- Verantwoordelijke voor het Outreach Programme van de Bernoulli Society (2005- )
- Expert voor het Federaal Kenniscentrum voor de Gezondheidszorg

#### **Geert Molenberghs**

- Lid van de Wetenschappelijke Commissie Wiskunde van het FWO (2003-2008)
- Lid van de Commissie voor International Wetenschappelijke Contacten van het FWO (2003-2008)
- President, Executive Committee Member of the International Biometric Society (2004-2005)

#### **Marc Aerts**

- Schatbewaarder Belgische Vereniging voor Statistiek (2005- )
- Expert voor het Federaal Kenniscentrum voor de Gezondheidszorg

#### **Paul Janssen**

- Vice president Belgische Vereniging voor Statistiek
- Lid van de VLIR-werkgroep Onderzoek
- Lid van de Vlaamse Raad voor Wetenschapsbeleid
- Voorzitter Onderzoeksraad UHasselt
- Voorzitter IOF-raad (IOF = Industrieel Onderzoeksfonds)

## **5 Verwerving van extern gefinancierde onderzoeksprojecten**

### ***51 Verwerving van onderzoeksprojecten als projectleider met internationale participatie***

#### **Paul Janssen**

Sponsoring van VLIR-UOS, Contract Number NICP2004NA005 voor nazorgactiviteiten. Current Trends and recent advances in survival analysis (in 2004: Nairobi, Kenya en in 2005: Addis Ababa, Ethiopia)

### ***52 Verwerving van onderzoeksprojecten als deelnemer met internationale participatie***

#### **Noël Veraverbeke en Paul Janssen**

MEC Grant MTM2005-00429 (Ministerio de Educación y Ciencia) (2005-2008)

'Modelling, testing and nonparametric inference: survival analysis, dependent data and applications'

Researcher in charge: Ricardo Cao, La Coruña, Spain

#### **Tomasz Burzykowski**

tUL Impuls fonds, Universiteit Maastricht.

'An integrated bioinformatics approach for the functional analysis of transcriptomic and proteomic expression data in nutritional studies'

Principal investigator: C. Evelo, Univ. Maastricht

Co-investigator: T. Burzykowski, UHasselt

### ***53 Verwerving van binnenlandse (nationaal of regionaal) onderzoeksprojecten***

**Marc Aerts, Christel Faes**

IWT post-doc grant "Advanced statistical models for the risk analysis of toxicity studies in the pharmaceutical industry" (1 april 2005 – 31 maart 2007). Onderzoeker: dr. Christel Faes

**Christel Faes**

FWO onderzoeksbeurs "Flexible mathematical and statistical models for microbiological risk assessment" (1 januari 2005 – 31 december 2008)

**Geert Molenberghs**

Consultant voor Janssen Pharmaceutica (1997-)

Consultant voor UCB (1999-)

Consultant voor Lilly (2000-)

Censtat dienstverlening: In 2005 werd gewerkt aan projecten voor ACHG Likar, Altana, Boehringer, Centrum voor Alcohol en Drugs, CBGS, CODA, Departement Biologie DWI, DWTC, E. Lilly, Federale Politie, FOD Volksgezondheid, IDDI, Janssen Pharmaceutica, Janssen-Cilag, Masterfoods, Ministerie van sociale zaken, volksgezondheid en leefmilieu, NIS, Peakadilly NV, Smithnephew, SPIL, UCB Pharma, VIRCO, Virga Jesse ZH, Vlaamse Gemeenschap, WIV, ZOL.

**6 Prijzen, vermeldingen, gerealiseerde toepassingen****6.1 Behaalde wetenschappelijke prijzen****Noël Veraverbeke**

- Official visitor (2005) of the South African Statistical Association (Awarded 23/05/2005)

**Geert Molenberghs**

- Mitchell Lectureship Recipient, University of Glasgow UK. Awarded 25/05/2005
- Excellence in Continuing Education Award of the American Statistical Association for Course on Longitudinal and Incomplete Data Analysis, presented by Verbeke, G. and Molenberghs, G. at the Joint Statistical Meetings, Toronto, Ontario, Canada (08/08/2004). Awarded in Minneapolis, U.S.A., 07/08/2005
- American Statistical Association (Biopharmaceutical Section), Best Contributed Paper Award (Mehrotra, D.V., Molenberghs, G. and Wolfinger, R.D.)
- Excellence in continuing Education Award of the American Statistical Association for Course on Analysis of Clinical Trials: Theory and Application, presented by Dmitrienko, A., Chuang-Stein, C., and Molenberghs, G. at the Joint Statistical Meetings; Minneapolis, Minnesota, U.S.A. (09/08/2005). Awarded in Seattle, Washington, U.S.A., 10/08/2006.

