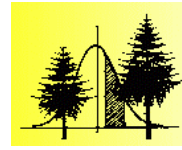




BTU Cottbus  
Institut für Informatik, Informations- und Medien-  
technik, Chair for Graphics Systems

together with



Plant Modelling Group  
University of Göttingen  
Institut für Forstliche Biometrie  
und Informatik

# Workshop

## "Modelling and visualisation of biological and chemical systems"

(combined with the first GroIMP user and developer meeting)

Cottbus, 16-17 July 2007

What is it about?

- models of organisms representing structural and functional aspects
- *visual* models
- graph-based representations, graph transformations
- *multiscaled* models

## *Functional-structural plant modelling in retrospect:*

- 1968 Aristid Lindenmayer (J. Theor. Biol. 18, 280-315):  
**L-systems**
- 1976 Philippe de Reffye modelled coffee trees  
(Café Cacao Thé 20(1) 11-32)  
→ **AMAP** (CIRAD, Montpellier)
- 1976 Adrian Bell: "Computerized vegetative mobility  
in rhizomatous plants" (in book edited by  
Lindenmayer & Rozenberg)
- 1990 Przemyslaw Prusinkiewicz & A. Lindenmayer:  
"The Algorithmic Beauty of Plants"
- 1991 Start of GROGRA project in Göttingen:  
extended L-systems for models of forest trees
- ~ 1995 K., Früh, Lanwert: "**Struktur-Funktions-Modelle**  
von Pflanzen"  
(in BMBF project on forest ecosystems)
- 1996 Risto Sievänen (METLA, Finland): model LIGNUM;  
first international workshop on "Functional-Structural  
Tree Modelling" (FSTM, later: **FSPM**), Helsinki
- 2000/01 **GroIMP** project launched,  
central idea: extend string rewriting to graph  
rewriting
- 2001 Giavitto & Michel: MGS
- ~ 2003 Smith, Prusinkiewicz & Samavati: vv
- 2005 Buck-Sorlin, Kniemeyer, K.: Barley model with  
hormonal control and genetics (New Phytologist 166  
(3) 859-867)

