CESCIT 2012 welcomes you to Würzburg!

Information Package

http://www7.informatik.uni-wuerzburg.de/cescit

cescit2012@informatik.uni-wuerzburg.de

CESCIT 2012
April 3-5, 2012, Würzburg

1st IFAC Conference on
Embedded Systems,
Computational Intelligence
and Telematics in Control

Photo: Elmar Hahn
1. Welcome address

Prof. Matjaž Colnarčič
Conference Chair
University of Maribor, Slovenia

Dear conference guests,

Since quite some time now, it is hardly possible to imagine the implementation of industrial control without computer control systems. For their proper design, a very broad knowledge is becoming more and more important, reaching from all aspects of embedded computers, communication between them, artificial intelligence and telematics.

These topics are being covered by a number of international conferences, which, however, are often specialized on certain computer related topics. In the IFAC’s Coordinating Committee on Computers, Cognition and Communication in control, the need emerged to organize a conference, focusing on all aspects of embedded systems that are of particular interest of control systems implementation.

The coordinating committee is already sponsoring a number of successful scientific and professional events covering specific areas in this domain. The idea of CESCIT is to organize a joint conference with carefully selected, but broad and non-limiting topics that pertain to computer control. By co-locating all sponsored events in one year, with the addition of emerging new topics, we hope that CESCIT will provide a forum for exchanging knowledge, communication and cross-fertilization of ideas among professionals and scientists from research, academia and industry. CESCIT is aiming at becoming a triennial event, organized in each year following the IFAC’s World Congress.

If you are in any sense involved in computer control, or any area of design and/or implementation of control applications, education, etc., you are cordially invited to share your achievements, ideas, or needs with other participants and thus contribute to the advances in our common domain which is such an important part of our reality. Welcome to Würzburg in April 2012!

Matjaž Colnarčič

2. Welcome address

Prof. Klaus Schilling
CESCIT Chair of National Organizing Committee
University of Würzburg, Germany

Dear conference guests,

It is my pleasure and honor to invite you to the IFAC CESCIT conference in Würzburg. This location offers a perfect mix of rich historical heritage and high-tech innovations. It can be reached easily by high speed trains (directly connecting Frankfurt, Munich, and Nürnberg Airports).
The University, founded in the year 1402, has been a proud home to 14 Nobel laureates who have researched and taught here. The list includes Prof. Roentgen, discoverer of the X-rays, whose lab can still be visited. Current activities can be seen on a laboratory tour related to the conference topics.

The city of Würzburg was founded 1300 years ago on the banks of the river Main and is surrounded by vineyards and historical monuments. Several interesting medieval cities (Rothenberg, Dinkelsbühl) are in the near vicinity and Würzburg is also the starting point of the "Romantic Road" that leads to King Ludwig's castles. Prominent touristic places to visit in Würzburg are the castle, hosting museums of art, and the baroque residence of the bishop (a UNESCO world heritage site).

I am looking forward to meeting you in Würzburg in April to share with you the technical highlights of the conference, as well as the cultural treasures of this region.

Klaus Schilling

3. Registration Details

All conference participants are required to register in order to attend the conference. For oral presentation and inclusion of paper in conference proceedings, a full registration before January 31, 2012 is mandatory for at least one author/presenter. Student registrations are intended for students who wish to visit the conference – papers cannot be published and presented with such a registration. A maximum of two papers can be published for each full (non-student) registration.

Registration Link: www.vdi.de/index.php?id=47096
Early Registration Deadline: 31.01.2012
Registration Deadline for Authors: 31.01.2012
Early Registration Fees: 690 Euros
Registration Fees (after 31.01.2012): 750 Euros
Student Registration Fees: 345 Euros

Included in the registration fee are:
- Conference participation, conference proceedings
- Lunch on all conference days
- Two coffee & snack breaks on each conference day
- Welcome reception at Würzburg's town hall and a night tour of the city
- One conference banquet

4. Contacts & Links

Local Coordinator
Prof. Dr. Klaus Schilling
University Würzburg
Informatik VII: Robotics & Telematics
Am Hubland, 97074 Würzburg, Germany
Tel.: +49 931 318 6647