**Roel Braekers**

- Quetelet Prize 2004-2005 for an outstanding Master of Science in Biostatistics project 'Modelling ethanol – induced sleeping time in inbred strains of mice: a repeated measures design with left-censored data (supervision: Prof. dr. P. Markel)



**Saskia Litière**

- Quetelet Prize 2004-2005 for an outstanding Master of Science in Biostatistics

**Christel Faes**

- First prize Poster Competition at the Annual Conference of the Society for Veterinary Epidemiology and Preventive Medicine, Nairn, Scotland (30 maart – 1 april 2005)
- Hoofdprijs bij de 'Young Speakers' (onder 35 jaar) op de IBS Multi-Region Conference. University of Leicester, U.K. (5-8 april 2005)

**Harriet Namata**

- Quetelet Prize, 2004-2005 for an outstanding Master of Science in Biostatistics project

**62 Gerealiseerde toepassingen****63 Verworven octrooien of patenten****7 Samenwerking met andere wetenschappelijke instellingen en onderzoekers****72 Verblijf van buitenlandse onderzoekers aan de UHasselt**

Lichun WANG, Chinese Academy of Science, Beijing, China; onderzoek  
15 februari 2004 – 17 februari 2005.

Financiering: IUAP

Henri MWAMBI, University of Kwazulu Natal, Zuid Afrika  
3-22 januari 2005. Infectious diseases; onderzoek

Financiering: IUAP

Osvaldo Montenegro NORMAN, University of Santa Clara, Cuba  
18 januari – 18 april 2005. Toxicity data; onderzoek

