



Basis of Structural Timber Design  
from Research to Standards



Connections Conference and  
6<sup>th</sup> Workshop

Final Programme  
(as of 07.09.2017)

## **Final Programme**

**“International Conference on Connections in Timber Engineering – From  
Research to Standards” and  
6<sup>th</sup> Workshop of COST Action FP1402**

Graz University of Technology (TU Graz), Austria  
Wednesday 13<sup>th</sup> – Friday 15<sup>th</sup> September, 2017

## **Local Organizers**

Dr. Andreas Ringhofer and Prof. Reinhard Brandner  
Graz University of Technology, Austria  
Institute of Timber Engineering and Wood Technology  
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Email: [reinhard.brandner@tugraz.at](mailto:reinhard.brandner@tugraz.at)



## PROGRAMME

**Wednesday, September 13<sup>th</sup> 2017**

**Auditorium “Hörsaal L” (please refer to attached map)**

Campus “Alte Technik” | Lessingstrasse 25, 8010 Graz

08:00 – 09:00	Registration – Signing of Attendance list and payment of fee (for FP1402: EUR 80.00; only cash & €)
09:00 – 09:30	Opening and Conference Overview ( <i>Philipp Dietsch, Reinhard Brandner</i> )
09:30 – 10:00	The practical design of dowel-type connections in timber engineering structures according to EC5 ( <i>Alfons Brunauer</i> )
10:00 – 10:30	Assessment of existing safety formats for timber connections – How probabilistic approaches can influence connection design in timber engineering ( <i>Robert Jockwer, Gerhard Fink &amp; Jochen Köhler</i> )
10:30 – 11:00	Considerations of connection ductility within the design of timber structures ( <i>Frank Brühl &amp; Ulrike Kuhlmann</i> )
11:00 – 11:30	Coffee Break
11:30 – 12:00	Impact of standards and EADs on the determination of single fastener properties ( <i>Jørgen Munch-Andersen</i> )
12:00 – 12:30	Nailed joints: Investigation on input parameters for Johansen model ( <i>Carmen Sandhaas &amp; Rainer Görlacher</i> )
12:30 – 13:00	Design approaches for dowel-type connections in CLT structures and their verification ( <i>Andreas Ringhofer, Reinhard Brandner &amp; Hans Joachim Bläß</i> )
13:00 – 14:00	Lunch



- |               |   |
|---------------|---|
| 14:00 – 14:30 | Performance of dowel-type fasteners for hybrid timber structures ( <i>Alfredo Dias</i> )  |
| 14:30 – 15:00 | Push-out vs. beam: Can the results of experimental stiffness of TCC-connections be transferred?<br>( <i>Jörg Schänzlin &amp; Simon Mönch</i> )                        |
| 15:00 – 15:30 | Numerical modeling of the load distribution in multiple fastener joints<br>( <i>Thomas K. Bader, Jean-Francois Bocquet, Michael Schweigler &amp; Roman Lemaitre</i> ) |
| 15:30 – 16:00 | Coffee  |
| 16:00 – 16:30 | Brittle failure of connections loaded parallel to grain<br>( <i>Pierre Quenneville</i> )  |
| 16:30 – 17:00 | Brittle failure of connections loaded perpendicular to grain<br>( <i>Robert Jockwer &amp; Philipp Dietsch</i> )   |
| 17:00 – 17:30 | Reinforcement of timber structures – a new section for Eurocode 5<br>( <i>Philipp Dietsch &amp; Alfons Brunauer</i> )   |
| 17:30 – 18:00 | Summary and recommendations regarding the seismic design of timber connections<br>( <i>Roberto Tomasi &amp; Dag P. Pasca</i> )  |
| 18:00         | Closure   |
| 19:00         | Dinner at “Landhauskeller” (dress code: business casual)<br>(please refer to attached map)  |

### **Proceedings**

The printed proceedings will be handed out to each participant at the conference.