Conference E-Mail: cescit2012@informatik.uni-wuerzburg.de
Conference home page: http://www7.informatik.uni-wuerzburg.de/cescit
5. Sponsors

IFAC TC 3.1 Computers for Control
IFAC TC 3.2 Computational Intelligence in Control
IFAC TC 3.3 Telematics: Control via Communication Networks

6. Co-Sponsors

IFAC TC 4.1 Components and Technologies for Control
IFAC TC 4.2 Mechatronic Systems
IFAC TC 4.3 Robotics
IFAC TC 4.5 Human Machine Systems
IFAC TC 4.7 Aerospace
IFAC TC 7.3 Intelligent Autonomous Vehicles
VDI/VDE GMA, German NMO in IFAC
University of Würzburg www.uni-wuerzburg.de
Zentrum für Telematik www.telematik-zentrum.de

7. Topics

(1) Common CC3 topics
Architectures for real-time, distributed, intelligent embedded control systems (e.g. special and dedicated processors, parallel processing, communication platforms, middleware, ASICs, etc.)
Modelling, design, and implementation of real-time, distributed, intelligent embedded control systems
Validation, verification, testing, evaluation of embedded systems and applications
Safety, reliability, maintainability, security
Fault detection, fault tolerance
Re-configurable control,
Modelling of the physical embedding systems
Man-machine interfaces for real-time distributed computer control systems

(2) Computer-based control systems
Real-time algorithms,
Scheduling, schedulability, temporal predictability, time analysis
Programming and programming platforms
Logical design, physical design, and implementation of embedded computer systems
Model-driven engineering of computer-controlled systems
Operating systems,
Inter-computer communications
Partitioned embedded systems,
Virtualization in embedded systems
Programmable logic controllers
Standards-based platforms and environments

(3) Computational intelligence methods in modeling, systems identification and control
Search methods and decision-making: neural networks, evolutionary computing, fuzzy techniques
(single or multiple objective);
Swarm Intelligence (e.g., ant colony, particle swarm, differential evolution, cultural algorithms)
Neurodynamic optimization
Adaptive dynamic programming,
Biologically plausible neural networks, computational neuroscience, neurodynamics and regulatory
networks,
Brain computer interface, Cognitive architectures,
Neuroinformatics,
Bioinformatics,
Hybrids of computational intelligence systems (e.g neuro-fuzzy systems, neuro-genetic, etc.),
Intelligent systems and instrumentation: smart systems, sensors, actuators and distributed
systems,
Data fusion and data mining; Fault management and knowledge processing and representation; Use
of internet technology; Intelligent agents
Training and adaptation algorithms,
Constructive algorithms,
Structures for computational intelligence,
Design methodologies

(4) Telematics: control via communication networks
Telecommunication-based automation systems,
Remote servicing,
Remote and distributed control,
Remote sensor data acquisition
Internet of things
Tele-presence, Tele-robotics, Tele-maintenance, Tele-medicine, Tele-education
Traffic control systems
Smart energy grids
Spacecraft servicing

(5) Embedded systems applications, industrial projects, case studies, related topics
Applications of computer-based control systems, computational intelligence and telematics,
including: process control, manufacturing, mechatronics, robotics and autonomous systems, power
systems, energy management, intelligent house, environmental systems, medical and biomedical,
biology, biotechnology, transport, aerospace, agriculture, economics and business systems
Efficiency of embedded systems (power, size, performance,..)
Ubiquitous, pervasive systems, context aware systems, ambient intelligence
Mobile embedded applications
Education in computer control systems
8. Technical Highlights

**Industrial Round Table**

A panel of distinguished industrial researchers will discuss "The Future of Computers in Automatic Control".