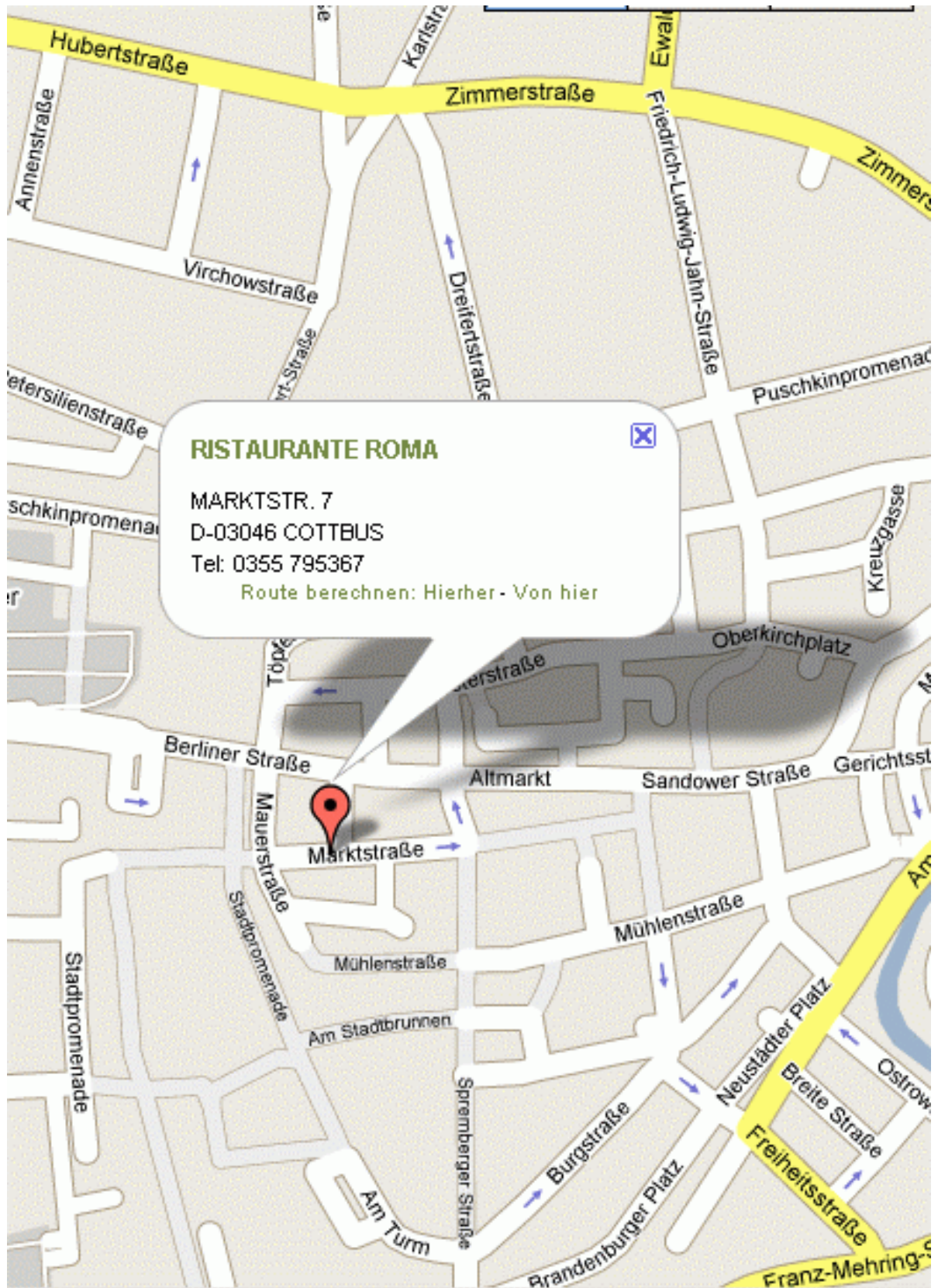
# Programme / Schedule

## Monday, 16 July 2007

- 13:30 - 13:45      Opening address (W. Kurth)
- 13:45 - 14:30      Ole Kniemeyer (BTU Cottbus): Relational Growth Grammars and the language XL
- 14:30 - 15:15      Michael Henke (University of Göttingen): The 3D construction set for plant modelling
- 15:15 - 16:00      Tully Yates (Rothamsted Research, Harperden, UK): Disecting the feedback control of gibberellin biosynthesis using a combined wetlab – in silico approach
- 16:00 - 16:15      [Coffee break](#)
- 16:15 - 17:00      Reinhard Hemmerling (BTU Cottbus): Simulation of chemical reactions with GroIMP and XL
- 17:00 - 17:45      Falk Schreiber (Leibniz Institute of Plant Genetics and Crop Plant Research (IPK), Gatersleben): Methods for the dynamic exploration and editing of KEGG pathway diagrams
- 18:00 - 19:00      Birka Fonkeng (BTU Cottbus): Layouts and filters for the visualisation of graphs in GroIMP  
(Diploma thesis presentation, in German)
- 19:30 -              [Conference dinner \(Ristorante Roma\)](#)

## Tuesday, 17 July 2007

- 9:15 - 10:00      Gerhard Buck-Sorlin (Wageningen University and Research Centre, Wageningen, NL): Virtual rose: simulating rose architecture with GroIMP to optimize flower production in glasshouse production systems
- 10:00 - 10:45      Dirk Lanwert (University of Göttingen): Ecophysiological forest stand modelling with XL/Java and GroIMP via internet
- 10:45 - 11:00      [Coffee break](#)
- 11:00 - 11:45      Jan Dérer (BTU Cottbus): Descriptive tree data format and analysis functions in GroIMP
- 11:45 - 12:30      Winfried Kurth (BTU Cottbus): Graph-oriented modelling of multiscaled dynamical systems with a dynamical structure: Challenges to the "Relational Growth Grammar" approach
- 12:30 - 13:00      (for GroIMP users and developers): Brainstorming about possible improvements and extensions of GroIMP and XL
- 13:00                [End of the workshop](#)



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