## Thursday, September 14<sup>th</sup> 2017

- 09:00 – 09:30      Common meeting – Aud. “Hörsaal L”  
Welcome, general information and outline of Workshop
- 09:30 – 10:30      Presentation of results from STSMs – Aud. “Hörsaal L”
- Dr. Andrii Bidakov (Kharkiv National University)  
*“Strength Properties of CLT by Tension Perpendicular to the Grain”*
- Mr. Mario Jelec (University of Osijek)  
*“Structural Analysis of In-Plane Loaded CLT Beams with Holes or Notches”*
- Dr. Almudena Majano-Majano  
(Technical University of Madrid)  
*“Splitting Capacity of Hardwood Connections Loaded at an Angle to the Grain”*
- 10:30 – 11:00      Coffee
- 11:00 – 12:00      Presentation of results from STSMs – Aud. “Hörsaal L”
- Dr. Roman Shchupakivskyy  
(Ukrainian National Forestry University)  
*“The Short-Term Wood Creep Test by Means of DMA”*
- Mr. Michael Mikoschek (Institut für Holzbau, Augsburg)  
*“Calibration and Simplification of Eurocode Safety Formats for Structural Timber Design”*
- Ms. Maria Loebjinski  
(Brandenburg University of Technology)  
*“Development of an Approach for the Evaluation of Existing Timber Structures”*
- 12:00 – 13:00      Lunch



- 13:00 – 15:00      WG meetings  
WG1: Basis of design – Aud. “Hörsaal V”  
WG2: CLT – Aud. “Hörsaal VIII”  
WG3: Connections – Aud. “Hörsaal L”  
WG4: Hybrid timber structures – room “Holzbau”
- 15:00 – 15:30      Coffee
- 15:30 – 17:00      WG meetings (continued)  
WG1: Basis of design – Aud. “Hörsaal V”  
WG2: CLT – Aud. “Hörsaal VIII”  
WG3: Connections – Aud. “Hörsaal L”  
WG4: Hybrid timber structures – room “Holzbau”
- 17:00 – 18:00      5<sup>th</sup> Management Committee meeting – Aud. “Hörsaal L”
- 18:00 –              Evening for your own disposal



## Friday, September 15<sup>th</sup> 2017

08:30 – 10:00	WG meetings (continued) WG1: Basis of design – Aud. “Hörsaal V” WG2: CLT – Aud. “Hörsaal VIII” WG3: Connections – Aud. “Hörsaal L” WG4: Hybrid timber structures – room “Holzbau”
10:00 – 10:30	Coffee
10:30 – 12:00	WG meetings (continued) WG1: Basis of design – Aud. “Hörsaal V” WG2: CLT – Aud. “Hörsaal VIII” WG3: Connections – Aud. “Hörsaal L” WG4: Hybrid timber structures – room “Holzbau”
12:00 – 12:30	Common meeting – Aud. “Hörsaal L”
12:30	Lunch
13:30 – 15:00	Common walk to the Building Technology Centre at Campus “Inffeldgründe” and tour through the lab (for those who are interested)



