

Topology, Algebra and Categories in Logic
2017

Information Booklet

TACL Steering Committee

Guram Bezhanishvili, New Mexico State University
Mai Gehrke, University of Paris Diderot
Rob Goldblatt, Victoria University Wellington
Ramón Jansana, University of Barcelona
Achim Jung, University of Birmingham
Hiroakira Ono, Japan Advanced Institute of Science and Technology
Yde Venema, University of Amsterdam
Michael Zakharyashev, University of London

Programme Committee

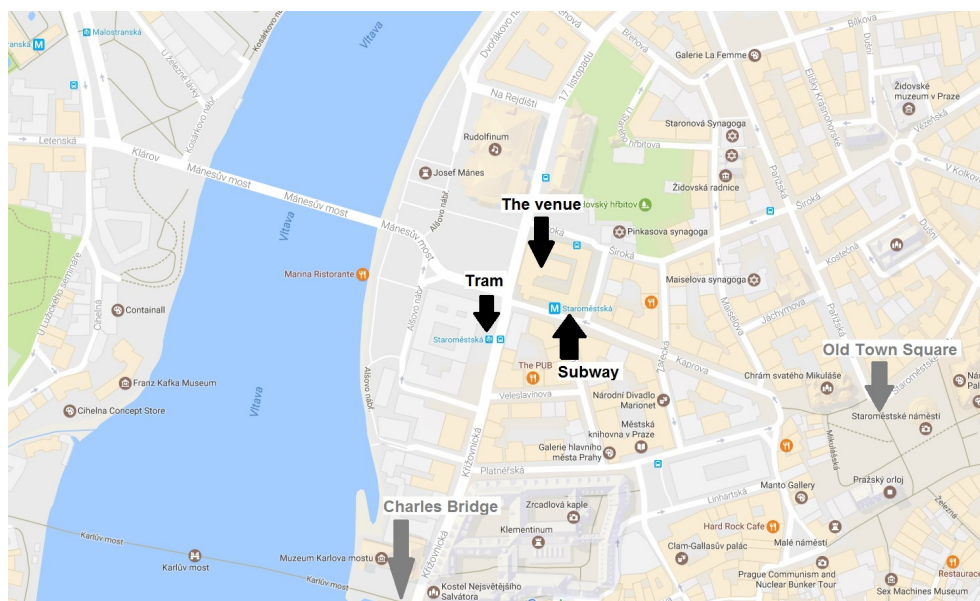
John Harding, New Mexico State University (chair)
Rosalie Iemhoff, Utrecht University (chair)
Nick Bezhanishvili, University of Amsterdam
Agata Ciabattoni, Vienna University of Technology
Nick Galatos, University of Denver
Robert Goldblatt, Victoria University of Wellington
Wes Holliday, University of California, Berkeley
Rostislav Horčík, Czech Academy of Sciences
Keith Kearnes, University of Colorado
Alex Kurz, University of Leicester
George Metcalfe, University of Bern
Larry Moss, Indiana University Bloomington
Daniele Mundici, University of Florence
Jan Paseka, Masaryk University
Jorge Picado, University of Coimbra
Anna Romanowska, Warsaw University of Technology
Phil Scott, University of Ottawa
Ilya Shapirovsky, Russian Academy of Sciences
Alex Simpson, University of Ljubljana
Benno van den Berg, University of Amsterdam
Jan van Mill, University of Amsterdam
Jiří Velebil, Czech Technical University in Prague

Contents

1	Venue	4
1.1	Registration desk	4
1.2	Lecture rooms	4
2	Conference programme	5
2.1	Programme structure	5
2.2	Monday	6
2.3	Tuesday	7
2.4	Wednesday	8
2.5	Thursday	9
2.6	Friday	10
3	Lunches	12
3.1	General information	13
3.2	Czech and European	13
3.3	Italian	13
3.4	Vegetarian	13
3.5	Cafés	13
4	Social programme	14
4.1	Welcome party	14
4.2	Boat trip	16
4.3	Banquet	17
5	Other information	18
5.1	Exploring Prague	18
5.2	Events	18

1 Venue

TACL 2017 is held in the historical building of the Faculty of Arts (*Filozofická fakulta*) of the Charles University in Prague (Náměstí Jana Palacha 1/2, Prague 1):



The nearest subway station is *Staroměstská* (line A, “green”); the nearest tram stop is *Staroměstská* (lines 1, 2, 7, 13, 14, 17, 18, 25 and night line 93). The venue is in walking distance (5-10 min) from the Old Town Square and the Charles Bridge.

