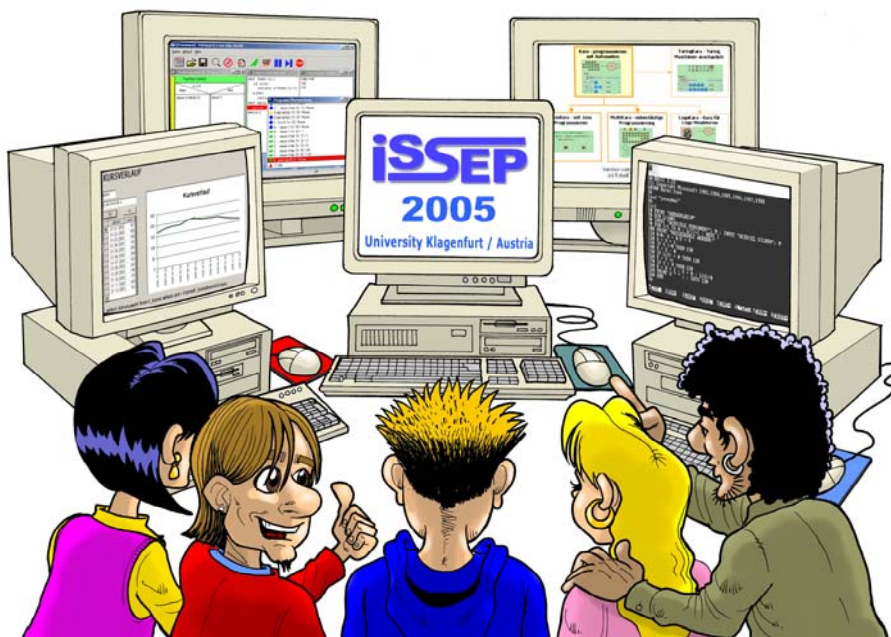


ISSEP 2005

Informatics in Secondary Schools Evolution and Perspectives

Final Programme

30. 3. – 1. 4. 2005
Klagenfurt University, Austria



<http://issep.uni-klu.ac.at>
e-mail: issep@isys.uni-klu.ac.at

bm:bwk

 **OESTERREICHISCHE
COMPUTER GESELLSCHAFT**
AUSTRIAN
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Welcome to ISSEP 2005

Being the member of the Carinthian Government in charge of the education domain, it is very important for me that especially young people are trained in the sector of technology. New technologies not only allow new teaching and training methods, they demand also new didactical approaches.

Information technology is the main challenge of today's time. Therefore, lifelong learning is of great importance.

I wish all participants an interesting exchange of experiences and a lot of new insights.

Dr. Martin Strutz
Vice-Governor of Carinthia



The organizers of ISSEP 2005 gratefully acknowledge that publication of the LNCS-volume of the ISSEP proceedings was supported by the Carinthian Government.

ISSEP 2005

Welcome to Klagenfurt!

ISSEP 2005 – Informatics in Secondary Schools, Evolution and Perspectives was organized on the occasion of the twentieth anniversary of the integration of informatics into the curriculum of general Austrian Secondary Schools. The triple-keynote of the first day will demonstrate very clearly how far we went since this pioneer phase. We have to expect that the dynamics of the discipline will continue. Hence, the conference attempts to look into the future of the role of informatics in pre-university education.

The first day of the conference is devoted to reviewing the developments so far achieved and to survey how informatics education takes place in various European countries. In comparing we might see what can be learned from the different approaches. Parallel sessions 4 and 5 present already a window on the future by focussing on teacher's education and forms of collaborative learning.

As highlighted by the contributions of the first day, informatics education has undergone a substantial transition during the last decades. Initially, programming played an important role in teaching informatics. Hence, school-informatics might have been conceived as computer science in the small. With the proliferation of personal computers, the skill of using this tool became an issue. Consequently, educational issues experienced a shift from developing and understanding information technology to using information technology. The second day of the conference reflects on this issue by considering the role of informatics education in school and by various contributions that try to reconcile the contention between ICT education and informatics education proper.