Financiering: IUAP

Jeffrey HART, Texas A&M University, USA

23-26 februari 2005. Nonparametric smoothing; onderzoek

Financiering: individueel akkoord

Elisa Maria MOLANES LOPEZ, University of La Coruña, Spain

3 april – 3 juli 2005. Nonparametric smoothing; onderzoek

Financiering: eigen financiering

Dharmika AMARATUNGA, Johnson & Johnson, Raritan, New Jersey, USA

1-30 april 2005. Genetic data analysis; onderwijs

Financiering: Universiteit Hasselt

Sagary NOKOE, University of Agriculture, Abeokuta, Nigeria

13 april – 10 juni 2005. Biometry; onderwijs

Financiering: Universiteit Hasselt, VLIR

Jan Swanepoel, Northwest University, Potchefstroom, Zuid Afrika

16-24 april 2005. Nonparametric smoothing; onderzoek

Financiering: bilateraal project

Roderick LITTLE, University of Michigan, Ann Arbor, USA

21-22 april 2005. Missing data; onderzoek

Financiering: individueel akkoord

- Urko AGIRRE, University of Bilbao, Spain,  
18-22 april 2005. Missing data; onderzoek  
Financiering: individueel akkoord
- John EDMONDS, Health Protection Agency, CDSC, London, UK  
22 april 2005. Infectious diseases; onderzoek  
Financiering: FWO project
- Shuyi SHEN, Eli Lilly, USA  
18-30 april 2005. Clinical trials; onderzoek  
Financiering: individueel akkoord
- Joseph IBRAHIM, University of North Carolina, Chapel Hill, USA  
1 mei – 30 juni 2005. Survival analysis; onderzoek  
Financiering: Janssen Pharmaceutica chair
- Jaco WALLINGA, National Institute of Public Health and the Environment, Nederland  
13 mei 2005. Infectious diseases; onderzoek  
Financiering: FWO project
- Peter TEUNIS, National Institute of Public Health and the Environment, Nederland  
13 mei 2005. Infectious diseases; onderzoek  
Financiering: FWO project
- Joel MOSSONG, Laboratoire National de la Santé, Luxembourg  
20 mei 2005. Infectious diseases; onderzoek  
Financiering: FWO project
- Daan de WAAL, University of the Free State, Bloemfontein, Zuid Afrika  
25 mei 2005. Extreme value analysis; onderzoek  
Financiering: bilateraal project
- Rafael MIKOLAJCZYK, University of Bielefeld, Duitsland  
27 mei 2005. Infectious diseases; onderzoek  
Financiering: FWO project
- Christelle DARSTEIN, Eli Lilly, USA  
6 juni 2005. Surrogate Markers; onderzoek  
Financiering: individueel akkoord
- Mike KENWARD, London School of Hygiene and Tropical Medicine, London, UK  
10-11 juni 2005. Missing data; onderzoek  
Financiering: individueel akkoord
- Paul EILERS, Universiteit Leiden, Nederland  
10-11 juni 2005. Splines; onderzoek  
Financiering: individueel akkoord
- Michel CHAVANCE, INSERM, Paris  
24 juni 2005. Missing data; onderzoek  
Financiering: individueel akkoord
- Dan SARGENT, Mayo Clinic, Minnesota, USA  
13-14 juni 2005. Surrogate markers; onderzoek  
Financiering: individueel akkoord
- Carman Elena VIADA GONZALEZ, Centro de Immunologia Molecular, Cuba  
19 september – 19 oktober 2005. Clinical trials; onderzoek  
Financiering: IUAP
- Mariangela SCIANDRA, University of Sicily, Italy  
8 november 2005 – 30 april 2006. Longitudinal data; onderzoek  
Financiering: eigen financiering
- Tertius de WET, University of Stellenbosch, Zuid Afrika  
18-19 november 2005. Goodness-of-fit; onderzoek

- Financiering: individueel akkoord  
 Michael SCHEMPER, Medizinische Universität, Wien, Oostenrijk  
 25-26 november 2005. Regression; onderzoek  
 Financiering: individueel akkoord
- Vincent DUCROCQ, INRA Jouy-en-Josas, France  
 25-26 november 2005. Frailty models; onderzoek  
 Financiering: individueel akkoord
- Mike KENWARD, London School of Hygiene and Tropical Medicine, London, UK  
 20-21 december 2005. Missing data, onderzoek  
 Financiering: individueel akkoord
- Christoph LANGE, Harvard School of Public Health, Boston, USA  
 20-21 december 2005. Statistical genetics; onderzoek  
 Financiering: individueel akkoord

### **73 Gemeenschappelijk verricht onderzoek**

- Jan Swanepoel (North-West University, Potchefstroom, Zuid Afrika)  
 Paul Janssen en Noël Veraverbeke  
 Resampling, modified bootstrap and goodness-of-fit  
 Bilateral Scientific and Technological Cooperation  
 19-29 januari 2005. P. Janssen en N. Veraverbeke in Potchefstroom  
 16–24 april 2005. Jan Swanepoel in UHasselt
- Lichun Wang (Chinese Academy of Sciences, Beijing)  
 Noël Veraverbeke  
 Bayes and empirical Bayes estimation  
 IUAP Project P5/24  
 17 februari 2004 – 16 februari 2005: Lichun Wang in UHasselt
- Paul Markel (Minot State University, USA)  
 Roel Braekers  
 Linear mixed models in population genetics  
 Individueel akkoord
- Luc Duchateau (UG), Catherine Legrand, Richard Sylvester (EORTC, Brussel), V. Ducrocq (INRA, France)  
 Paul Janssen  
 Frailty models  
 Individueel akkoord  
 Diverse wederzijdse bezoeken
- Ricardo Cao and Elisa Molanes (University of La Coruña, Spain)  
 Paul Janssen, N. Veraverbeke  
 Relative density and hazard estimation  
 Individueel akkoord  
 3 april – 3 juli 2005: Elisa Molanes in UHasselt
- Pierre Vandamme, Patrick Cras en Philippe Beutels (UA), Frank Boelaert (European Food Safety Authority, Parma, Italy), Dirk Berkvens (ITG), Claude Saegerman (UL), Koen Mintiens, Hans Laevens, Bruno Genicot, Stefan Roels (CODA)  
 Marc Aerts, Ziv Shkedy, Geert Molenberghs, Christel Faes, Niel Hens, Jose Cortiñas, Kaatje Bollaerts, Harriet Namata  
 Modelling infectious diseases  
 FWO Vlaanderen  
 Diverse wederzijdse bezoeken