1.1 Registration desk

The registration desk is located in Room 111 (1st floor); the directions from the main entrance will be clearly indicated. Registration opens on Monday 8:00.

1.2 Lecture rooms

The plenary lectures (invited talks) will be delivered in the Aula 131 (1st floor); parallel sessions of contributed talks will be held in Aula 131 and Rooms 300 and 301 (3rd floor). The directions from the main entrance will be clearly indicated. Refreshments during the coffee breaks will be served on the 3rd floor.

Lecture rooms are equipped with a data projector and a smaller whiteboard, in Rooms 300 and 301 you can optionally use an old-fashioned blackboard. It is advised to have your presentation prepared in `.pdf` on a USB key. A VGA cable will be available, but it is preferable to use the lecture room computer.

Wi-Fi connection (**eduroam**) is available in all lecture rooms and corridors of the venue; guest access to the Charles University network can be provided if necessary (please tell us during registration in case you do not have an **eduroam** account).

2 Conference programme

2.1 Programme structure

	Mon	Tue	Wed	Thu	Fri
08:00 – 09:15	Registration				
09:15 – 09:30	Opening	Hájek KGS Award ceremony			
09:30 – 10:30	IT	IT	IT	IT	CT
10:30 – 11:00	☕	☕	☕	☕	☕
11:00 – 13:00	CT	CT	CT	CT	CT
13:00 – 15:00	🍴	🍴	🍴	🍴	🍴
15:00 – 16:00	IT	IT	IT	Boat trip	IT
16:00 – 16:30	☕	☕	☕		☕
16:30 – 18:30	CT	CT	CT		CT
18:30		SYSMICS meeting	Open TACL meeting	Banquet	
19:30	Welcome party				

IT – invited talk

CT – sessions of contributed talks

Registration takes place in Room 111

Opening takes place in Aula 131

Hájek posthumous Kurt Gödel Society Award ceremony takes place in Aula 131

SYSMICS meeting – meeting of the EU Marie Skłodowska-Curie RISE project SYSMICS

Open TACL meeting – an open meeting devoted to discussing the future of TACL

2.2 Monday

09:30 – 10:30 [Aula 131]

Mai Gehrke – *Stone duality in the theory of formal languages*

11:00 – 13:00 [Aula 131]

Jónsson Special Session I

J. Harding, C. Walker and E. Walker – *The convolution algebra*

N. Galatos and P. Jipsen – *Generalized bunched implication algebras*

N. Galatos and P. Jipsen – *Classical and intuitionistic relation algebras*

T. Litak – *Algebraic generalizations of completeness and canonicity*

11:00 – 13:00 [Room 300]

S. Kikot, A. Kurucz, F. Wolter and M. Zakharyashev – \mathbf{Alt}_n in a strictly positive context

S. Kost – *Rooted frames for fusions of multimodal logics*

A. Kudinov – *Neighborhood-Kripke product of modal logics*

Z. Kostrzycka – *On interpolation in $NEXT(\mathbf{KTB})$ and $NEXT(\mathbf{KB})$*

11:00 – 13:00 [Room 301]

W. Fussner – *Twist products and dualities*

W. Kubis – *Weak Fraïssé categories and their limits*

A. Kruckman – *First-order cologic for profinite structures*

M. Botur and M. Broušek – *A new characterization of a class $HSP_U(\mathcal{K})$*

15:00 – 16:00 [Aula 131]

Bart Jacobs – *Introduction to Effectus Theory*

16:30 – 18:30 [Aula 131]

Jónsson Special Session II

P. Morandi, G. Bezhanishvili and B. Olberding – *Canonical extensions of archimedean vector lattices with strong order unit*

T. Moraschini and R. Jansana – *Unifying the Leibniz and Maltsev hierarchies*

Kentaro Yamamoto and Zhiguang Zhao – *Algorithmic correspondence, canonicity and completeness for possibility semantics*

D. I. Saveliev and N. L. Poliakov – *On two concepts of ultrafilter extensions of first-order models and their generalizations*

16:30 – 18:30 [Room 300]

M. Pra Baldi and S. Bonzio – *Undefinability of Standard Sequent Calculi for 3-valued Paraconsistent Logics*

I. Sedlár – *Bimodal bilattice logic*

S. Bonzio, A. Loi and L. Peruzzi – *A duality for involutive bisemilattices*

M. Ma and Y. Lin – *A constructive four-valued logic*

16:30 – 18:30 [Room 301]