On the third day this tension is even further stressed. Mobile Learning, the next wave of educational technology, is already in the offing while conventional e-learning still has to cope with didactical as well as with human interface problems. But also informatics proper has interesting methodological proposals to offer in a way that is ready for being presented in school. A panel on the relationship between ICT and informatics education will wrap this all up. Friday afternoon is devoted to organizational matters, be they on the level of the specific hard- and software environment or be they of curricular nature.

The program is completed by five tutorials. It might be indicative of current trends that all tutorials focus on one or the other aspect of e-learning.



Chairperson
Roland T. Mittermeir
Inst. f. Informatik-Systeme
Universität Klagenfurt
Universitätsstr. 65-67
A-9020 Klagenfurt
Tel: ++43 463 2700-3513
Fax: ++43 463 2700-3599

Program Committee

Out of 51 submissions from 10 countries, the program committee selected 16 papers for inclusion in proceedings published by Springer Verlag, *From Computer Literacy to Informatics Fundamental*, LNCS Vol. 3422, and 13 full papers for inclusion in the proceedings published by Ueberreuter Verlag, *Innovative Concepts for Teaching Informatics*. The publications contain also the written versions of the keynote presentations as well as summaries of the poster presentations.

Mittermeir, Roland (Chair)	Universität Klagenfurt, Austria
Adam, Hans	BORG Graz, Austria
Böszörmenyi, Laszlo	Universität Klagenfurt, Austria
Breier, Norbert	Universität Hamburg, Germany
Clark, Martyn	University of Leeds, UK
Dagiene, Valentina	Vilniaus Universitetas, Lithuania
Dorninger, Christian	Bundesministerium für Bildung, Wissenschaft und Kultur, Wien, Austria
Friedrich, Steffen	Technische Universität Dresden, Germany
Fuchs, Karl	Universität Salzburg, Austria
Fullick, Patrick	University of Southampton, UK
Futschek, Gerald	Technische Universität Wien, Austria
Garzotto, Franca	Politecnico di Milano, Italy
Hartmann, Werner	ETH Zürich, Switzerland
Hitz, Martin	Universität Klagenfurt, Austria
Holzinger, Andreas	Medizinische Universität Graz, Austria
Hopfenwieser, Lisbeth	Technische Universität Wien, Austria
Hubwieser, Peter	Technische Universität München, Germany
Knierzinger, Anton	Pädagogische Akademie der Diözese Linz, Austria
Królikowski, Zbyszko	Politechnika Poznanska, Poland
Moreaux, Patrice	Université de Reims, France
Mühlbacher, Jörg	Universität Linz, Austria
Neuwirth, Erich	Universität Wien, Austria
Reiter, Anton	Bundesministerium für Bildung, Wissenschaft und Kultur, Wien, Austria
Schubert, Sigrid	Universität Siegen, Germany
Schauer, Helmut	Universität Zürich, Switzerland
Scheidl, Gerhard	Pädagogisches Institut des Bundes in Wien, Austria
Spirin, Oleg	Zhytomyr State Pedagogical University, Ukraine
Waldner, Walter	HTBLA Klagenfurt, Austria
Weissenböck, Martin	HTBLA Rennweg, Wien, Austria

ISSEP Local Organization

ISSEP 2005 is organized by the Institute of Informatics-Systems, Alps-Adria University Klagenfurt, Austria.