- Koen Mintiens en Stefan Roels (CODA), Dirk Berkvens (ITG), Patrick Cras (UA), Claude Saegerman (UL), Peter Teunis en Jacco Wallinga (RIVM, Bilthoven) + 14 European partner institutes  
 Marc Aerts, Ziv Shkedy, Christel Faes, Jose Cortiñas, Kaatje Bollaerts, Harriet Namata  
 Microbial risk assessment and food safety  
 POLYMOD Europees project
- Jeffrey Simonoff (New York University, USA)  
 Marc Aerts, Niel Hens  
 Model Selection  
 Individueel akkoord
- Mike Kenward (London School of Hygiene and Tropical Medicine, UK)  
 Marc Aerts, Geert Molenberghs, Herbert Thijs, Niel Hens, Ivy Janssen, An Creemers  
 Missing data  
 Individueel akkoord  
 Diverse bezoeken in 2005
- Kostas Fokianos (University Cyprus, Nicosia, Cyprus), Frank Buntinx (K.U.Leuven)  
 Marc Aerts, Niel Hens  
 Medical diagnostic testing  
 1-2 november 2005: Niel Hens in Cyprus  
 Individueel akkoord
- Kristel Ven Steen, Els Goetghebeur, Stijn Vansteelandt (UGent)  
 Geert Molenberghs, Marc Aerts, Herbert Thijs, Ivy Jansen, Caroline Beunckens  
 Missing data and sensitivity analysis  
 Individueel akkoord
- Paul De Boeck, Dirk Smits, Geert Verbeke, Yuri Goeghebeur (K.U.Leuven)  
 Geert Molenberghs  
 Logistic mixed models in items response theory  
 Individueel akkoord
- Geert Verbeke (K.U.Leuven)  
 Geert Molenberghs  
 Models for discrete repeated measures  
 Individueel akkoord
- Geert Verbeke, Iven Van Mechelen, Francis Tuerlinckx (K.U.Leuven)  
 Geert Molenberghs  
 Methods for optimization in statistics  
 Individueel akkoord
- Tony Vangeneugden, Didier Renard (Eli Lilly)  
 Geert Molenberghs, Tomasz Burzykowski, Helena Geys, Fabian Tibaldi, Ariel Alonso, Ziv Shkedy  
 Surrogate markers  
 Individueel akkoord
- Michael Kenward (London), Raymond Carroll (Texas A&M University), Craig Malinckrodt and Shuyi Shen (Eli Lilly, Indianapolis, USA)  
 Geert Molenberghs, Caroline Beunckens, Ivy Jansen  
 Missing data in clinical trials  
 Individueel akkoord  
 29 juli – 5 augustus 2005: Caroline Beunckens in Eli Lilly, Indianapolis, Indiana, USA)

- Carmen Cadarso Suarez and Carlos Acuña (Santiago de Compostela, Spain)  
 Geert Molenberghs, Helena Geys, Ariel Alonso, Christel Faes  
 Statistical analysis in neuro firing rates  
 Individueel akkoord
- Kennedy Otwombe (University of Witwatersrand, Johannesburg, South Africa)  
 Niel Hens  
 Incomplete data  
 Individueel akkoord
- Ann Van den Troost (K.U.Leuven)  
 Ivy Jansen  
 Modeling partially incomplete marital satisfaction data  
 Individueel akkoord
- Natalia Kwasnikowska, Kerstin Koch, Jan Van den Bussche, Frank Neven (Infolab, UHasselt)  
 Tomasz Burzykowski, Ivy Jansen  
 Bioinformatics  
 Individueel akkoord
- Didier Renard (Eli Lilly, Belgium), Christelle Darstein (Eli Lilly, USA)  
 Ariel Alonso, Saskia Litière, Annouschka Laenen, Geert Molenberghs  
 Surrogate markers  
 Individueel akkoord
- Ann Cuypers, Karen Smeets (Biomed, UHasselt)  
 Dan Lin  
 Analysis on experiment of arabidopsis thaliana  
 Individueel akkoord
- Luc Michiels (Biomed, UHasselt)  
 Dan Lin  
 Breast cancer microarray experiment  
 Individueel akkoord
- Luc Bijmens (Janssen Pharma), Luc Wouters (Barrier Therapeutics)  
 Dan Lin  
 Microarray data  
 Individueel akkoord
- Ann Cuypers, Karen Smeets, Joske Ruytinx (Environmental Biology, UHasselt)  
 Ivy Jansen  
 Microarray data  
 Individueel akkoord
- George Daube (UL), Lieven De Zutter (UG), Koen Grijpeerdt (CLO), Koen Mintiens (CODA), Herman Van Oyen (WIV)  
 Kaatje Bollaerts, Marc Aerts, Ziv Shkedy  
 Individueel akkoord
- NIS (Nationaal Instituut voor de Statistiek) en vijf Belgische Onderzoeksgroepen (VUB, UCL, UA(2), UHasselt)  
 Veerle Vandersmissen, Liesbeth Bruckers, Geert Molenberghs  
 Vervanging van de Census door administratieve databanken en enquêtes  
 Samenkomsten op 6 en 27 januari, 9 en 28 februari, 18 maart, 13 april, 13 mei, 22 september, 21 oktober, 9 en 18 en 28 november 2005.
- University of Havana, Cuba.  
 Geert Molenberghs