R. Antoine, F. Perera and H. Thiel – *The Cuntz semigroup and the category Cu*

R. Antoine, F. Perera and H. Thiel – *Tensor products of Cuntz semigroups*

R. Antoine, F. Perera and H. Thiel – *Completeness and cocompleteness of the category of Cuntz semigroups*

I. Cremer – *Reduced Rickart rings and skew nearlattices*

2.3 Tuesday

09:30 – 10:30 [Aula 131]

Luca Spada – *Geometric aspects of MV-algebras*

11:00 – 13:00 [Aula 131]

Hájek Special Session

M. Baaz and A. Lolic – *First-order interpolation from propositional interpolation: a proof theoretic approach on a semantic basis*

G. Badia – *Types and models in core fuzzy predicate logics*

T. Flaminio, L. Godo and S. Ugolini – *States of free product algebras and their integral representation*

T. Kroupa and V. Marra – *The free algebra in a two-sorted variety of state algebras*

11:00 – 13:00 [Room 300]

H. Aratake – *Bicategory of theories as an approach to model theory*

C. Reis – *Compact enriched categories*

T. Imamura – *Analogies between small scale topology and large scale topology from the nonstandard perspective*

E. Kuznetsov – *Exponentiability in Stone spaces and Priestley spaces*

11:00 – 13:00 [Room 301]

A. Citkin – *Projective WS5-algebras*

V. Shehtman and D. Skvortsov – *On Kripke completeness of modal and superintuitionistic predicate logics with equality*

T. Litak – *The periodic sequence property*

15:00 – 16:00 [Aula 131]

Martín Escardó – *The frame of Scott continuous nuclei on a preframe*

16:30 – 18:30 [Aula 131]

R. Gruszczyński and G. Gerla – *Two systems of point-free affine geometry*

F. Avila – *The frame of the p-adic numbers and a p-adic version of the Stone-Weierstrass Theorem in pointfree topology*

S. Maschio and G. Sambin – *Topology as faithful communication through relations*

T. Kawai – *Lawson topology as the space of located subsets*

16:30 – 18:30 [Room 300]

A. Colacito and G. Metcalfe – *An ordering condition for groups*

G. St. John – *Undecidability of $\{*, 1, \vee\}$ -equations in subvarieties of commutative residuated lattices*

Z. Lin and M. Ma – *On the complexity of the equational theory of generalized residuated Boolean algebras*

M. Kondo – *Multiplicative derivations of commutative residuated lattices*

16:30 – 18:30 [Room 301]

T. Kowalski – *A simple restricted Priestley duality for bounded distributive lattices with order-inverting operation*

J. Smith and A. Romanowska – *Diagrammatic duality*

M. A. Moshier and A. Kurz – *Duality for relations on ordered algebras*

L. Reggio – *Quantifiers on languages and codensity monads*

2.4 Wednesday

09:30 – 10:30 [Aula 131]

Steve Vickers – *Sketches for arithmetic universes as generalized spaces*

11:00 – 13:00 [Aula 131]

J. Picado – *Sublocales and a Boolean extension of a frame*

I. Mozo Carollo, A. Moshier and J. Walter-Waylands – *An approach to subspaces of d -frames and an Isbell-type density theorem*

L. De Rudder – *Gelfand duality for compact pospaces*

S. Ardanza-Trevijano, M. J. Chasco and J. Elorza – *Properties of the annihilator of fuzzy subgroups*

11:00 – 13:00 [Room 300]

T. Moraschini – *The computational complexity of the Leibniz hierarchy*

P. Arndt, R. Jansana Ferrer, H. L. Mariano and D. Pinto – *Filter pairs: A new way of presenting logics*

T. Lávička and C. Noguera – *Infinitary propositional logics and subdirect representation*

T. Lávička and A. Přenosil – *Antistructural completeness in propositional logics*

11:00 – 13:00 [Room 301]

J. Paseka and R. Šlesinger – *Q -sup-algebras and their representation*

M. M. Clementino – *Exponentiability in quantale-enriched categories*

I. Stubbe – *Topology from enrichment: the curious case of partial metrics*

A. K. More and M. Banerjee – *Algebras from a quasitopos of rough sets*

15:00 – 16:00 [Aula 131]

Greg Restall – *Concrete category of classical proofs*

16:30 – 18:30 [Aula 131]

G. Bezhanishvili, N. Bezhanishvili, D. Gabelaia, S. Ghilardi and M. Jibladze – *The variety of nuclear implicative semilattices is locally finite*

L. Carai and S. Ghilardi – *Existentially closed Brouwerian semilattices*

S. Ghilardi, M. J. Gouveia and L. Santocanale – *Fixed point elimination in the Intuitionistic Propositional Calculus*

F. Lauridsen – *Intermediate logics admitting structural hypersequent calculi*

16:30 – 18:30 [Room 300]