Micheuz, Peter (Chair)	Universität Klagenfurt and Gymnasium Völkermarkt, Austria
Antonitsch, Peter	Universität Klagenfurt and HTL Mössingerstr., Klagenfurt, Austria
Hodnigg, Karin	Universität Klagenfurt, Austria
Lippitsch, Annette	Universität Klagenfurt, Austria

ISSEP 05 at a Glance

		Wednesday, 30th March 2005	Thursday, 31st March 2005	Friday, 1st April 2005
08.00 - 08.30		Registrations (open all day)		
08.30 - 09.00		Registrations (for late arrivals)		
09.00 - 10.00		S12: Future Develop. - Keynote Wiedermann The Future is Mobile - Educ. meets Mobile Commu		
10.00 - 10.30		S13: eLearning and Advanced Concepts		
10.30 - 11.00		coffee break		
11.00 - 12.30		S2: National Perspectives I Tutorial 1 Understanding Search Engines	S8: ICT and Informatics I Tutorial 3 Security and Dependability in e-Learning	
12.30 - 14.00		lunch break		
14.00 - 15.30		S3: National Perspectives II	S9: Poster Session S10: ICT and Informatics II	S14: Organizational Aspects Tutorial 4 eLearning Platform MOODLE
15.30 - 16.00		S4: Ethics and Collaborative Learning coffee break	S11: School Development	Workshop HTL-Curric. coffee break
16.00 - 17.30		S5: National Perspectives Panel S6: Teachers Education ... Contents Development (continued)	(bus to) Infineon social side events	S15: Farewell Session (continued) ...-Computer Interaction for eLearning
19:00 - ...		Reception of the Governor of Carinthia	(bus to) Conference Dinner Schloss Mageregg	

Tuesday, 29th of March 2005

15.00 – 17.00 Registration for early arriving participants

Room 2.69**Wednesday, 30th of March 2005**

08.00 – 08.30 Registrations (open all day)

08.30 – 09.00 **Opening ceremony****Room HS B**

Welcome by the Rector of the Alps-Adria University Klagenfurt, Günther Hödl
 Welcome by the President of the School Council of Carinthia, Claudia Egger
 Welcome and Official Opening of the Conference by Theodor Siegl, representing the
 Minister of Education, Science, and Research of Austria, Elisabeth Gehrler
 Introduction to the Technical Programme by the PC-Chair, Roland Mittermeir

09.00 – 10.30 **Session 1: Chair: Roland Mittermeir****Room HS B**09.00 – 10.00 **20 Years of Informatics in Austrian Secondary Schools – Joint Keynote:**

Anton Reiter (Austria): *Incorporation of Informatics in Austrian Education
 The Project "Computer-Education-Society" in the School-Year 1984/85*
 Peter Micheuz (Austria): *20 Years of Computers and Informatics in Austrian
 Secondary Academic Schools*
 Martin Weissenböck (Austria): *Informatics Education at Vocational Schools and
 Colleges in Austria*

10.00 – 10.30 Laszlo Böszörményi (Austria):

*Teaching: People to People - About People: A plea for the historic and
 human view*

10.30 – 11.00 coffee break with posters of school development projects

Aula B11.00 – 13.00 **Tutorial 1:** Matthias Dreier, W. Hartmann (Switzerland):**SR 2.42**

*Suchmaschinen verstehen: Einsatz einer didaktischen Suchmaschine im
 Unterricht (Understanding Search Engines – The tutorial will be given in German)*

11.00 – 12.30 **Session 2: Chair: Gerald Futschek****Room HS B****National Perspectives I**

Martyn Clark, Roger Boyle (United Kingdom):
The Transition from School to University: Would Prior Study of Computing Help?
 Ewa Gurbiel, Grazyna Hardt-Olejniczak, Ewa Kolczyk, Helena Krupicka, Maciej M.
 Syslo (Poland):
Informatics and ICT in Polish Education System
 Valentina Dagiene (Lithuania):
*Teaching Information Technology in General Education: Challenges and
 Perspectives*

12.30 – 14.00 lunch break

Mensa14.00 – 17.30 **Tutorial 2:** Gerald Futschek, Gerhard Scheidl (Austria):**SR 2.42**