- Prof. Dr. Heinz Gerhäuser (Former director, Fraunhofer IIS, the home of the mp3-standard)
- Dr.-Ing. Eberhard Kroth (Managing Director Reis Group Holding)
- Hans-Hermann Spohr (Director Wittenstein Motion Control)
- Christoph Winterhalter, (Director ABB Research Center)

**Plenary Sessions**

The following plenary lectures by outstanding researchers are in the offing:

- **"Smart Cars for Safe Driving" by Prof. Dr. Dariu Gavrila (Daimler AG, Germany)**

  *Presentation outline:*
  a) Overview: intelligent vehicles / driver assistance systems
  b) Focus on active pedestrian safety
  c) Discussion and outlook: intelligent vehicles / driver assistance systems

  *Speaker Biography:*
  Dariu M. Gavrila received the PhD degree in computer science from the University of Maryland at College Park in 1996. Since 1997, he has been a Senior Research Scientist at Daimler R&D in Ulm, Germany. In 2003, he was further appointed professor at the University of Amsterdam, chairing the area of Intelligent Perception Systems (part time). Over the last decade, Prof. Gavrila has focused on visual systems for detecting humans and their activity, with application to intelligent vehicles and surveillance. His contributions are frequently cited; he received the I/O 2007 Award from the Netherlands Organisation for Scientific Research (NWO) as well as several conference paper awards.

- **"The Role of Communication in Industrial Control" by Stefan Svensson (ABB, Sweden)**

  *Presentation outline: Coming Soon*

  *Speaker Biography:*
  Stefan Svensson holds a MSc. in Electrical Engineering from the Technical University of Lund. He joined ABB in Sweden in 2001 as researcher at ABB Corporate Research developing embedded systems for different kinds of field level communication. From 2005 until 2008 Stefan Svensson worked as the coordinator for ABB research in Wireless and Mobility. Between 2008 and 2010 he worked as a group leader at the Acreo Research Institute in the area of innovative electronics. He returned to ABB in 2011 to take on the position of manager for the industrial communication program. Industrial communication in the ABB definition includes wired and wireless communication, device integration as well as embedded systems development. As program manager Stefan Svensson manages a portfolio of around 40 projects (~62 people) and is responsible for the ABB strategy in the area. The people working in the program are located in five countries, in addition to Sweden also in India, Germany, Switzerland and Norway.
• "Safety and Security in Industrial Environments" by Dr. Milos Svoboda (Siemens AG, Germany)

**Presentation outline:**
In industrial environments, safety driven requirements, availability, and liability are critical. Industry systems were once believed to be closed based on proprietary technology and immune from cyber-attacks. But along with the adoption of open technology and increased external connectivity, they are apt to become the targets of attacking activities, which might result in economic loss, infrastructure damage, and even endanger human lives. Thus, safety at the company level is highly related to the overall IT security. Industrial safety and security have received more and more concerns from industries as well as academia. In this context, this lecture will address how IT security will influence safety in the future and vice versa.

**Speaker Biography:**
Milos Svoboda is heading the Security Research within Siemens Corporate Technology. Before that, he coordinated the worldwide Siemens Security Business, right from when Siemens started to focus on the Security Business as corporation topic in 2004. In 1996, when he joined Siemens, he founded and headed the IT consulting business within Siemens Business Services. Before joining Siemens he worked for Digital Equipment in different Management Positions in the Consulting Business. During his research activities at the Fraunhofer Institute in Munich and Erlangen, he was awarded his Dr. rer. nat degree in Applied Mathematics in the simulation for manufacturing of semiconductor elements.

**Invited Sessions**
The following invited sessions, encompassing a broad technical spectrum, are planned for conference participants:

- Telematic Applications
- Modeling in Automation Engineering
- Intelligent Transport Systems (ITS)
- Design, Analysis and Synthesis of Discrete Event Systems
- Robot Vehicles
- Promoting Innovation in the Industrial Informatics and Embedded Systems Sectors through Networking
- Sensors and Control for Manipulation Applications

**Publications**
Selected papers will be invited for special issues of the high profile IFAC-related journals "Control Engineering Practice" and "Space Technology". All papers will be published on IFAC-Online.
9. Technical Program

The preliminary technical program is now online and can be accessed at Program At a Glance. For convenience, a technical program overview (subject to change) is also available below.