Z. Zhao – *ALBA-style Sahlqvist preservation for modal compact Hausdorff spaces*

W. Conradie, A. Palmigiano and Z. Zhao – *Sahlqvist via translation*

W. Conradie, A. Craig, A. Palmigiano and Z. Zhao – *Constructive canonicity for lattice-based fixed point logics*

G. Greco, A. Palmigiano, F. Liang and P. Jipsen – *Modular proof theory for axiomatic extensions and expansions of lattice logic*

16:30 – 18:30 [Room 301]

T. Moraschini, J. Raftery and J. Wannenburg – *Varieties of De Morgan monoids I: Minimality and irreducible algebras*

T. Moraschini, J. Raftery and J. Wannenburg – *Varieties of De Morgan monoids II: Covers of atoms*

W. Dzik and P. Wojtylak – *Unification in first-order logics: superintuitionistic and modal*

M. Stronkowski – *Admissibility for universal classes and multi-conclusion consequence relations*

2.5 Thursday

09:30 – 10:30 [Aula 131]

Alexandra Silva – *(Co)algebraic foundations of automata learning*

11:00 – 13:00 [Aula 131]

F. Liang, G. Greco, A. Moshier and A. Palmigiano – *A proper Multi-type display calculus for Semi De Morgan Logic*

G. Greco, M. A. Moshier, A. Palmigiano and A. Tzimoulis – *First-order logic properly displayed*

A. Ciabattoni and R. Ramanayake – *Bunched hypersequent calculi for distributive substructural logics and extensions of Bunched Implication Logic*

V. D’Silva, A. Palmigiano, A. Tzimoulis and C. Urban – *A proof-theoretic approach to abstract interpretation*

11:00 – 13:00 [Room 300]

A. Vidal Wandelmer – *Modal logics over finite residuated lattices*

W. Conradie, W. Morton and C. Robinson – *Filtrations for many-valued modal logic with applications*

M. Bílková, G. Greco, A. Palmigiano, A. Tzimoulis and N. Wijnberg – *The logic of resources and capabilities*

L. J. Schnüriger – *Axiomatizing a reflexive real-valued modal logic*

11:00 – 13:00 [Room 301]

M. Kruszelnicka – *Yes/no formulae as a description of theories of intuitionistic Kripke models*

C. Taylor – *Expansions of Heyting algebras*

G. Bezhanishvili, K. Brantley and J. Ilin – *Arithmetic interpretation of the monadic fragment of intuitionistic predicate logic and Casari’s formula*

G. Massas – *Semi-constructive versions of the Rasiowa–Sikorski Lemma and possibility semantics for intuitionistic logic*

2.6 Friday

09:30 – 10:30 [Aula 131]

V. Aravantinos-Sotiropoulos and P. Karazeris – *Definability and conceptual completeness for regular logic*

M. Lambert – *Wild algebras in cartesian categorical logic*

09:30 – 10:30 [Room 300]

S. Lapenta, A. Di Nola and I. Leustean – *Deepening the link between logic and functional analysis via Riesz MV-algebras*

R. Grigolia, A. Di Nola and G. Lenzi – *Topological spaces of monadic MV-algebras*

09:30 – 10:30 [Room 301]

W. Javier, Z. Botero and J. L. Castiglioni – *Finite MTL-algebras*

S. Jenei – *Structure theorem for a class of group-like residuated chains à la Hahn*

11:00 – 13:00 [Aula 131]

F. Dahlqvist and A. Kurz – *Positive coalgebraic logic*

A. Balan – *A multi-valued framework for coalgebraic logics over generalised metric spaces*

M. Bílková, A. Kurz and B. Teheux – *Modal extensions of L_n -valued logics, coalgebraically*

T. Jakl – *A Vietoris functor for bispaces and d-frames*

11:00 – 13:00 [Room 300]

J. D. García – *Many-valued arrow logic with scalar product operations*

I. Shapirovsky – *Locally tabular polymodal logics*

L. Santocanale and M. J. Gouveia – \aleph_1 , ω_1 , and the modal μ -calculus

L. Santocanale – *Theories of relational lattices*

11:00 – 13:00 [Room 301]

T. Ivanova – *Logics for extended distributive contact lattices*

G. Hansoul and J. Raskin – *A duality for Boolean contact algebras*

P. Balbiani and T. Ivanova – *Extended contact logic*

E. Yang – *Standard completeness for mianorm-based logics with n -contraction, n -mingle, and n -potency axioms*

15:00 – 16:00 [Aula 131]