Training and Research program in medical statistics and bioinformatics (preparation of a VLIR-Own Initiative Project)

18-25 augustus 2005: Geert Molenberghs in Havana

Institute of Nutrition, Jena, Germany

Herbert Thijs

Analysis of microarray data

Boehringer Institute, Germany

Herbert Thijs

Analysis of incomplete quality of life data

PHL, Physiotherapy

Herbert Thijs

Electrostimulation of muscle tissue in patients in the Intensive Care unit

PHL, Physiotherapy

Herbert Thijs

Analysis of time series coming from motion exercises to assess stability

Luc Bijmens and Luc Ver Donck (Janssen Pharma)

Christel Faes

Use of penalized splines

Individueel akkoord

Wim Lammers (United Arab Emirates University)

Christel Faes

Use of penalized splines

Individueel akkoord

Joe Ibrahim (Harvard University, USA)

Christel Faes

Use of historical control data in the analysis of toxicological experiments

Individueel akkoord

Frank Buntinx (K.U.Leuven)

Christel Faes

The denominator in general practice, a new approach from the Intego database

#### **74 Onderzoek, specifiek in samenwerking met de Universiteit Maastricht**

Tomasz Burzykowski

An integrated bioinformatics approach for the functional analysis of transcriptomic and proteomic expression data in nutritional studies (with C. Evelo, UM)

Tomasz Burzykowski en Suzy Van Sanden

Twee publicaties in Journal of Nutrition (2005) with S. van Breda, E. van Agen, A. Kienhuis, J. Kleinjans, J. van Delft

## Activiteitenverslag

### - Voordrachten op nationale of regionale congressen, studiedagen, symposia, workshops

#### Noël Veraverbeke

- 25 februari 2005. Université Libre de Bruxelles. Some recent generalizations of the Kaplan Meier estimator.
- 22 september 2005. Janssen Pharmaceutica, Beerse. Introduction to copulas.

#### Geert Molenberghs

- 3 februari 2005. Universiteit Antwerpen. Missing Data. Course "Biostatistics for PhD Students".
- 31 maart – 1 april 2005. UCB, Braine l'Alleud. Mixed models and incomplete data.
- 14 juni 2005. UHasselt. The evaluation of surrogate endpoints in randomized clinical trials.
- 30 september 2005. KULeuven. IUAP Workshop. Sensitivity analysis for incomplete longitudinal data based on a heterogeneous pattern-mixture model.

#### Herman Callaert

- 23 april 2005. Leuven, Vliebergh-Sencie lezing. Perspectieven voor statistiek in het secundair onderwijs.
- 16 november en 23 november 2005. UHasselt, Nascholing voor leerkrachten wiskunde van het secundair onderwijs. Exploratieve statistiek voor het secundair onderwijs.

#### Ziv Shkedy

- Januari 2005. Universiteit Gent. Analysis of microbars dose-response data.

#### Marc Aerts

- 27 oktober 2005. VEE-Studiedag, Diepenbeek. Estimation of the force of infection and related parameters (Aerts, Bollaerts, Faes, Hens, Shkedy).