Didactic Aspects of e-Learning Contents Development (+PC-labs 1.37,1.41)

14.00 – 15.30 **Parallel Session 3: Chair: Peter Micheuz****Room HS B****National Perspectives II**

Christian Dorninger (Austria):
Educational Standards in School Informatics in Austria
 Oleg Spirin (Ukraine):
The Present-Day Tendencies of Teaching Informatics in Ukraine
 Aleksandr A. Kuznetsov, Sergey A. Beshenkov (Russia):
*Russian Educational Standard of Informatics and Informatics Technology (ICT):
 Aims, Content, Perspectives (cancelled)*
 Yuri S. Ramsky, Olga V. Rezina (Ukraine):
Study of Information Search Systems of the Internet (cancelled)

- 14.00 – 15.30 **Parallel Session 4: Chair: Andreas Holzinger** **Room HS C**
Ethics and Collaborative Learning
 Jürgen Maaß (Austria):
Teaching Ethical Aspects in School
 Patrick Fullick (United Kingdom):
Using Networked Computers to Help School Students to Learn About Science through Discussion
 Markus F. Peschl (Austria):
Acquiring Basic Cognitive and Intellectual Skills for Informatics: Facilitating Understanding and Abstraction in a Virtual Cooperative Learning Environment
- 15.30 – 16.00 Coffee break with posters of school development projects **Aula B**
- 16.00 – 17.30 **Parallel Session 5:**
National Strategies in Perspective - Panel Discussion
 Panelists:
 Roger Boyle, School of Computing, University of Leeds, UK
 Martyn Clark, School of Computing, University of Leeds, UK
 Valentina Dagiene, Institute of Mathematics and Informatics, University of Vilnius, Lithuania
 Christian Dorninger; Federal Ministry of Education, Science and Culture, Vienna, Austria
 Roland Mittermeir, Institut f. Informatik-Systeme, Universität Klagenfurt, Austria (Chair)
 Maciej M. Syslo, Institute of Computer Science, University of Wroclaw, Poland
- 16.00 – 17.00 **Parallel Session 6: Chair: Werner Hartmann** **Room HS C**
Teachers Education
 Karl J. Fuchs (Austria):
How strict may, should, must the borders be drawn?
 Margarete Grimus (Austria):
eLearning in Teacher Education – State College of Teacher Education Vienna (PABW)
- 19:00 - ... **Reception of the Governor of Carinthia** **Room HS B**
 Innovative Projects in Carinthian Secondary Schools
 Welcome by Martin Strutz, Vice-governor of Carinthia,
 Presentation of school-projects by Sabrina Schütz, Kärntner
 Entwicklungsagentur and Arnold Kern, IT-Coordinator of Carinthia
- International Buffet **Aula B**

Thursday, 31st of March 2005
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- 09.00 – 10.30 **Session 7: Chair: Laszlo Böszörményi** **Room HS B**
Fundamentals
- 09.00 – 10.00 Jürg Nievergelt (Switzerland) **Keynote:**
Why Teach Introductory Computer Science? Reconciling Diverse Goals and Expectations
- 10.00 – 10.30 Susanne Loidl, Jörg Mühlbacher (Austria); Helmut Schauer (Switzerland):
Preparatory Knowledge: Propaedeutic in Informatics
- 10.30 – 11.00 coffee break, exhibit of posters (see also session 9) **Aula B**
 11.00 – 13.00 **Tutorial 3:** Edgar R. Weippl (Austria): **SR 2.42**
Security and Dependability in eLearning