Alexandru Baltag – *Towards a topological theory of knowledge, inquiry and correlations*

16:30 – 18:30 [Aula 131]

S. Pulmannová – *A Loomis-Sikorski theorem and functional calculus for a generalized Hermitian algebra*

G. Jenča – *Effect algebras as colimits of finite Boolean algebras*

J. Gabriëls, S. Gagola and M. Navara – *Sasaki projections and related operations*

N. Arega and J. Van Den Berg – *Topologizing filters on rings of frictions RS^{-1} and congruence relation on $FilR$*

16:30 – 18:30 [Room 300]

S. Frittella, G. Greco, M. Piazzai, N. Wijnberg and F. Yang – *Matthew effects via dependence and independence logic*

G. Grilletti – *Disjunction and existence property in inquisitive logic*

G. Greco, A. Palmigiano and F. Yang – *Proper multi-type display calculi for classical and intuitionistic inquisitive logic*

16:30 – 18:30 [Room 301]

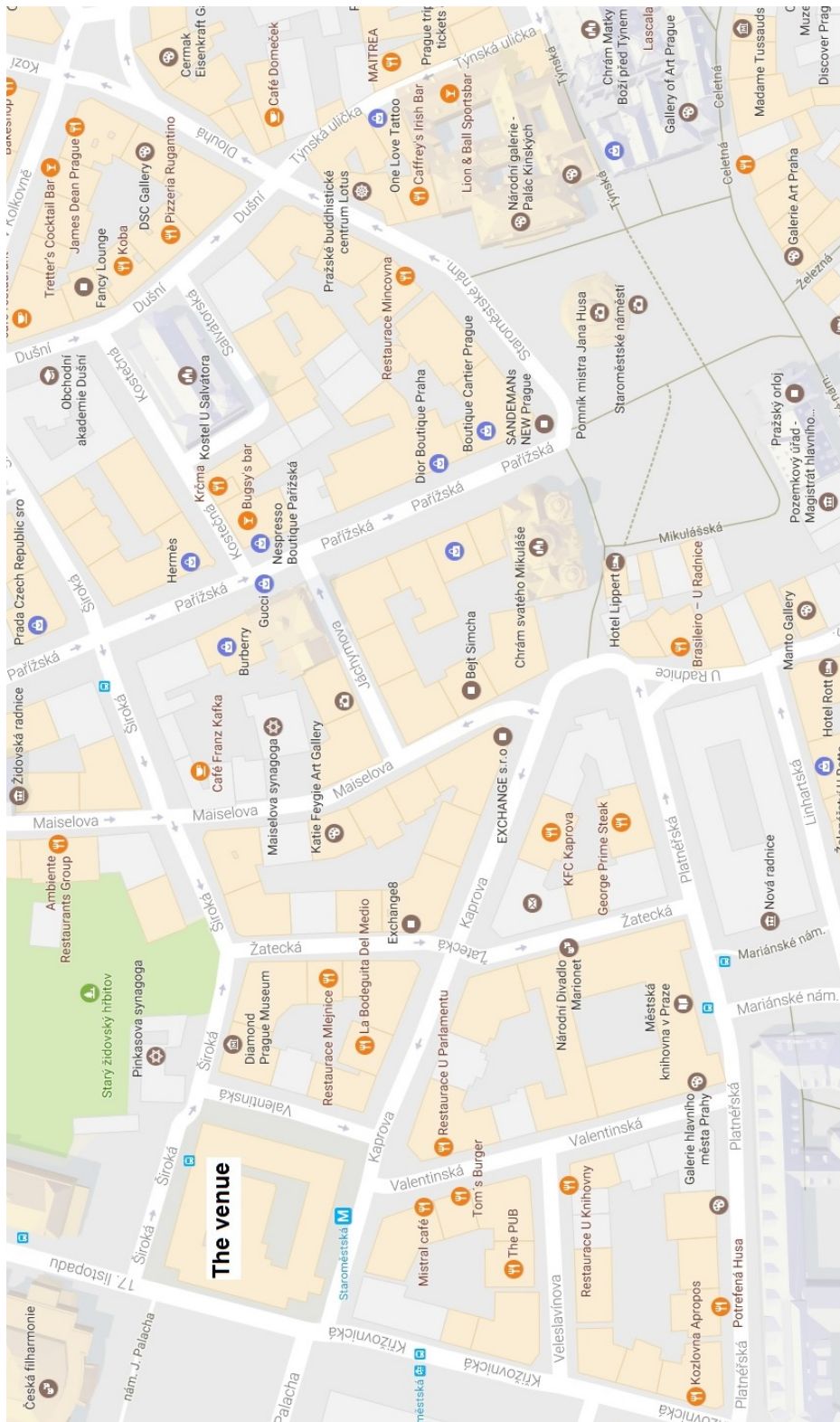
M. Mahmoudi and M. M. Ebrahimi – *Injectivity of (naturally) ordered projection algebras*