Legend

<table>
<thead>
<tr>
<th>Plenary Sessions</th>
<th>Invited Sessions</th>
<th>Breaks</th>
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Tuesday, 03.04.2012

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>8:00</td>
<td>Opening of Registration</td>
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<tr>
<td>09:00</td>
<td>Opening Ceremony</td>
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<tr>
<td>09:15</td>
<td>Prof. Dr. Dariu Gavrila (Daimler AG, Germany): Smart Cars for Safe Driving</td>
</tr>
<tr>
<td>10:15</td>
<td>Coffee Break</td>
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<tr>
<td>10:45</td>
<td>Telematic Applications</td>
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<tr>
<td>12:05</td>
<td>Lunch (Mensa)</td>
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<tr>
<td>13:00</td>
<td>Modeling in Automation Engineering</td>
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<tr>
<td>14:00</td>
<td>Design, Analysis and Synthesis of Discrete Event Systems</td>
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<td>14:30</td>
<td>Coffee Break</td>
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<tr>
<td>15:00</td>
<td>Intelligent Transport Systems (ITS)</td>
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<tr>
<td>16:00</td>
<td>Industrial Round Table on &quot;The Future of Computers in Automatic Control&quot;</td>
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<tr>
<td>19:15</td>
<td>Conference Dinner</td>
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Wednesday, 04.04.2012

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>08:30</td>
<td>Stefan Svensson (ABB, Sweden): The Role of Communication in Industrial Control</td>
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<td>09:30</td>
<td>Coffee Break</td>
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<tr>
<td>09:45</td>
<td>Design, Analysis and Synthesis of Discrete Event Systems</td>
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<td>11:05</td>
<td>Robot Vehicles</td>
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<tr>
<td>11:30</td>
<td>Coffee Break</td>
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<tr>
<td>11:30</td>
<td>Promoting Innovation in the Industrial Informatics and Embedded Systems Sectors through Networking</td>
</tr>
<tr>
<td>12:30</td>
<td>Design and Implementation of Embedded Computer Systems</td>
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<tr>
<td>14:00</td>
<td>Lunch (Mensa)</td>
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<tr>
<td>15:00</td>
<td>Design of Embedded System Architectures</td>
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<td>16:00</td>
<td>Coffee Break</td>
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<tr>
<td>16:00</td>
<td>Industrial Round Table on &quot;The Future of Computers in Automatic Control&quot;</td>
</tr>
<tr>
<td>19:15</td>
<td>Conference Dinner</td>
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### 10. Instructions to Speakers

- Please arrive to the conference room 15 minutes before the start of the session in which you will be presenting. If you are unable to do so, please contact your session’s chair before the conference. Failure to be present at your allotted presentation time may lead to your talk being cancelled and prevent your paper from being published.

- The conference rooms will be equipped with a beamer (projector) and a computer with Windows 7, PowerPoint 2010, Word 2010, Open Office and Adobe Acrobat installed. VLC media player and video codec pack K-Lite (full version) are also installed. Additionally, a chalkboard will also be available.

- Provide your presentation on a USB drive to the session chair before the start of your session such that he/she can copy all the presentations to the common PC. The session chair will be available in the room 15 minutes before the start of the session. You may use your own laptop in exceptional conditions (such as requiring specialized software). Please inform the session chair before the session if you plan on using a private laptop.

- You are allocated with 15 minutes for your presentation followed by 5 minutes for discussion. Please adhere to the time provided.

- The session chair will give you a warning when you are approaching the end of your allotted time.

- A laser pointer and remote control are available if needed. Please ask your session’s chair if you need one.

- If you are bringing special equipment or require other equipment not mentioned above, please speak to your session chair to see if your requests can be accommodated.

- If you have any questions, please contact your session’s chair.
11. Location

The First IFAC Conference on Embedded Systems, Computational Intelligence, and Telematics in Control (CESCIT 2012) will be held from 3rd - 5th April 2012 at the University of Würzburg (Turing and Zuse lecture halls in the Computer Science building).

Julius-Maximilians-University Würzburg (JMUW)
The University was first founded in 1402 & today enrolls more than 20,000 students in 12 faculties and hosts well known research institutions. 14 Nobel Prize winners worked here, among them is Wilhelm Röntgen, the discoverer of X-rays.

12. Travel

Public transportation in Würzburg

Important bus route numbers and stop names:

- Concerned route numbers include 14, 114, 214 and 10.
- Destination stops include: "Hubland/Mensa" for route numbers 114 & 214, "Mathematisches Institut" for route number 14 and "Universitätszentrum" for route number 10.
- Routes 14, 114, and 214 depart from the main bus station which is located beside the train station.