## Graz, Austria



**Currency** EUR €  
**Time zone** CET (UTC+1)  
**Population** 280,000

### Main landmarks

Old town & Eggenberg Castle – UNESCO world heritage sites



City hall / main square & Castle hill / Clocktower

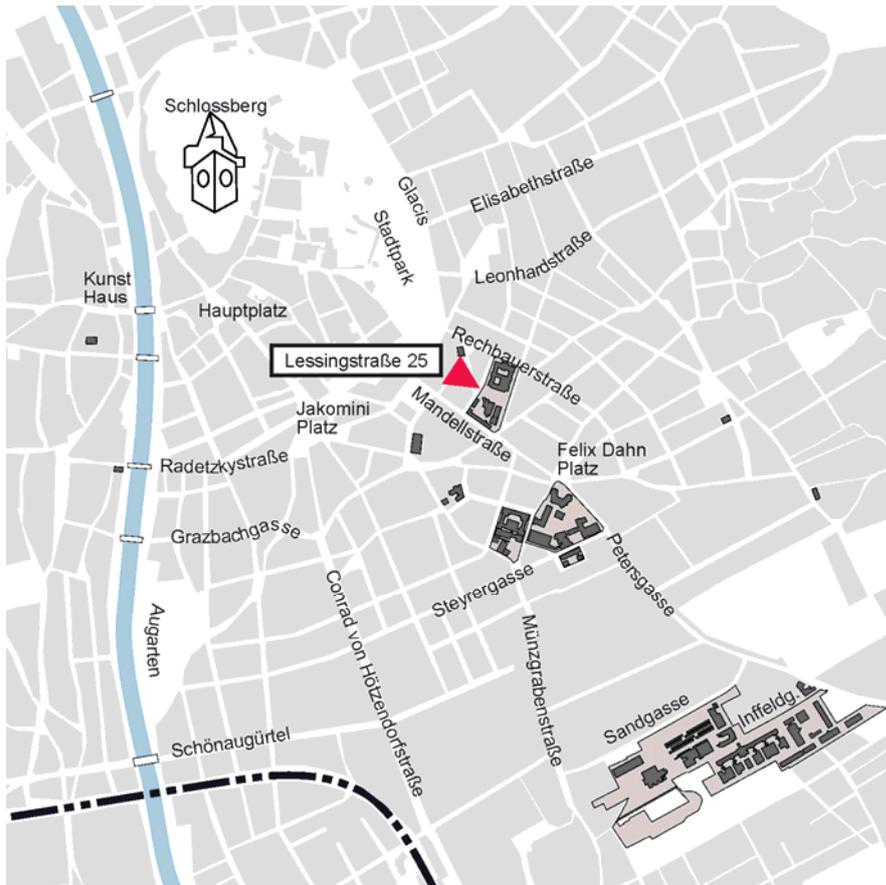




## CONFERENCE & WORKSHOP VENUE CAMPUS “ALTE TECHNIK”

Lessingstrasse 25, 8010 Graz (all, all days)

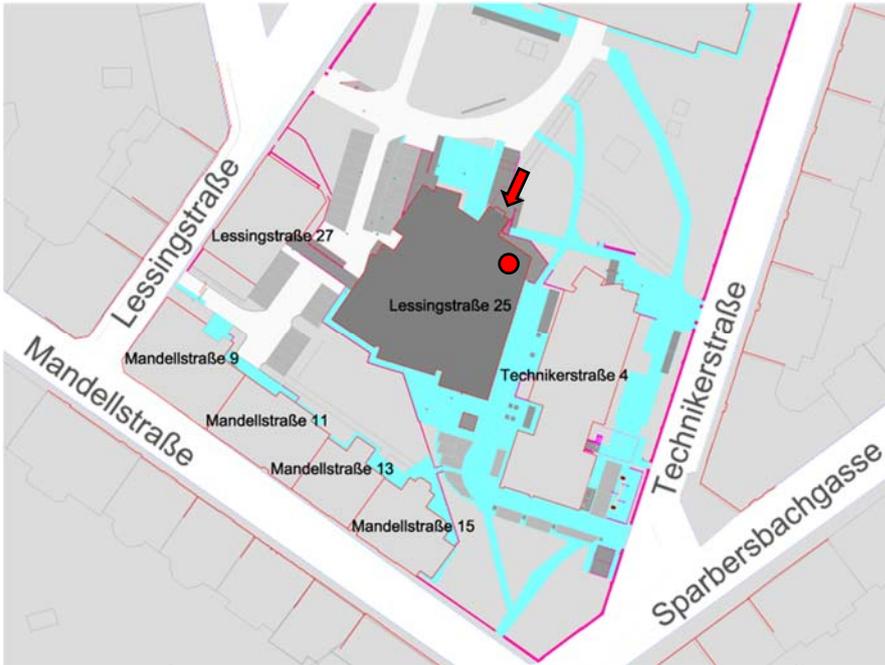
Rechbauerstrasse 12, 8010 Graz (2<sup>nd</sup> & 3<sup>rd</sup> day, WG1 & WG2)