M. Ebrahimi and M. Yavari – *Quasi-injectivity of partially ordered acts*

M. Demirci – *On two approaches to concrete dualities and their relationships*

M. Wasadikar – *Some properties of zero divisor graphs of lattices*

3 Lunches



3.1 General information

The usual price for a full lunch or dinner at a restaurant is 200–400 CZK (less if you order from a special lunch discount menu; more in high-end restaurants), a coffee costs 30–60 CZK (can be more for specially prepared coffee, e.g. filtered, in some specialized cafés). Service is usually not included in the bill. If you wish to tip, it is customary to give extra 10%. In most restaurants you do not need reservation at lunch hours, but be advised that it may be problematic to find place for a larger group (more than 5 people). Most restaurants accept card payments but it is best to have enough cash on you.

We add some suggestions, but do not hesitate to look up what is best for you at sites such as tripadvisor.com.

3.2 Czech and European

- Mistral Café — Valentinská 11 — mistralcafe.cz
- Kozlovna Apropos — Křižovnická 4 — kozlovna-afropos.cz
- Pivnice U Rudolfina — Křižovnická 10 — www.urudolfina.cz
- U Parlamentu — Valentinská 8 — uparlamentu.cz
- Kolonial — Široká 6 — kolonialpub.cz
- Mincovna — Staroměstské náměstí 7 restauracemincovna.cz

3.3 Italian

- Ristorante Rugantino — Křižovnická 10 — ristoranterugantino.cz
- La Bottega Di Finestra — Platněřská 11 — lbdf.lacollezione.cz
- Pasta Fresca — Celetná 11 — pastafresca.ambi.cz
- Maestro — Křižovnická 10 — maestropizza.cz

3.4 Vegetarian

- Maitreia — Týnská ulička 6 — restaurace-maitrea.cz
- Lehká hlava — Borošov 2 — lekhahlava.cz (a bit further away, use tram)
- Estrella — Opatovická 17 — estrellarestaurant.cz (a bit further away, use tram)

3.5 Cafés

- Café Ebel — Kaprova 11
- Tricafe — Anenská 3 — tricafe.weebly.com
- Bakeshop — Kozí 1 — bakeshop.cz
- Café No. 3 — Jakubská 3

4 Social programme

4.1 Welcome party

The Welcome Party will take place in Pavilon Grébovka (pavilongrebovka.cz), GPS 50.0692683N, 14.4446639E.



The nearest subway station is *Náměstí míru* (Line A, “green”), the station *I.P.Pavlova* (Line C, “red”) is also close. Tram lines 1, 2, 4, 10, 11, 13, 16 and 22 stop at *Náměstí míru* (night lines 91, 97, 99). From there, you can either walk or take a tram. The nearest tram stop to the party venue is *Krymská* (lines 4, 13, 22 and night lines 97, 99), the distance between the stop and the party venue is 500m and the walk should take around 8 minutes. If you wish to walk from *Náměstí míru*, then walk along the *Francouzská* street, turn right to *Máchova* street, then immediately left to *Rybalkova* street to reach Entrance A. The distance from *Náměstí míru* is 1km and the walk should take around 15 minutes. It is also possible to walk from *I.P. Pavlova* metro station which is roughly 1,5 km away; the walk should take around 25 minutes.