Important Links

- Download PDF time tables by entering the line numbers
- Check for connections by entering addresses/bus stops
Getting from Würzburg railway station to conference location

*Note: For precise planning, please use the links above.*

- Option 1: Take bus route 14 in the direction of Gerbrunn and get off at the “Mathematisches Institut” stop. Follow the walking directions shown in the figure titled “Campus Map”.
- Option 2: Take Bus 114 in the direction of Fachhochschule and get off at the “Hubland/Mensa” stop. Follow the walking directions shown in the figure titled "Campus Map”.
- Option 3: Take tram route 3 (STR 3) in the direction Heuchelhof Athener Ring and transfer at the stop “Sanderring” to Bus route 10 (stop name: Sanderglacisstraße). Finally get off at the “Universitätszentrum” stop and follow the walking directions shown in the figure titled “Campus Map”.
Travelling to Würzburg

By Plane

- Frankfurt and Nürnberg are the two closest international airports.
- There are direct train connections to Würzburg. [www.bahn.de](http://www.bahn.de).
  - From Frankfurt airport the train takes about 90 minutes and departs every hour.
  - From Nürnberg, the train takes between 1 and 2 hours and departs almost every 30 minutes.

By Car

- Via motorway A3
  Take Exit 72 (Rottendorf) to Bundesstraße 8 towards Würzburg - exit in Gerbrunn, turn right at the traffic lights, and follow the signs to "Uni Hubland". After 2.2km you will reach a T-junction by which time you will have crossed four traffic lights.
  - You are now located at the upper right hand corner of the Hubland campus map
  - Take a right turn in the direction of Würzburg. At the second traffic light, turn left onto 'Am Hubland'. Bear left and take the first street at the left hand side, which is 'Theodor-Boveri-Weg'. This road bends slightly to the right, and after about 600 meters you will reach the buildings of the Faculty of Mathematics and Computer Science.
- Via motorway A7
  At the interchange Biebelried (A3/A7), switch to motorway A3 towards Würzburg and then follow the description above.
• **Route planning** with Google Maps: [Route to Faculty of Mathematics and Computer Science](#)
• **Navigation systems:** There are no street numbers on the campus, so please use the address 'Theodor-Boveri-Weg, Würzburg' instead. You will then be lead to the campus.
  Or use the following GPS coordinates:
  N 49° 46,876'
  E 9° 58,452'
• **Parking:** Please keep in mind that some of the parking sites are reserved for members of the staff. There is however plenty of public parking also available. Parking slots for the differently abled are available close to the "Rechenzentrum" and in front of the "Informatik" building.
13. Visa Requirements & Letter of Invitation

Visitors from outside Germany should check whether or not a visa is required. Participants requiring an official letter of invitation in order to obtain a visa should contact Prof. Dr. Klaus Schilling at cescit2012@informatik.uni-wuerzburg.de at the earliest.

14. Accommodation

In order to make it easier for conference participants, blocks of rooms have been reserved in different hotels in Würzburg in cooperation with Congress_Tourismus_Wirtschaft. Interested participants are encouraged to book rooms through the following URLs:

Exhaustive hotel map of Würzburg

Hotels in Würzburg

27 Hotel Alter Kranen
17 Top-Hotel Amberger
38 B&B Hotel
35 Hotel Am Congress Centrum
64 Appart Hotel International
70 Hotel Brehm
3 Hotel Central
7 City Hotel Meesenburg
10 City Hotel Schönleber
31 Hotel Dortmund Hof
70 Hotel Fischzucht
22 Hotel Franziskaner
14 Theaterhotel Goldenes Fass
29 Hotel Greifensteiner Hof
41 Hotel Grüner Baum
62 Gasthaus Zum Hirschen
36 Hotel Ibis Würzburg
58 Hotel Lindleinsmühle
6 Maritim Hotel
40 Mercure Hotel Würzburg am Mainufer
56 Hotel Mühlenhof-Daxbaude
18 Novotel Würzburg
12 Hotel Poppular
73 Best-Budget Hotel, Post Hotel
77 Gasthof Ab ins Postkutschen
21 Best Western Premier Hotel Rebstock
2 Hotel Regina
33 Hotel Residence
16 Hotel St. Josef
5 Pension Siegel
15 Hotel-Gasthof Zur Stadt Mainz
54 Schlosshotel Steinburg
32 City Partner Hotel Strauss
23 Nichtrauch-Hotel Till Eulenspiegel
30 Hotel Urlaub
20 mD-Hotel Walfisch
25 Hotel Zum Wintermännle
8 Hotel Würzburger Hof
75 Ringhotel Wittelsbacher Höh
2 Pension Zimmerfrei