Connections Conference and  
6<sup>th</sup> Workshop

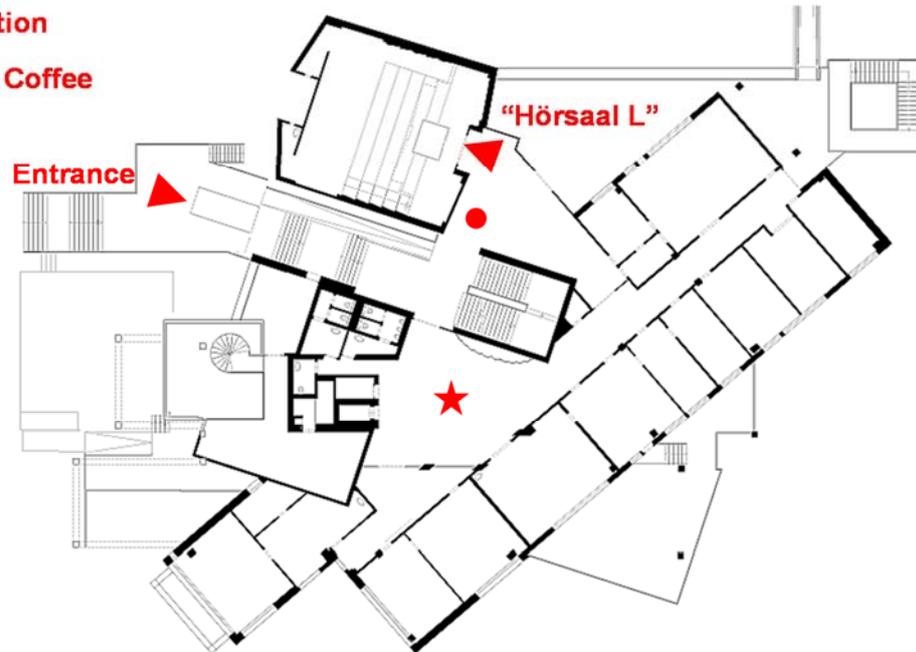
Final Programme  
(as of 07.09.2017)