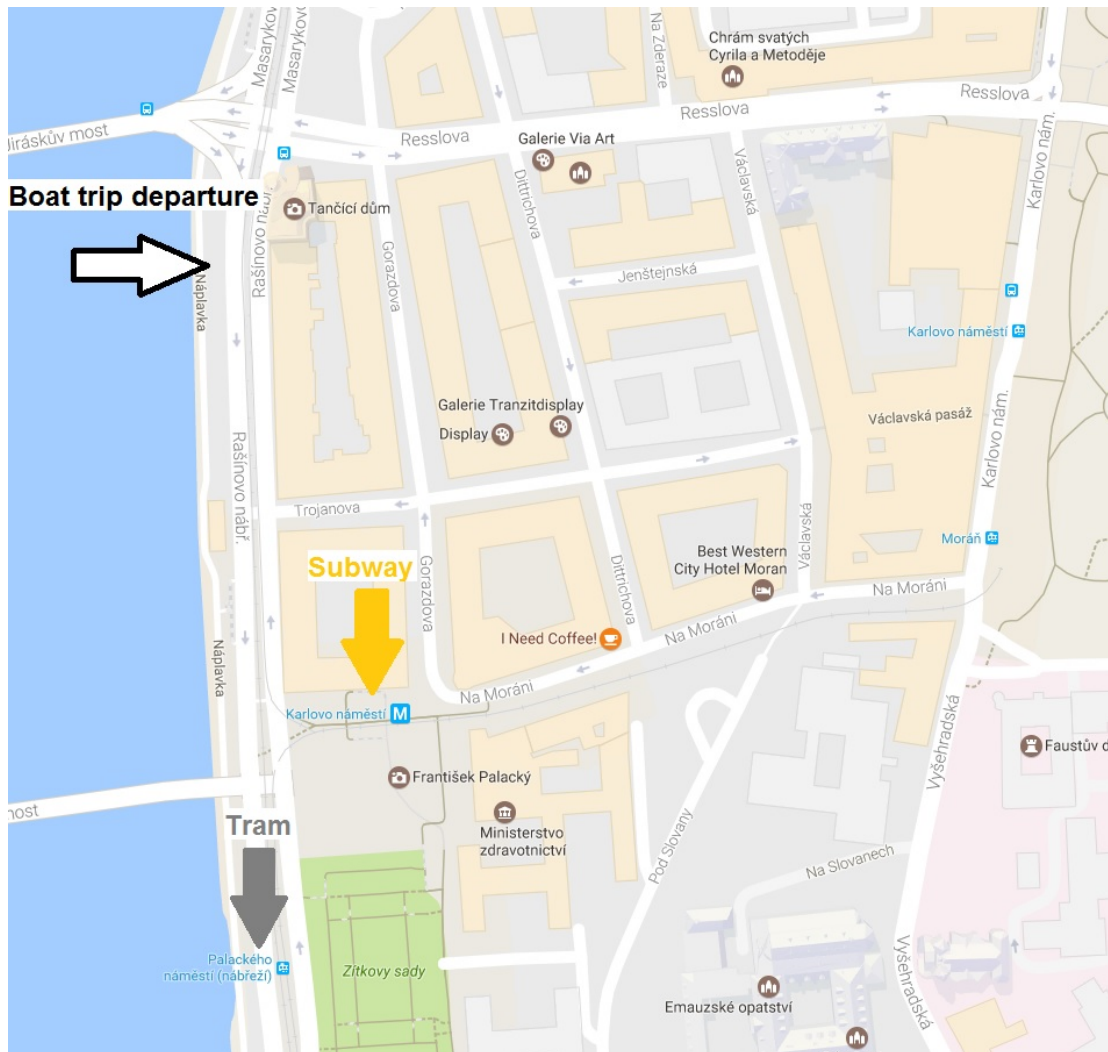


The welcome party is open for all registered participants and accompanying persons (no extra charge), you will need only your conference badge to enter. Light refreshments (including vegetarian options) will be provided; drinks (wine, beer, soft drinks) will be served during the first two hours of the party for free.



4.2 Boat trip

The boat trip on the Vltava river will take place on Thursday 15:00 – 16:30 (<http://www.prague-boats.cz/vltava-boat>). We will depart from *Rašínovo nábřeží*, our steam boat's name is *Vltava*.