Jugendherberge / Hostel
1 Babelfish-Hostel
47 Jugendherberge Würzburg

Campingplätze
71 Campingplatz Kalte Quelle
78 Kanu-Club
15. Social Events

Day 1: 3rd April, 2012

Welcome Reception starting at 19:00

Meeting Point: Fountain "Vieröhrnenbrunnen" (Refer: Meeting points map)
Meeting Time: 18:45 hrs

The first evening during your stay in Würzburg starts off with a welcome reception in the historic town hall where you will be greeted by the town officials.

Night Tour of the City starting at 21:00

Meeting Point: Fountain "Vieröhrnenbrunnen" (Refer: Meeting points map)
Meeting Time: 20:45 hrs

After supper you will then take a tour with the “Würzburger Nachtwächter” (night-watchmen), who will introduce you to the scenery of the town center and tell you stories about this historical town.

Day 2: 4th April, 2012

Conference Banquet

Bus Point 1: University Campus, near computer science building at 17:45 (Refer: Map)
Bus Point 2: Residenz parking lot at 19:00 (Refer: Map)
Bus Point 3: Bus stop near Hotel Maritim at 19:00 (Refer: Map)
Meeting Point: Marienberg Fortress parking lot at 19:15 (Refer: Map)
The conference dinner will take place at the “Festung Marienberg” (Marienburg Fortress) overlooking Würzburg. There, you will have a chance to take in the stunning view, to explore the stronghold built around the year 1200, and to enjoy a sample of traditional Franconian food and wine during dinner.

Bus Transfer: Buses have been arranged to pick up and drop conference participants to and from the banquet location. Due to traffic regulations, participants are requested to be on time at the pickup and meeting points. Volunteers will wait at pickup points to guide participants.

- Buses will initially pick up conference participants from the university (Bus Point 1) and drop them at Bus Point 2 or Bus Point 3, also marked on the meeting point map. This journey takes about 10 minutes.
- Participants will once again be picked up at Bus Point 2 or Bus Point 3 at 19:00 and taken to the conference banquet location. In between, participants have the opportunity to either go back to their hotels to freshen up or take a walk around the "Residenz".
16. Tourist Information and Local Amenities

Highlights of Würzburg include one of Europe’s most well know baroque castles and UNESCO World Heritage Site the Residence, the medieval fortress Marienberg, the historic town hall building, and the Romanesque cathedral “St. Kilian.” From the old bridge “Alte Mainbrücke”, situated next to the town hall, you will be able to enjoy fantastic views of the fortress “Marienberg,” the pilgrimage church “Käppele” with sloping stretches of Würzburg’s famous vineyards.

Take a walk in the gardens adjacent to the Residence Palace, a baroque UNESCO World Cultural Heritage Site built by the famous architect Balthasar Neumann. Explore the interior of this former home of the local Prince-Bishops to see the Imperial Hall and the famous ceiling fresco painted by Tiepolo above the central staircase. Cross the river Main on the Old Main Bridge (Alte Mainbrücke), the oldest existing bridge crossing the river, lined with statues of saints, to climb up to the mighty Marienburg Fortress (Festung Marienberg). Rising above Würzburg, you can spot the church Käppele and enjoy a panoramic view of the town and the adjacent vineyards from there.

Sample the Franconian Wine (Frankenwein) while diving into the local nightlife in one of the numerous pubs and restaurants. Würzburg features countless sights and places to visit – ask the local staff for pointers of where to start.

- Würzburg’s official website:  
- Must see places in Würzburg  
- Romantic Road:  
  http://www.romanticroad.com/