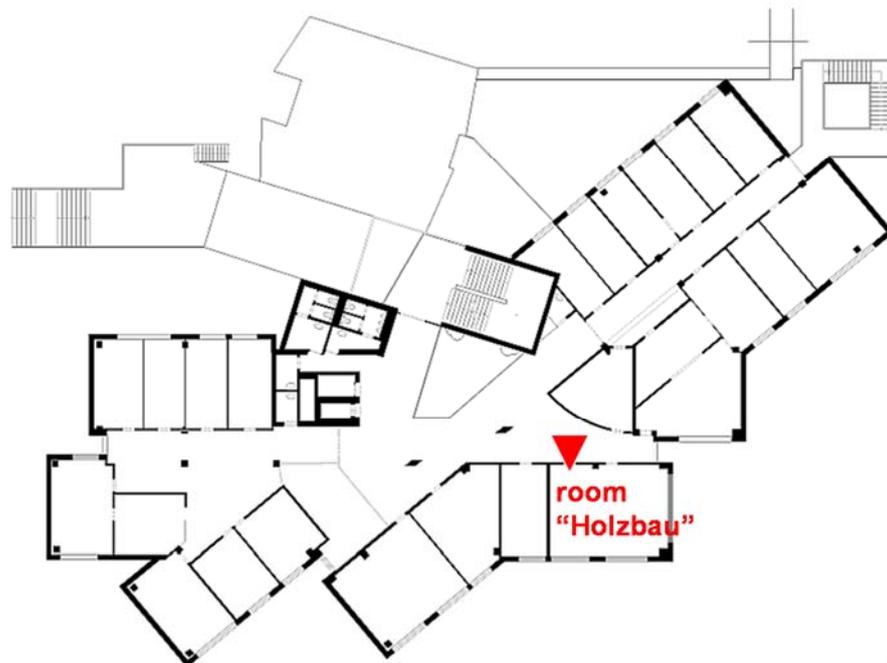


## Lessingstraße 25, 1<sup>st</sup> floor

- Registration
- ★ Lunch & Coffee



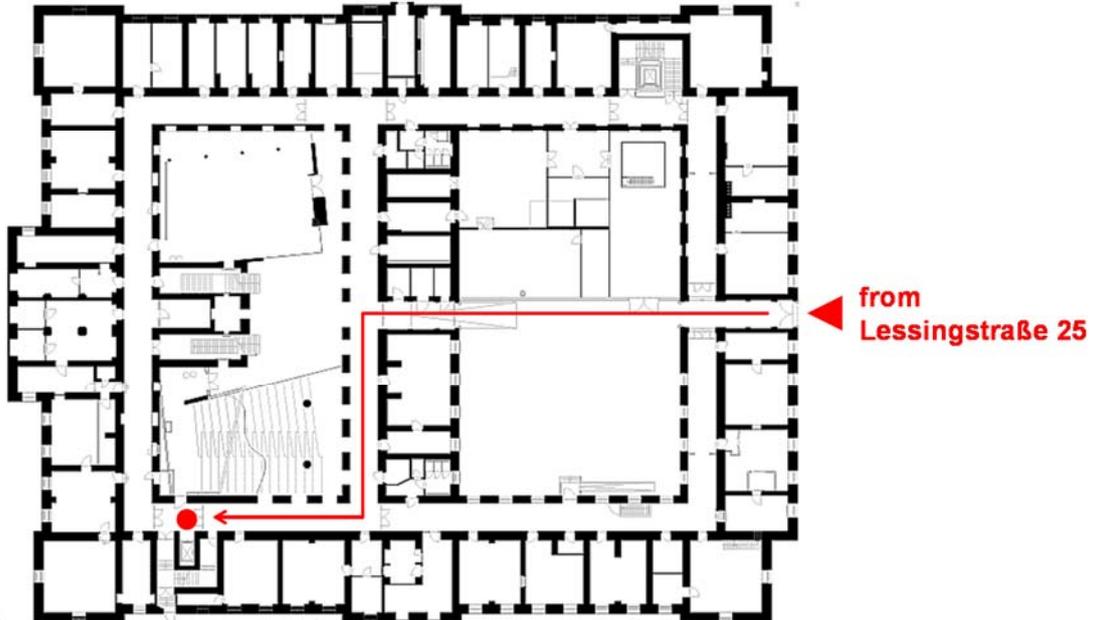
## Lessingstraße 25, 3<sup>rd</sup> floor