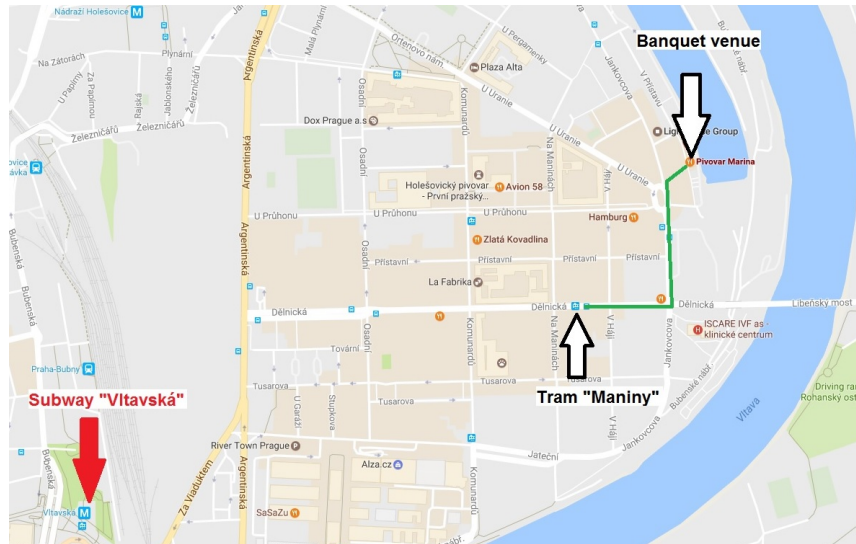


The nearest subway station is *Karlovo náměstí* (line B, “yellow”), be sure to use the “Palackého náměstí” exit if you will arrive by subway. The departure site is also accessible by tram and you can get there easily from the conference venue; the nearest stop is *Palackého náměstí* (lines 2,7,17,18 connect with Staroměstská). It is also in walking distance from the venue, the walk should take around 30 minutes.

The boat trip is open for all registered participants and accompanying persons (no extra charge), you will need only your conference badge.

4.3 Banquet

The TACL banquet will take place at the Marina Brewery (<http://www.pivovarmarina.cz/>) GPS 50.105921N, 14.456549E.



The nearest subway station is *Vltavská* (line C, “red”). From there it is best to take a tram and get off at the *Maniny* stop. At *Vltavská*, you can take lines 1 (direction *Spojovací*), 14 (direction *Nádraží Vysočany*) and 25 (direction *Lehovec*). From the *Maniny* stop, walk along the *Dělnická* street, turn left to *Jankovcova* street until you reach the traffic circle. The banquet site is behind a new block of houses on the river bank. The distance between the *Maniny* tram stop and the banquet venue is 500 m, the walk should take around 7 minutes.

The banquet is open to all participants and accompanying persons who have paid the extra 1 000 CZK either during on-line registration or additionally.



The banquet menu consists of a diverse selection of food designed to serve both meat lovers and vegetarians. The restaurant brews its own beer. The banquet starts outside with the grill session including meat (pork, turkey, burger), grilled camembert, and vegetables or pasta. At 10pm the event continues inside the venue, where a choice of cheeses, salami, vegetable salads and desserts will be offered. Selected alcoholic and non-alcoholic beverages are for free within reasonable limits of consumption.

5 Other information

5.1 Exploring Prague

Prague offers a huge amount of sightseeing options and places to explore. A good way to get the general picture is to look at

- lonelyplanet.com/czech-republic/prague
- wikitravel.org/en/Prague
- prague.eu
- likealocalguide.com

Two places not among the usual tourist attractions, but nevertheless worth visiting are **DOX**. The DOX Centre for Contemporary Art offers exhibitions of contemporary international and Czech art. See dox.cz

The TV Tower. The Prague TV tower ([map](#)), considered to be one of the ugliest buildings in the world (e.g. [here](#)), offers a fantastic 360-degree view of Prague through the windows of its observation deck. In recent years, it's become known for the baby sculptures attached to it (created by artist David Černý) that give the impression of mutant babies crawling up and down the tower.

5.2 Events

A number of cultural events take place in Prague during / around TACL.

United islands of Prague (Music festival, 22-25 June). A music festival with stages at various places in the city (mostly islands on Vltava river) but also some clubs in town. Entrance is free. Website: <http://unitedislands.cz/>.

Metronome Music Festival (Music festival, 23-24 June). Festival featuring attractive international stars combined with the best of the Czech music scene. This year's line-up includes Sting, Kasabian, Young Fathers and more. Entrance: 2 490 CZK (on the spot). Website: <https://www.metronomefestival.cz/en/>

A-Fest in Park (Music festival, 25 June). A music festival featuring bands of scientists working in the Czech Academy of Science. Entrance is free. Website: <http://a-fest.avcr.cz/>

Tanec Praha (Dance festival, 28 May - 28 June). An international festival of contemporary dance and movement theatre. Tickets for individual performances can be bought at the website of the festival <http://www.tanecpraha.cz/>.

Organized by

Institute of Computer Science, Czech Academy of Sciences
Faculty of Arts, Charles University



Organising committee

Marta Bílková (chair)

Petr Cintula (chair)

Zuzana Haniková

Rostislav Horčík

Tomáš Kroupa

Tomáš Lávička

Ondrej Majer

Tommaso Moraschini

Carles Noguera

Adam Přenosil

Igor Sedlár

Amanda Vidal

Sponsors

EU Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No. 689176.

The Association of Symbolic Logic

The Czech Society for Cybernetics and Informatics

Czech Academy of Sciences (Project Strategy AV21)



ČSKI



Association for Symbolic Logic