- 11.00 – 12.30 **Session 8: Chair: Erich Neuwirth** **Room HS B**
ICT and Informatics I
Karin Hodnigg (Austria):
A Pragmatic Approach to Spreadsheet Training based upon the „Projection-Screen“ Model
Markus Schneider (Germany):
A Strategy to Introduce Functional Data Modeling at School Informatics
Siglinde Voß (Germany):
Informatic Models in Vocational Training for Teaching Standard Software
- 12.30 – 14.00 Lunch break **Mensa**
- 14.00 – 16.00 **Tutorial 4: Walter Waldner (Austria):** **SR 2.42**
E-Learning-Platform MOODLE (Die Lernplattform MOODLE)
- 14.00 – 14.30 **Session 9: Poster-Session Chair: Peter Antonitsch** **Room HS B**
Brief presentations of the various poster-contributions shown and explained in detail during selected coffee and lunch breaks.
Erich Hanschitz, Johann Leitner, Bernd Marktl, Judith Michael, Ingomar Preiml, Patrick Horster, Peter Schartner: *go2algo – Das Algorithmen-Visualisierungstool*
Wolfgang Seper: *The Gameboy Revolution – ppc@school*
Marina Glatz: *Visualization of Basic Algorithms in Informatics Teaching in Schools – An Empirical Study*
Gisela Dösinger, Alexander Stocker, Klaus Tochtermann: *Knowledge Management Systems – Requirements of Schools*
Arnold Kern: *eKnowledge – Management in Schools at BORG SPITTAL*
- 14.30 – 16.00 **Parallel Session 10: Chair: Valentina Dagiene** **Room HS B**
ICT and Informatics II
Peter Micheuz (Austria):
The Role of ICT and Informatics in Austria's Secondary Academic Schools
Maciej M. Syslo, Anna B. Kwiatkowska (Poland):
Informatics versus Information Technology – How much Informatics is Needed to Use Information Technology – A School Perspective
Peter Antonitsch (Austria):
Standard Software as Microworld?
- 14.30 – 16.00 **Parallel Session 11: Chair: Karl Fuchs** **Room HS C**
School Development
Marianne Rohrer, Heimo Senger (Austria):
Informatische Schulentwicklung in der AHS Unterstufe (Sekundarstufe I) (School development in Informatics)
Erzsébet Angster (Hungary):
Professional Analysis of the 'Abakusz' Software Development Competition
Christiane Borchel, Ludger Humbert, Martin Reinertz (Germany):
Design of an Informatics System to Bridge the Gap between Using and Understanding in Informatics
- Social side events**
- 16:15 Bus departure to Infineon (arrival in Villach: approx. 16:50)
17:00 Bus departure to Klagenfurt City tour (arrival Neuer Platz: approx. 17:15)
- 19:05 **Conference Dinner** **Schloss Mageregg**
Bus departure to conference dinner (for those, who did not partake in Social Event)
Busses from Infineon and City Tour bring participants directly to the conference dinner. The castle of Mageregg is situated in the north of Klagenfurt, Mageregger Str. 175
- Dinner speech / performance:**
Erich Neuwirth (Austria):
Musical Paradoxes brought to Life with Informatics