#### Paul Janssen

- 30 september 2005. IUAP Workshop, K.U.Leuven. Heterogeneity in survival analysis: frailty models.
- 4, 11, 18, 25 oktober en 8 november 2005. Janssen Pharma, Beerse. Cursus Frailty Models (met Luc Duchateau).

#### Caroline Beunckens

- 13 oktober 2005. SAS Belgium & Luxembourg Forum 2005. Louvain-la-Neuve. Analysis of incomplete longitudinal data.

#### Harriet Namata

- 20 mei 2005. Universiteit Hasselt. Estimating force of infection using generalized linear mixed models and penalized splines.
- 14-15 oktober 2005. 13th Annual Meeting of the Belgian Statistical Society, Corsendonck. Estimating force of infection using generalized linear mixed models and penalized splines.

#### Dan Lin

- 14-15 oktober 2005. 13th Annual Meeting of the Belgian Statistical Society, Corsendonck. Performance of classification methods in microarray setting.
- 21 november 2005. Janssen Pharma, Beerse. Exploring microarray data in the world of multivariate methods.

#### José Cortiñas

- 10 juni 2005. Janssen Pharma, Beerse. Psychotropic drug classification based on EEG data.
- 13 juni 2005. Janssen Pharma, Beerse. Psychotropic drug classification based on EEG data.

#### **Suzy Van Sanden**

- 21 november 2005. Janssen Pharma, Beerse. Multivariate data analysis.

#### **Roel Braekers**

- 16 december 2005. Universiteit Antwerpen. Verschillende aspecten van niet-parametrische regressie met gecensureerde gegevens.

#### **Niel Hens**

- 10 november 2005. Universiteit Hasselt. Modelling age-time dependent incidence rates for Hepatitis B in Bulgaria: 1983-2000.
- 27 oktober 2005. VEE-Studiedag, Diepenbeek. Estimating the force of infection from serological data: the impact of clustering, incomplete data and diagnostic uncertainty (poster) (Hens, Faes, Aerts, Shkedy, Geys, Mintiens, Laevens, Boelaert).

#### **Jan Serroyen**

- 14-15 oktober 2005. 13th Annual Meeting of the Belgian Statistical Society, Corsendonck. Analysis of repeated time-to-event data in a delayed non-matching to position experiment.

#### **Veerle Vandersmissen**

- 9 juni 2005. Gerechtelijke Politie, Brussel. De Veiligheidsmonitor: validatie, analyse en adviezen.

#### **Ivy Jansen**

- 13 oktober 2005. QMSS Workshop, Diepenbeek. Modeling (incomplete) longitudinal data.

#### **Kaatje Bollaerts**

- 27 oktober 2005. VEE-Studiedag, Diepenbeek. Modelling the force of infection of the bovine-herpesvirus-1 in Belgian cattle: a Bayesian approach to account for test misclassification (poster) (Bollaerts, Aerts, Faes, Hens, Boelaert).

#### **Liesbeth Bruckers**

- 27 mei 2005. Hasselt. SPIL-Studiedag. Wachtijden in de Limburgse CG's.
- 9 juni 2005. Alden Biesen. SPIL-Committee. Evoluties in MPG.
- 18 oktober 2005. Genk. Jaarvergadering Centrum voor Alcohol en Drugs. Jongerenonderzoek.

#### **Kristien Wouters**

- 14-15 oktober 2005. 13th Annual Meeting of the Belgian Statistical Society, Corsendonck. Psychotropic drug classification based on EEG data.
- 18 maart 2005. 189th Meeting of the Belgian Society of Biochemistry and Molecular Biology "Signaling the Brain" Diepenbeek. Gel-to-gel variability in 2D-electrophoresis for cerebro spinal fluid and ratbrain samples (poster).

#### **Christel Faes**

- 27 oktober 2005. VEE-Studiedag, Diepenbeek. Modelling the herd-specific force of infection for BoHV-1: the influence of clustering. (poster) (Faes, Hens, Aerts, Shkedy, Geys, Mintiens, Laevens, Boelaert).
- 14-15 oktober 2005. 13th Annual Meeting of the Belgian Statistical Society, Corsendonck. A hierarchical modeling approach for risk assessment in developmental toxicity studies (poster) (Faes, Geys, Aerts, Molenberghs).