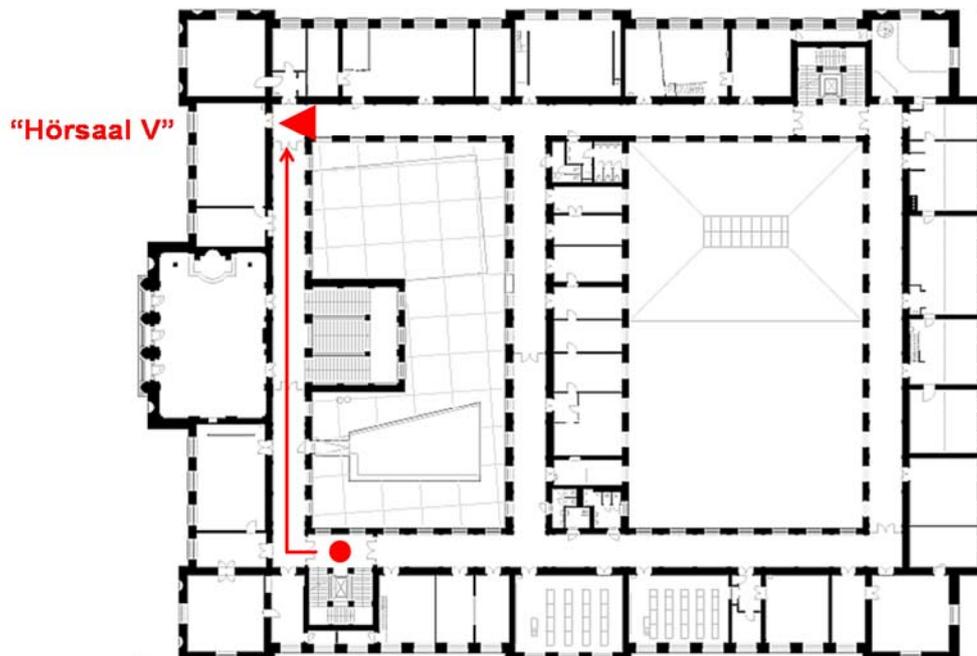
## Rechbauerstraße 12, basement

● Elevator / staircase



## Rechbauerstraße 12, 1<sup>st</sup> floor

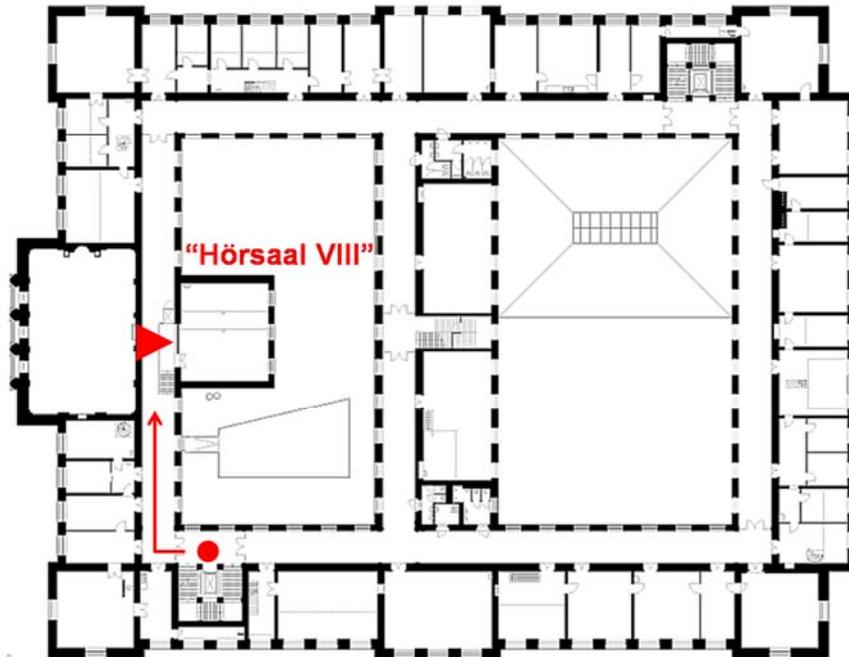
● Elevator / staircase





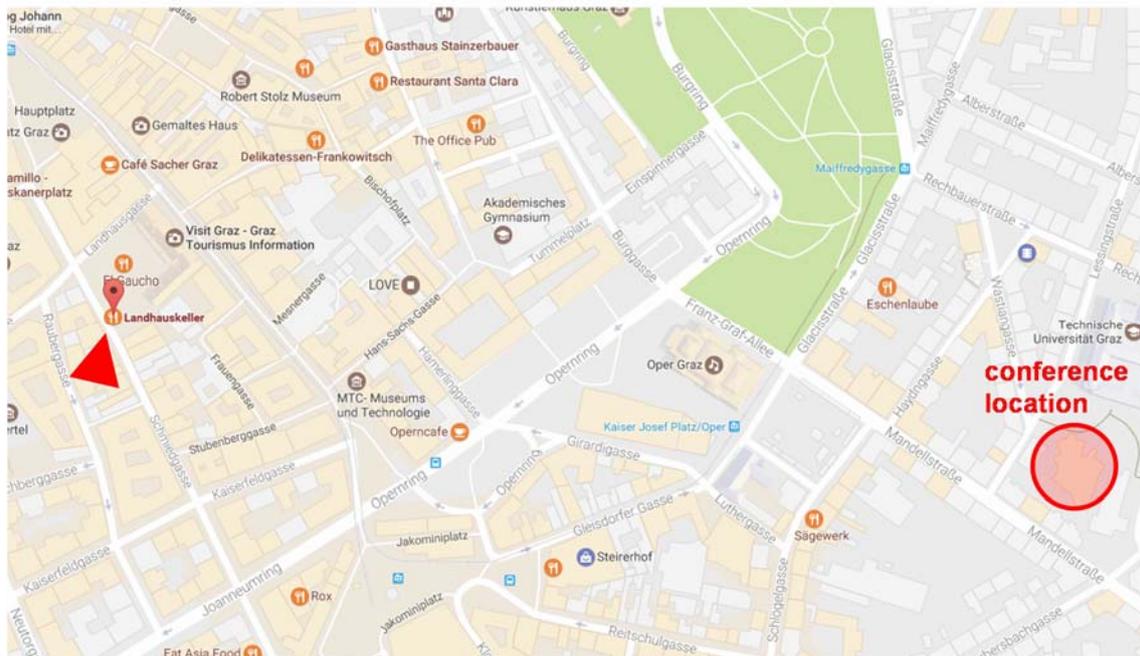
## Rechbauerstraße 12, 2<sup>nd</sup> floor