Friday, 1st of April 2005

- 09.00 – 10.00 **Session 12: Chair: Anton Reiter** **Room HS B**
Future Developments
Werner Wiedermann (Austria) – **Keynote:**
The Future is Mobile – Education meets Mobile Communication
- 10.00 – 10.30 Coffee break, exhibit of posters **Aula B**
- 10.30 – 11.30 **Session 13: Chair: Patrick Fullick** **Room HS B**
eLearning and Advanced Concepts
Andreas Holzinger, Renate Motschnig-Pitrik (Austria):
*Considering the Human in Multimedia: Learner-Centered Design (LCD)
& Person-Centered e-Learning (PCeL)*
Bruria Haberman, Zahava Scherz (Israel):
*Evolving Boxes as Flexible Tools for Teaching High-School Students:
Declarative and Procedural Aspects of Logic Programming*
- 11.30 – 12.30 **Panel discussion** **Room HS B**
ICT and Informatics Education: Synergy or Contention?
Panelists:
Martyn Clark, School of Computing, University of Leeds, UK (chair)
Ernst Karner, Berufspädagogische Akademie des Bundes in Wien, Vienna,
Austria
Jörg Mühlbacher, Inst. f. Information Processing and Microprocessor Technology,
Johannes Kepler Universität Linz, Austria
Jürg Nievergelt, Informatik, ETH Zürich, Switzerland
Heinz Pozewaunig, SEZ, Villach, Austria
Helmut Schauer, Department of Informatics, Universität Zürich, Switzerland
Dietmar Schwarzenbacher, UNIQUARE, Krumpendorf, Austria
Otto Wurnig, Bundesrealgymnasium Graz, Austria
- 12.30 – 14.00 lunch break, exhibit of posters **Aula B**
- 14:00 – 17:30 **Tutorial 5**
Andreas Holzinger (Austria) **SR 2.42**
Fundamentals of Human-Computer Interaction (HCI) for e-Learning
- Workshop** **SR 2.69**
Martin Weissenböck: Informatikbezogene Curriculumsentwicklungen für HTLs
- 14.00 – 15.30 **Session 14: Chair: Walter Waldner** **Room HS B**
Organizational Aspects
Thorsten Jarz (Austria)
*Use of Standard-Tools to Reach an Optimal Training/Learning Infrastructure in
School*
Terry Haydn (United Kingdom):
*The Psychology of Trainee Teachers' Use of ICT: A Case Study of Trainee
Teachers' Use of ICT, 1995-2003*
W. David Hughes (United Kingdom):
*An Overview of the Potential, Constraints and Experience of Developing
a Coherent Strategy for the Use of Informatics to Raise Learning Standards
in Secondary Schools Based on UK Custom and Practice.*
- 15.30 – 16.00 Coffee break, exhibit of posters
- 16.00 – 16:30 **Farewell Session Chair: Roland Mittermeir** **Room HS B**

Computer Science meets Music at a Historical Site

The official conference dinner of ISSEP will take place at Schloss Mageregg. As a special highlight of the conference, Prof. Erich Neuwirth from the University of Vienna will make us listen to some musical mysteries. Some background of his work can be seen from his abstract:

Musical Paradoxes brought to Life with Informatics by Erich Neuwirth

Eschers stairway is a well known visual paradox. Seemingly it constantly ascends but nevertheless it returns to its point of departure.

There exist similar musical phenomena: scales that constantly ascend, but find their end where they began. There are also rhythms that accelerate but still have their end where they originated.

We will listen to several of these phenomena and see which informatical support, conceptual as well as technical, is needed to produce such effects. We will also hear and see that such effects cannot be produced without computers. This will get us an idea about the substantial contributions computers yield for new forms of music.

Said effects will not only be presented in pre-recorded form. Erich Neuwirth will play instruments that implement such effects live during his lecture.



Schloss Mageregg

The castle was built for Wolfgang III. Mager von Fuchsstatt and his wife Elisabeth Paradeiser von Neuhaus. The original construction, a water-castle, was completed 1590. A substantial reconstruction under Thomas Ritter von Moro (planned by Peter Rudolphi, executed by Domenico Venchiarutti) brought it in its contemporary shape.