#### **John Maringwa**



- 14-15 oktober 2005. 13th Annual Meeting of the Belgian Statistical Society, Corsendonck. Use of historical control studies: a simulation study to investigate the factors affecting the precision in estimation of treatment effect (Maringwa, Geys, Faes).

**Helena Geys**

- 27 januari 2005. Janssen Pharma, Beerse. Integrated toxicology system (Inlife and Clinpath): an overview of the statistical user requirements.
- 28 april 2005. Janssen Pharma, Beerse. Flexible modelling of correlated binary data for estimation of neuron firing rates and synchrony between neurons.

- **Uitnodigingen van UHasselt-stafleden als gasthoogleraar aan buitenlandse universiteiten of op zomerscholen**

## ***Congressen (passieve deelname)***

### **Noël Veraverbeke**

- Third Actuarial and Financial Mathematics day. Brussel. 4 februari 2005
- Franqui Chair Inaugural lecture. U.L.B. 7 februari 2005
- Abel Prize in Mathematics. Brussel, Academie. 18 februari 2005
- Colloquium Mathematics Quo Vadis, Brussel, Academie, 29 april 2005
- Third Prague-Brussels Mathematical Statistics Seminar. Brussel. 13-14 mei 2005
- Stochastics Afternoon. Eurandom, T.U.Eindhoven, Nederland. 23 september 2005
- Alumni Meeting. Eurandom, T.U.Eindhoven, Nederland. 24 september 2005
- Workshop "How to deal with heterogeneity"? K.U.Leuven. 30 september 2005
- 13th Annual meeting of the Belgian Statistical Society. Corsendonck. 14-15 oktober 2005.
- Franqui Chair Inaugural lecture. K.U.Leuven. 20 oktober 2005
- Mathematical Analysis Day. Universiteit Gent. 10 november 2005
- Workshop on Interval censoring and medical applications. K.U.Leuven. 17 november 2005
- Bijeenkomst Stochastici. Lunteren, Nederland. 14-16 november 2005
- Conférence PARC. Louvain-la-Neuve, 21 december 2005

### **Herman Callaert**

- National Council of Teachers of Mathematics Conferences. Anaheim, 6-9 april 2005. Hartford, 6-8 oktober 2005.
- US Conference on Teaching Statistics. Columbus, 19-21 mei 2005.

### **Roel Braekers**

- Workshop "How to deal with heterogeneity"? K.U.Leuven. 30 september 2005.
- Workshop on Interval censoring and medical applications. K.U.Leuven. 17 november 2005

### **Caroline Beunckens**

- Joint Statistical Meeting 2005. ASA. Minneapolis, Minnesota, USA, 6-11 augustus 2005

### **Veerle Vandersmissen**

- Centraal Bureau voor Statistiek, 29 september 2005.

### **Ivy Jansen**

- Workshop on Statistical analysis of Microarray Data. Corfu, Greece, 9 mei 2005.
- Third Conference of the Eastern Mediterranean Region (EMR) of the IBS. Corfu, Greece, 10-12 mei 2005.
- Symposium on Statistical Genetics, Gent. 17 mei 2005.
- 5th VIB Micro Array Users Group Meeting, Gent. 16-18 november 2005.
- 3CC Meeting. Multivariate Data Analysis. Beerse. 21 november 2005.

### **Goele Massonet**

- Ph.D. Course in Advanced Survival Analysis. Copenhagen, Denemarken. 7-11 november 2005

### **Liesbeth Bruckers**

- Symposium Milieu en Gezondheid. Brussel, 17 maart 2005.
- Voorstelling SPILLER. Leuven, 26 oktober 2005.

**Herbert Thijs**

- 3CC Meeting. Multivariate Data Analysis. Beerse. 21 november 2005.

***Binnenlandse bezoekers (seminarie)***

- Johan Suykens, K.U.Leuven, 11 februari 2005
- Catherine Legrand, EORTC, Brussel, 11 maart 2005
- Ingrid Van Keilegom, UCL, 18 maart 2005
- Philippe Beutels, UA, 22 april 2005
- Pierre Van Damme, UA, 27 mei 2005