● Elevator / staircase



## ROUTE TO THE RESTAURANT

(September 13<sup>th</sup> evening, approx. 15 minutes walking distance)





## LOCAL TRANSPORTATION

- The meeting venue is located in the south-eastern part of Austria, in the capital of Styria at the campus „Alte Technik“, near the headquarter of TU Graz, about 14 km from the Airport of Graz „Thalerhof“ and about 1.5 km from the main square, the city centre of Graz ([www.graz.at](http://www.graz.at)).
- The airport of Graz (<http://www.flughafen-graz.at>) is well connected e.g. to Vienna (35 min), Munich (1 h) and Frankfurt (1 h 20 min).
- From the airport there are frequent connections to the city centre via the S-Bahn, line S5, (station “Flughafen Graz/Feldkirchen” 3-4 min walk from the airport) and via buses (station “Flughafen Graz” in front of the airport), see <http://www.holding-graz.at/linien.html>. As alternative, taxis are available on the Arrivals exit. The price to the city centre / university is approx. 25 €.



## ACCOMMODATION

Note: Graz University of Technology has organized special conditions at the following hotels: Das Weitzer, Daniel and roomz.

For hotels Das Weitzer or Daniel please refer to “**special rates of TU Graz**”.

Booking ID for hotel roomz: “**GRAZ\_TUGRAZ**”.

### Hotel Das Weitzer ([www.hotelweitzer.com](http://www.hotelweitzer.com))

Grieskai 12-16, 8020 Graz

Phone: +43 316 703-400

E-Mail: [reservations@weitzer.com](mailto:reservations@weitzer.com)

Single rooms with breakfast start from € 79; double rooms + € 15



### Hotel Daniel ([www.hoteldaniel.com](http://www.hoteldaniel.com))

Europaplatz 1, 8020 Graz

Phone: +43 316 711-080-0

E-Mail: [hellograz@hoteldaniel.com](mailto:hellograz@hoteldaniel.com)

Single rooms with breakfast start from € 77; double rooms + € 12



### Hotel roomz ([www.roomz-hotels.com](http://www.roomz-hotels.com))

Conrad von Hötendorfstraße 96, 8010 Graz

Phone: +43 316 20 48 02

E-Mail: [reservations@roomz-graz.com](mailto:reservations@roomz-graz.com)

Single rooms with breakfast start from € 75; double rooms start from € 85



**Hotel zum Dom ([www.domhotel.co.at](http://www.domhotel.co.at))**

Bürgergasse 14, 8010 Graz

Phone: +43 316 824 800

E-Mail: [domhotel@domhotel.co.at](mailto:domhotel@domhotel.co.at)



**Hotel BEST WESTERN PLUS Amedia Graz**

(<https://plazahotels.de/hotels/oesterreich/graz.html>)

Conrad von Hötzendorfstraße 60, 8010 Graz

Phone: +43 316 24 555-0

E-Mail: [graz@plazahotels.de](mailto:graz@plazahotels.de)



Start	Tram line	Entrance	Exit
Hotel Das Weitzer → venue	Line 3 to Krenngasse	Südtiroler Platz / Kunsthau	Mandellstraße
venue → Hotel Das Weitzer	Line 3 to Laudongasse	Mandellstraße	Südtiroler Platz / Kunsthau
Hotel Daniel → venue	Line 7 to LKH Med Uni / Klinikum Nord	Hauptbahnhof	Kaiser-Josef-Platz / Oper
venue → Hotel Daniel	Line 7 to Wetzelsdorf	Kaiser-Josef-Platz / Oper	Hauptbahnhof
Hotels roomz → venue	Line 4 to Andritz	Graz Fröhlichgasse / Messe	Jakominiplatz
venue → Hotels roomz	Line 4 to Liebenau	Jakominiplatz	Graz Fröhlichgasse
Hotel zum Dom → venue	public transport is not recommended, only 9 minutes walking distance		
venue → Hotel zum Dom			
Hotel Amedia → venue	Line 4 to Andritz	Jakominguertel	Jakominiplatz
venue → Hotel Amedia	Line 4 to Liebenau	Jakominiplatz	Jakominguertel