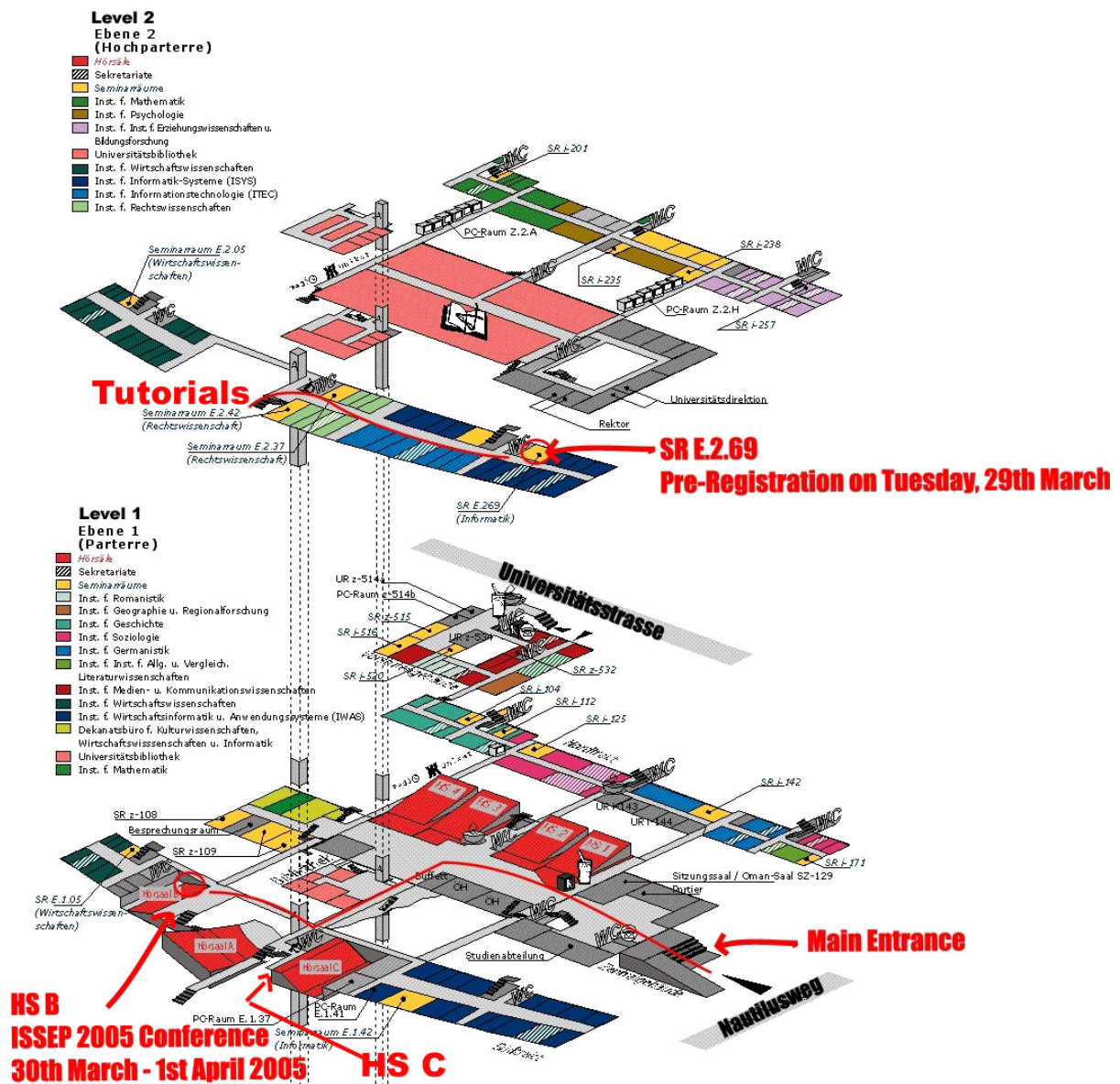
Since 1967/68 the castle is owned by the Carinthian Hunters Association (Kärntner Jägerschaft). In the park, you have free running wild life.

Venue

All ISSEP events take place in the southern wing of the university. The main registration desk is located before lecture hall **HS B** on the 1st floor of the building. Parallel sessions take place in **HS C** (also to be reached from 1st floor). Behind HS C (Room 1.41, indicated blue) are computer rooms. They are used for practical parts of tutorials and can be used for internet access by ISSEP participants.

Tutorials start at seminar room **2.42**, on the second floor.

Coffee breaks with poster presentations as well as the buffet for the governor's reception are located in the Aula on the ground floor in front of HS B.



ISSEP gratefully acknowledges the support of the following industrial sponsors:

