



ACAT 2014 bridging disciplines 1-5 September 2014 Faculty of Civil Engineering







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16th International workshop on Advanced Computing and Analysis Techniques in physics research (ACAT)

The ACAT workshop series, formerly known as AIHENP (Artificial Intelligence in High Energy and Nuclear Physics), was created back in 1990. Its main purpose is to gather three different communities: experimental and theoretical researchers as well as computer scientists to critically analyze past achievements and to propose new or advanced techniques to building better computing tools to boost scientific research, in particular in physics.

In the past, it has established bridges between physics and computer science research, facilitating advances in our understanding of the Universe at its smallest and largest scales. With the Large Hadron Collider, FAIR, eRHIC, EIC, the future International Linear Collider and the many astronomy and astrophysics experiments collecting larger and larger amounts of data, deep communication and cooperation are needed now more than ever

The 16th edition of ACAT will explore the boundaries of computing system architectures, data analysis algorithmics, automatic calculations as well as theoretical calculation technologies. It will create a forum for confronting and exchanging ideas among these fields and will explore and promote new approaches in computing technologies for scientific research.

Although mainly focusing on high-energy physics, talks related to nuclear physics, astrophysics, laser and condensed matter physics, earth physics, biophysics, and others, are most welcome.

- @ International Advisory And Coordination Committee (IACC): Denis Perret-Gallix
- Local Organizing Committee (LOC): Milos Lokajicek
 Scientific Program Committee (SPC): Federico Carminati



Starts 1 Sep 2014 08:00 Ends 5 Sep 2014 18:00

Faculty of Civil Engineering

Faculty of Civil Engineering, Czech Technical University in Prague

Thakurova 7/2077 Prague 166 29 Czech Republic

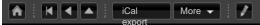
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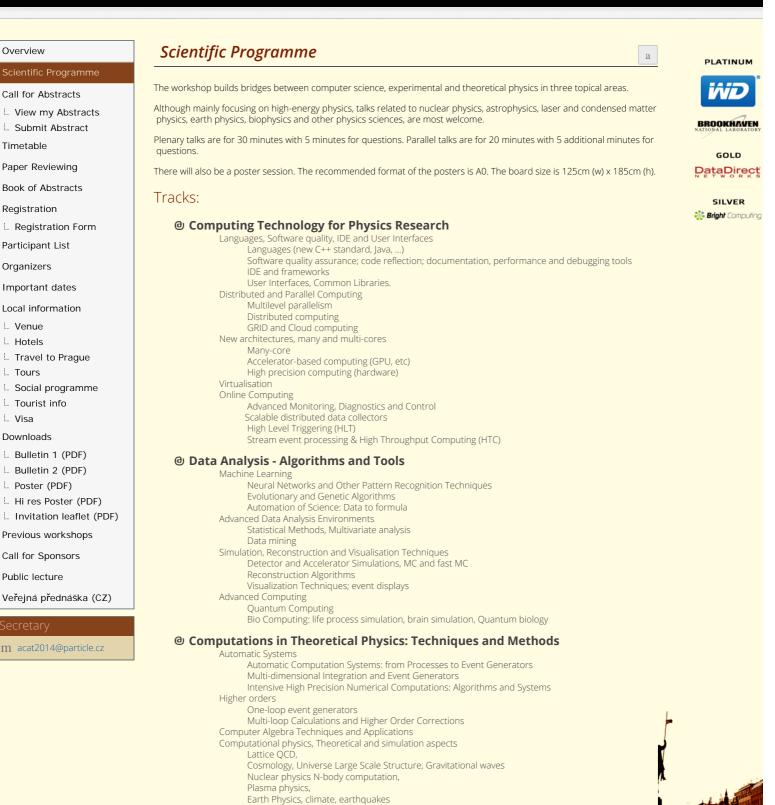


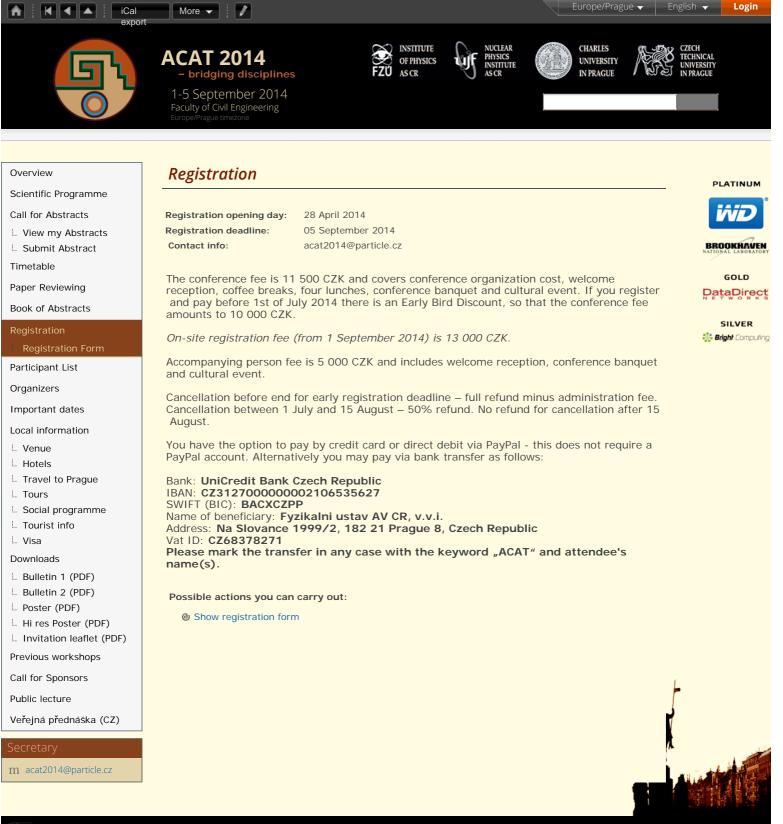




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Dr. ADAMOVA, Dagmar	NPI AS CR Prague/Rez	Rez
ADDE, Geoffray Michel	CERN	Geneva
Mr. ALTUNDAG, Ali Mehmet	Cukurova University (TR)	Geneva
APOSTOLAKIS, John	CERN	Meyrin
ARKHIPKIN, Dmitry	Brookhaven National Laboratory	Upton
Dr. AVOLIO, Giuseppe	CERN	Geneve
Dr. BALAZ, Antun	Institute of Physics Belgrade	Belgrade
BANDIERAMONTE, Marilena	University of Catania and INAF (IT)	Catania
Mr. BATKOVICH, Dmitrii	Saint-Petersburg State University	Saint- Petersburg
Ms. BELUFFI, Camille	Universite Catholique de Louvain (UCL) (BE)	Louvain-la- Neuve
Mr. BERTA, Peter	Charles University (CZ)	Prague

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Dr. BOGOLUBSKY, Igor	JINR Dubna	Dubna, Moscow region	Russian Federation
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BRITSCH, Markward	Max-Planck-Gesellschaft (DE)	Heidelberg	Germany
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- Andrej Arbusov (BLTP JINR Russia)
- Pushpalatha Bhat (Fermilab USA)
- David Britton, advisor for Track 1 (Glasgow University UK)
 Federico Carminati (CERN Switzerland)
- Denis Oliveira Damazio, advisor for Track 2 (BNL USA)
- Bruce Denby (U. Pierre et Marie Curie France)
- Junpei Fujimoto, advisor for Track 3 (KEK Japan)
- Fabrizio Gagliardi (Supercomputing Centre Barcelona Spain)
- Clara Gaspar, advisor for Track 1 (CERN Switzerland)
- @ Gudrun Heinrich, advisor for Track 3 (MPI-Munich Germany)
- Andrei Kataev, advisor for Track 3 (INR Russia)
- Christian Kiesling (MPI-Munich Germany)
- @ Alexander Kryukov (SINP Russia)
- Jerome Lauret, advisor for Track 1 (BNL USA)
- Ø Milos Lokajicek (FZU Prague Czech Republic)
- Daniel Maitre, advisor for Track 3 (Durham University UK)
 Axel Naumann (CERN Switzerland)
- Denis Perret-Gallix, Chair (IN2P3/CNRS France)
- Ø Fons Rademakers (CERN Switzerland)
- Sudhir Raniwala (Rajasthan University India)
- @ Tord Riemann, advisor for Track 3 (DESY Germany)
- Grigory Rubtsov (INR Russia)
- Ø Jose Seixas (Rio de Janeiro Federal University Brazil)
- @ Thomas Speer, advisor for Track 2 (Brown University USA)
- Liliana Teodorescu (Brunel University UK)
- Peter Uwer, advisor for Track 3 (Humboldt-University Germany)
- Iianxiong Wang (IHEP China)
- Monique Werlen (LAPTH France)

Programme committee

Track 1

- Dagmar Adamova (NPI, Czech Republic)
- Iiri Chudoba (FZU, Czech Republic)
- Axel Naumann, liaison (CERN, Switzerland)
- Niko Neufeld (CERN, Switzerland)
- Track 2
 - Ø Alina Grigoras (CERN, Switzerland)
 - Lorenzo Moneta, liaison (CERN, Switzerland)
 - Martin Spousta (Charles University, Czech Republic)
- Track 3
 Radja Boughezal (Northwestern University, USA)
- Ø Michal Malinsky (Charles University, Czech Republic)
 - @ Grigory Rubtsov, liaison (INR, Russia)

Local organizing committee

- Charles University in Prague, Faculty of Mathematics and Physics
 Tomas Davidek
 - Ø František Knapp
- Czech Technical University in Prague, Faculty of Nuclear Sciences and Physical Engineering
 Vojtech Petracek
- Institute of Physics, Academy of Sciences of the Czech Republic
 - Ukas Fiala
 - Milos Lokajicek
 - Ina Tumova
- O Nuclear Physics Institute, Academy of Sciences of the Czech Republic
 - Dagmar Adamova
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- Abstracts submission deadline 30 May 2014 6 June 2014

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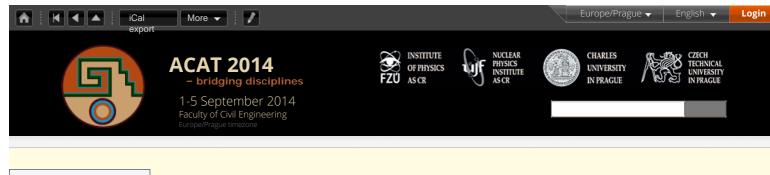
- Contribution acceptance announced 25 June 2014
- @ Early registration by 1 July 2014
- Off-site registration by 15 August 2014
 On-site registration 1-5 September 2014
- @ Paper submission by 30 September 2014



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g	Workshop 1990: Lyon, France, March 19-24
0	AIHENP 1992: La Londe Les Maures, France, January 13-18
0	AIHENP 1993: Oberammergau, Germany, October 4-8
0	AIHENP 1995: Pisa, Italy, April 3-8
0	AIHENP 1996: Lausanne (EPFL-UNIL), September 2-6
e	AIHENP 1999: Heraklion, Crete, April 12-16
0	ACAT2000: Fermilab, USA, October 16-20
0	ACAT2002: Moscow, Russia, June 24-28
e	ACAT 2003: KEK, Japan, December 1-5
0	ACAT 2005: DESY, Germany, May 22-27
e	ACAT 2007: NIKHEF, Nederland, April 23-27
0	ACAT 2008: Erice, Sicily, November 3-7
0	ACAT 2010: Jaipur, India, February 22-27
0	ACAT 2011: Uxbridge, UK, September 5-9
0	ACAT 2013: IHEP, Beijing, China, May 16-21

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- Possibility of one oral technical presentation at the workshop. Based on abstract, the Programme Committee may select as plenary or parallel presentation, if high content of scientific and or technical information in line with the interests of the workshop is proposed. No advertisement during presentation is allowed.
- Rollup in Foyer
 Table with 2 chairs in the Foyer
 - Introduction at the dinner
 - Company logo on the ACAT website, programme leaflet and possibly on other materials
 Right to giveaways

Computing activity in scientific research has always been closely related to the progress in the computing industry and, even more recently, with the IT companies. This has been a win-win cooperation; research

cannot be performed without the great progress of the industry on CPU design, for example, and on the

The ACAT workshop series is, therefore, welcoming the participation and sponsorship of the industry. Three

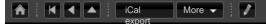
other hand the WEB was invented for HEP as well as the WIFI for astronomy.

levels of involvement are proposed, please contact the organizers for the associated fees.

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- Table with 2 chairs in the Foyer
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Public lecture - In Czech Language

On Monday, 1st September on the occasion of the international conference ACAT2014 (Advanced Computing and Analysis Techniques in Physics Research) will be the following public lecture:

Jiri Grygar: Petabyte Astronomy

- 1. Virtual observatories, data archives
- 2. Simulations of large scale structures of the Universe
 - 3. Synoptic astronomy, data mining

Lecture starts in 18 hours in the classroom B280. The course is intended for the general public. It will be in Czech language only and admission is free. Hall capacity is limited to 250 seats. In the case of greater participation, the lecture will be also transmitted to the next lecture, again with 250 seats.

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Ve**ř**ejná p**ř**ednáška

V rámci mezinárodní konference ACAT2014 (Advanced Computing and Analysis Techniques in physics research) proběhne v pondělí 1. září 2014 veřejná přednáška:

RNDr. Jiří Grygar, CSc. : Petabytová astronomie

- 1. Virtuální observatoře (archivy fotografických a spektroskopických dat)
- Simulace složitých teoretických problémů (výbuchy supernov; vývoj velkorozměrových struktur vesmíru)
- 3. Synoptická astronomie (opakované snímkování celé oblohy s vysokou kadencí)

Místo konání

Fakulta stavební - České učení technické v Praze

Thákurova 7/2077 Praha detaily

GPS: 50°6'15.394"N; 14°23'19.269"E

Podrobnosti



Začátek přednášky je v 18 hodin v posluchárně B280. Přednáška je určena pro širokou veřejnost, bude v českém jazyce a vstup je volný. Kapacita sálu je omezena na 250 míst. V případě větší účasti bude přednáška přenášena také do vedlejší posluchárny opět s kapacitou 250 míst.

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Secretary

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Venue

Address

in Prague

Faculty of Civil Engineering, Czech Technical University

Thakurova 7/2077 Prague 166 29 Czech Republic Google details

Latitude: 50°6'15.394"N Longitude: 14°23'19.269"E

Мар

Directions

The venue is easily accessible by Prague public transport. web: www.dpp.cz/en/

- By Metro: Take the "A" (green) line to Dejvická station and take exit labeled Vysoké školy.
- By tram: Take the tram number 2, 20, 26 or 51 (night) to the Dejvická stop.
 By bus: Take the bus number 161, 218 or 119 (from airport) to the Dejvická stop.
- Take **Šolínova** street to the North, turn left on **Technická** street and follow the street to its dead end. Entrance to the building will be in front of you.

Alternatively

By tram: Take the tram number 2, 20, 26 or 51 (night) to the Thákurova stop.

Take **Thákurova** street and follow its to the crossroad with **Technická** street. Entrance to the building will be on your left.



pen Google maps

Wifi access

eduroam

Eduroam network will be available and it is recommended option.

fsv-ap

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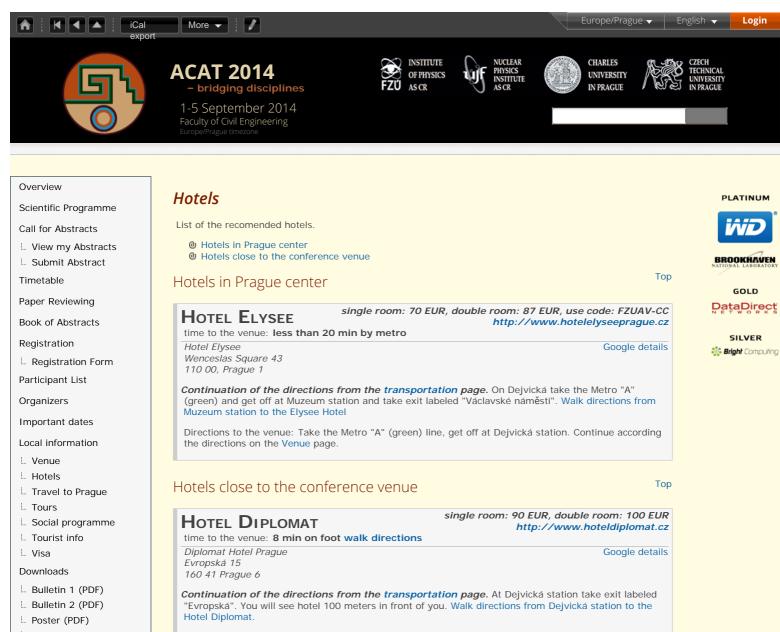
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For those who do not have the possibility to use eduroam network, SSID: "fsv-ap" network will be available. Username and password for the connection will be available on the registration desk and noticeboards.

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 MASARYKOVA KOLEJ - HOTEL
 single room: 1220 CZK, double room: 1590 CZK

 time to the venue: 6 min on foot walk directions
 http://www.masarykovakolej.cz

 Masarykova kolej - hotel
 Google details

Thákurova 550 160 41, Prague 6

Continuation of the directions from the transportation page. At Dejvická station take exit labeled "Vysoké školy". Walk directions from Dejvická station.

MASARYKOVA KOLEJ - HOSTEL time to the venue: 6 min on foot walk directions

Google details

Continuation of the directions from the transportation page. At Dejvická station take exit labeled "Vysoké školy". Walk directions from Dejvická station.

HOTEL DAP

single room: 1000 CZK, double room: 1760 CZK http://www.daphotel.cz

time to the venue: **10 min on foot walk directions** *Hotel DAP*

Vítězné náměstí 4 160 00, Prague 6

Masarykova kolej - hostel

Thákurova 550 160 41, Prague 6

Google details

Continuation of the directions from the transportation page. At Dejvická station take exit labeled "Vítězné náměstí". Hotel DAP is 30 meters from the Metro exit, on the southern part of the square. See map for the details.

HOTEL DENISA time to the venue: 11 min on foot walk directions Hotel Denisa single room: 86 EUR, double room: 102 EUR http://www.hotel-denisa.cz/

Google details

Národní obrany 33 160 00, Prague 6

Continuation of the directions from the transportation page. At Dejvická station take exit labeled "Vítězné náměstí". Walk directions from Dejvická station to the Hotel Denisa (4 min)

HOTEL BELVEDERE single room: 51 EUR, double room: 63 EUR, use code: FZUAV-CC http://www.hotelbelvedereprague.cz/ time to the venue: less than 15 min by tram

Hotel Belvedere Milady Horákové 479 170 00, Prague 7 Google details

Continuation of the directions from the transportation page. At Dejvická stop change to the tram no. 8, 26 or 51 (night). Get off at Kamenická stop. Directions from Dejvická station to the Hotel Belvedere (13 min)

Directions to the venue: Take tram no. 8 or 26 going uphill, get off at "Vítězné náměstí" stop. Continue according the directions on the Venue page.



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Arrival by airplane

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Transportation from the Vaclav Havel Airport Prague to the hotels is available by Taxi or Public transport.

- By taxi, travel time to the Prague where most hotels are located is about 15 minutes, and the fare is not more than 480 CZK. Contact counters of taxi operators are located at the arriving hall of Terminal 1 and 2. Departure points are displayed in front of arriving halls. Be sure to take only authorized Taxi providers (either AAA Radiotaxi or 1.1.1. RadioCAB taxi), and request receipt from the driver.
- **By public transport**, allow approximately 30 minutes (strongly depends on the location of Your hotel). The fare is 24 CZK for ride up to 30 minutes and 32 CZK for longer rides (up to 90 minutes). You can buy a ticket from Public Transport counters in Arrival Halls of Terminals 1 & 2 (from 7 am to 10 pm), ticket machines placed at bus stops (cash required) or from a bus driver (cash required, price 40 CZK). The Bus stations are located in front of terminal halls. Take the bus number 119 to the Dejvická stop. For the detailed directions to your hotel, see details on the Hotels or you can contact us if your hotel is not listed there.

From the Praha hlavní nádraží (Prague main station) or Praha - Holesovice station take the Metro

and follow the directions for your hotel. You can get directions on the Hotels page or you can contact us if

your hotel is not listed there. You can buy a ticket from ticket machines placed at Metro entrances (cash

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ACAT 2014 - bridging disciplines

1-5 September 2014 Faculty of Civil Engineering Europe/Prague timezone







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Tours

We offer a choice of tours for Wednesday afternoon. Please, make your choice during on-line registration. The cost of the tours is indicated and will be added to your registration fee.

Sightseeing tour of Prague - 280 CZK

Wednesday, September 3, 14:00 - 17:00 Meeting point: 14:00 - Conference venue

The price includes 2 public transport tickets.

You can see: Old Town Square, Municipal House, Wenceslas Square, Astronomical Clock, Charles Bridge, Nerudova Street, Prague Castle.

Old Town Square

The most significant square of historical Prague. It originated in the 12th century. The square has several dominant features, the baroque St. Nicholas Church (K. I. Dienzenhofer, 1732 – 1737), the rococo Kinský Palace housing the National Gallery exhibition hall, the Stone Bell House — a gothic city palace from the 14th century — now the Municipal Gallery concert and exhibition halls, and the Memorial to Master Jan Hus sculptured by Ladislav Saloun (1915). The very place where the 27 Czech noblemen were executed on 21 June, 1621, is marked in the square pavement.



Charles Bridge



The oldest Prague bridge built in the place of the Judita's Bridge that had been badly damaged by a flood in 1342. The Stone or Prague Bridge in 1870 renamed Charles Bridge, was founded by Charles IV in the year 1357. According to the latest research the construction was started by Master Otto and finished by Peter Parler in 1402. Both ends of the bridge are fortified by towers (Lesser Town Bridge Tower, Old Town Bridge Tower). From 1683 to 1928 thirty sculptures and sculptural groups of the saints were gradually set on the bridge piers (M. Braun, F. M. Brokof,

etc.). The bridge is 515 meters long and 10 meters wide.

Prague Castle

National cultural monument, the symbol of development of the Czech state. Since its foundation in the last quarter of the 9th century it has been developing uninterruptedly throughout the past eleven centuries. It is a monumental complex of ecclesiastical, fortification, residential and office buildings representing all architectural styles and periods, surrounded by three castle courtyards and covering 45 hectares. Originally it used to be the residence of the princes and kings of Bohemia. Since 1918 it has been the seat of the President.

Trip to Karštejn Castle - 1100 CZK

Wednesday, September 3, 14:00 - 18:30 Meeting point: 14:15 - Conference venue minimum 15 persons, maximum 48 persons

The price includes entrance to the castle and a picnic snack.

A visit to a majestic gothic castle founded 650 years ago by Charles IV, King of Bohemia and of the Roman Empire. The castle was built in the 14th century as a place for safekeeping of royal treasures, especially the coronation jewels. Located in a picturesque site on the Dragon's rock in the middle of dense forests just about an hour's drive from Prague, for many visitors this is one of the most popular destinations. A trip includes 30 minutes walking.



Trip to Kutná Hora - 950 CZK

Wednesday, September 3, 14:00 - 18:30 Meeting point: 13:45 - Conference venue minimum 15 persons, maximum 48 persons

The price includes entrance to the gothic cathedral of St. Barbara, the Sedlec Ossuary and a picnic snack.



The picturesque medieval town of Kutná Hora, part of the UNESCO World Cultural and Natural Heritage, is situated approximately 60 km east of Prague. The sources of the beauties and riches of Kutná Hora are in the silver mines that were exploited most intensively in the 14th and 15th century. At that time the town rivalled Prague in importance. During this excursion you will see interesting and impressive sights as the unique gothic cathedral of St. Barbara, the patron saint of miners, Italian Court which is an important building, originally a Royal Mint that once produced Prague Groschen as well. Then you will see the gothic fountain, and the Archdeacon's Church of St. James.





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Pilsner Urquell brewery excursion - 1150 CZK

Wednesday, September 3, 14:00 - 18:30 Meeting point: 13:45 - Conference venue minimum 15 persons, maximum 48 persons

The price includes excursion and a picnic snack.

What excitements await you during your tour of Pilsner Urquell:

- You will learn about the history and secrets behind making the legendary Pilsner Urquell lager.
- ② You can see the actual spot in the brewery where Pilsner Urquell beer has been brewed since 1842.
- We shall guide you through our modern bottling plant, with its capacity of 120,000 bottles per hour; a unique exposition on the ingredients we use; and the historic and modern Pilsner Urquell brewhouse.
- The tour of the Pilsner Urquell brewery would not be complete without a visit to the historic brewery cellars, where you can taste unfiltered and unpasteurized Pilsner Urquell on tap straight from oak lager barrels.





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All participants registered to the conference and their registered Accompanying Persons are warmly invited to the following social events.

Welcome drink

will take place at the conference venue on Monday (September 1st) from 18:00.

Concert

will take place at the Bethlehem Chapel (Betlémská Kaple) on Tuesday (September 2nd) from 19:00.

The Bethlehem Chapel

Betlémské náměstí 255/4 Prague Google details

Latitude: 50°5'3.087"N Longitude: 14°25'2.736"E

Мар

Directions

The Bethlehem Chapel is located in the historic center of Prague. The best option to get there is by **Prague public transport**. web: www.dpp.cz/en/

By Metro: The nearest metro station is Národní třída "B" (yellow) line, then Můstek "A and B" (green and yellow) transfer station. Alternatively you can take a not much longer walk from Staroměstská "A" (green) line station.

By tram: Please see the map for the possible tram numbers and stops near.



Open Google maps

Tours

will be on Wednesday (September 3rd) from 14:00.

You will find details on the separate page

Conference dinner

will take place at the Petřínské terasy restaurant on Thursday (September 4th) from 19:30.





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Petřínské Terasy

Seminářské Zahrady 393 Prague Google details

Latitude: 50°5'1.525"N Longitude: 14°23'54.583"E

Мар

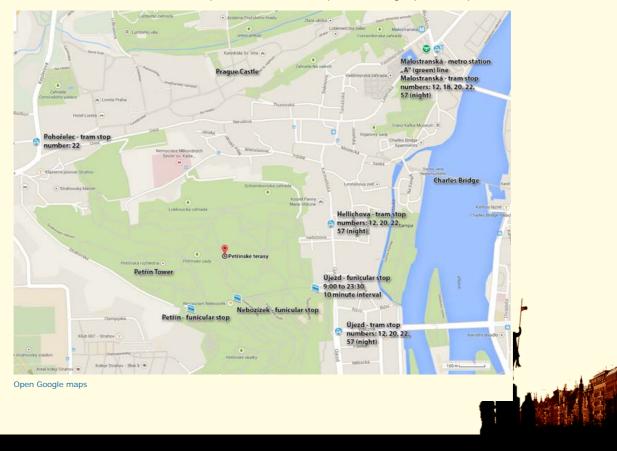


Directions

The Petřínské Terasy (Petrin terraces) restaurant is located in the middle of the slope of Petrin hill with unique view of the whole city. The best option to get there is by Prague public transport. web: www.dpp.cz/en/

- @ By Metro: The nearest metro station is Malostranská "A" (green) line. There you can change to the By tram: Please see the map for the possible tram numbers and stops near.

Petrin hill is quite steep, but with a large number of paths, allowing comfortable hike. There is also furnicular, the lower station is near the Újezd tram stop. The middle station "Nebozízek" is close to the restaurant, and the last station is at the top of the hill. Furnicular is part of the Prague public transport.







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Tourist info

Prague public transport

The main means of public transport is the underground railway - the metro, with complementary systems of bus, tram and railway transport. Prague's underground is quite a new one and very efficient. You can get more information at the http://www.dpp.cz/en/transport-around-prague/ page.

Transit schematics (PDF) are available here: http://www.dpp.cz/en/transport-around-prague/transitschematics/.

All participants will get free one-week public transport ticket at registration. Ticket is valid 1 - 5 September 2014 (Monday to Friday, 24 hours per day).

To find a public transport connection visit: http://idos.dpp.cz/idos/ConnForm.aspx?tt=pid&cl=E5

Weather

The season begins to change in September as average highs dip 10 degrees in Prague, Czech Republic, reaching 18°C (that's about 64°F) during the day. Prague evenings for September are still seasonably cool with night time temp averages of 10°C (about 50°F). Average wet days for September in Prague are one of the lowest of the calendar year. Though rainfall days are lower, precipitation downpours are still above normal. Umbrellas are recommended during sightseeing adventures. You can find current weather conditions at http://www.weather.com/weather/today/EZXX0012.

Currency

Currency of the Czech Republic is the Czech koruna (Czech crown), sign: Kč, code: CZK. Exchange of foreign currency is available at Prague international Airport and at most hotels, banks and exchange offices throughout the city. International credit cards are accepted for payments in hotels, restaurants and shops. Payment in cash in EUR is also available in some restaurants and shops.

Exchange rates to the main world currencies are approximatelly:

0	1	CHF ~ 22.5 CZK	
0	1	EUR ~ 27.5 CZK	
0	1	GBP ~ 33.4 CZK	
ര	1	USD ~ 19 9 C7K	

For detailed current exchange rates, please see the following page: http://www.csob.cz/en/Csob/Exchange-rates/Stranky/exchange-rates.aspx

Time zone

Czech Republic is in the Central European Time Zone. Central European Standard Time (CET) is 1 hour ahead of Greenwich Mean Time (GMT+1).

Like most states in Europe, Summer (Daylight-Saving) Time is observed in Czech Republic, where the time is shifted forward by 1 hour; 2 hours ahead of Greenwich Mean Time (GMT+2). Daylight Saving Time ends on October 26 at 01:00 GMT

Details: http://www.timeanddate.com/worldclock/city.html?n=204

Electrical outlets

Czech Republic uses a 230 volt 50 Hz system with standardized round plug with two round pins measuring 4.8 by 19 mm (0.189 by 0.748 in), spaced 19 mm (0.748 in) apart and with a hole for the socket's ground pin (CEE 7/5).

This standard will also accept Europlugs and CEE 7/17 plugs. Sockets are installed with the earth pin upwards. Although the plug is polarised, there is no universally observed standard for connecting the live and neutral. The former Czechoslovakia Standard ČSN 33 2180:1979, section 6.2.2. required live to be on the left side of socket.





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Passport and visa requirements

Faculty of Civil Engineering

Visitors from non-EU Countries must posses a passport valid for at least the next 3 months. Participants requiring a visa should apply immediately to a consular office or a diplomatic mission of the Czech Republic in their country in order to avoid a delayed arrival to the conference. If visa required, please find the address of the Czech embassy in your country on the website: www.mzv.cz. Please note that the visa application procedure can take approximately up to two months. It is not possible to obtain visa at the Prague Airport. The Conference Secretariat assists the delegates by processing the official invitations on request.

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Contact the Czech embassy in your country and ask which of the following documents they require to issue a visa for you for the conference.

Official invitation by conference organizers or Official invitation by the Foreigners Department of the Czech Police. As soon as you know which of the above documents you need, send an e-mail to the Conference Secretariat with information needed to issue the invitation

@ Official invitation by conference organizers - information needed:

- Your full name
- Oate of birth Place of birth
- @ Country of citizenship (country which issued your passport)
- Number of your passport
- Date of expiry of your passport
- @ Official invitation by the Foreigners Department of the Czech Police information needed: e Your full name
 - Date of birth Place of birth

 - Country of citizenship (country which issued your passport) Oumber of your passport
 - Date of issue of your passport
 - @ Date of expiry of your passport
 - The official invitation by the Foreigners Department of the Czech Police cost 70 EUR

As soon as the required data are received, the Conference Secretariat will start the procedure of issuing the official invitation for you. The procedure usually takes one month or more. Therefore please contact us as soon as possible. When the official invitation is ready, it will be sent to you by post or express delivery service. You shall then present it at the Czech embassy in your country and get visa for the conference.

In case you have any questions concerning visa procedures or if you face any problems in your country, please contact the Conference Secretariat

Please note that the Conference Secretariat can only help with getting visa to registered participants to take part in the ACAT 2014. Thank you for your understanding.

For more information about traveling to the Czech Republic, please visit web site www.czech.cz or www.mzv.cz





16th International workshop on Advanced Computing and Analysis Techniques in physics research

bulletin 1 January 2014

16th International workshop on Advanced Computing and Analysis Techniques in physics research (ACAT)

INTRODUCTION

The ACAT workshop series, formerly known as AIHENP (Artificial Intelligence in High Energy and Nuclear Physics), was created back in 1990. Its main purpose is to gather three different communities: experimental and theoretical researchers as well as computer scientists to critically analyze past achievements and to propose new or advanced techniques to building better computing tools to boost scientific research, in particular in physics.

In the past, it has established bridges between physics and computer science research, facilitating advances in our understanding of the Universe at its smallest and largest scales. With the Large Hadron Collider, FAIR, eRHIC, EIC, the future International Linear Collider and the many astronomy and astrophysics experiments collecting larger and larger amounts of data, deep communication and cooperation are needed now more than ever.

The 16th edition of ACAT will explore the boundaries of computing system architectures, data analysis algorithmics, automatic calculations as well as theoretical calculation technologies. It will create a forum for confronting and exchanging ideas among these fields and will explore and promote new approaches in computing technologies for scientific research.

Although mainly focusing on high-energy physics, talks related to nuclear physics, astrophysics, laser and condensed matter physics, earth physics, biophysics, and others, are most welcome.

ACAT'14 is co-organized by

- Charles University in Prague, Faculty of Mathematics and Physics
- Czech Technical University in Prague, Faculty of Nuclear Sciences and Physical Engineering
- Institute of Physics, Academy of Sciences of the Czech Republic
- Nuclear Physics Institute, Academy of Sciences of the Czech Republic

Further bulletins will provide information about the conference program along with preliminary registration and hotel accommodation information.



ACAT 2014

16th International workshop on Advanced Computing and Analysis Techniques in physics research

DATES AND VENUE

Conference dates

Monday 1 September to Friday 5 September 2014

Conference web site

www.particle.cz/acat2014

Online registration will start in

1 April 2014

VENUE

The conference will take place at the Faculty of Civil Engineering, Czech Technical University in Prague (Thakurova 7/2077, Prague – Dejvice), Czech Republic. Faculty of Civil engineering is a modern building with big and medium conference rooms.

PROCEEDINGS

The proceedings of the conference will be published by IOP with open access.

HISTORY

The ACAT workshop series, formerly AIHENP (Artificial Intelligence in High Energy and Nuclear Physics), was created back in 1990. ACAT conferences are held at roughly 18 month intervals, alternating between Europe, Asia, North America and other parts of the world. Recent ACAT conferences have held in Beijing, China (2013); Uxbridge, UK (2011); Jaipur, India (2010); Erice, Sicily (2008); NIKHEF, Nederland (2007); DESY, Germany (2005); KEK, Japan (2003); Moscow, Russia (2002); Fermilab, USA (2000); Heraklion, Crete (1999); Lausanne (EPFL-UNIL) (1996); Pisa, Italy (1995); Oberammergau, Germany (1993); La Londe Les Maures, France (1992); Lyon, France (1990).

ORGANIZATION

The International Advisory and Coordination Committee (IACC) sets the overall workshop themes. The Local Organizing Committee (LOC) is responsible for the conference infrastructure and the Scientific Program Committee (SPC) is in charge of the scientific content.

Details of these can be found at conference the web site (<u>http://www.particle.cz/acat2014</u>)

TRAVEL AND ACCOMMODATION

Prague is well connected to all major cities in the world. The International and domestic airport of Prague – Vaclav Havel Airport Prague - is located 7 Km from the conference venue. To get from the airport to the conference venue (or to the hotel) you can take a taxi, the airport express bus or use the well-organized public transportation system.

Details on accommodation will be given in the next bulletin. Arrangements are being made with hotels close to the conference venue and in the Prague centre. We are negotiating special rates for the conference delegates. Participants can often find even better offers via web hotel portals.



ACAT 2014

16th International workshop on Advanced Computing and Analysis Techniques in physics research

CONFERENCE PROGRAMME

ACAT'14 will have plenary and parallel sessions during the week-long conference. The parallel sessions will be based on contributions submitted by the participants and will cover the following areas:

- Computing Technology for Physics Research
- Data Analysis Algorithms and Tools
- Computations in Theoretical Physics: Techniques and Methods

Although mainly focusing on high-energy physics, talks related to nuclear physics, astrophysics, laser and condensed matter physics, earth physics, biophysics, and others, are most welcome.

SOCIAL PROGRAME

A welcome reception will take place at the Faculty of Civil Engineering on Monday 1 September 2014. On Thursday 4 September 2014 we will have a conference dinner. Entry to both will be included in the conference registration fee. Extra dinner tickets will be available for purchase for accompanying persons.

On the Wednesday afternoon, delegates will be offered a selection of tours including a guided tour through Prague. Full details will appear in the next Bulletin.

TIMETABLE

Second Bulletin	March 2014 (Call for Contribution, Conference Registration, Hotel Reservations)
Abstracts submission deadline	30 May 2014
Contribution acceptance announced	25 June 2014
Early registration by	1 July 2014
Off-site registration by	15 August 2014
On-site registration	1-5 September 2014
Paper submission by	30 September 2014

FURTHER INFORMATION

Conference Secretariat:

Nina Tumova Institute of Physics, AS CR v.v.i. Na Slovance 2, 182 21 Praha 8, Czech Republic tel.: +420 266 052 672, fax: +420 865 854 443 email: acat2014@particle.cz





16th International workshop on Advanced Computing and Analysis Techniques in physics research

bulletin 2 | April 2014

16th International workshop on Advanced Computing and Analysis Techniques in physics research (ACAT)

INTRODUCTION

This bulletin includes the Registration information and the Call for Abstracts. The ACAT2014 conference dates are 1 – 5 September 2014 (Monday – Friday).

The conference will take place in the Faculty of Civil Engineering, Czech Technical University in Prague which is ideally located near the city centre. It is easily accessible by both public and private transport.

Address of the Conference Venue:

Faculty of Civil Engineering, Czech Technical University in Prague, Thakurova 7/2077, Prague – Dejvice, Czech Republic.

The schedule is outlined below together with practical details about the conference registration, hotel reservation, abstract submission and tours.

REGISTRATION

The conference online registration will be opened from **28 April 2014**. You will find the Registration Form at the conference website at <u>https://indico.cern.ch/event/258092/registration</u>

To assist you with your planning, you may find useful the following links:

- Venue (https://indico.cern.ch/event/258092/page/8)
- Hotels (<u>https://indico.cern.ch/event/258092/page/7</u>)
- Travel to Prague (<u>https://indico.cern.ch/event/258092/page/9</u>)
- Tours (<u>https://indico.cern.ch/event/258092/page/11</u>)
- Tourist info (<u>https://indico.cern.ch/event/258092/page/10</u>)
- Visa (https://indico.cern.ch/event/258092/page/12)

REGISTRATION FEES

ACAT2014 Conference Fee	
Early registration fee (before 1 July 2014)	10 000 CZK
Late registration fee (between 1 July 201 <mark>4 – 15</mark> August 2014)	11 500 CZK
On-site registration fee (to be paid on-site) (from 1 September 2014)	13 000 CZK

The conference registration fee includes full conference participation, proceedings, welcome reception on Monday, 1 September 2014, coffee breaks, four lunches, cultural event and conference banquet on Thursday, 4 September 2014. [Approximate exchange rate is 1 USD = 20 CZK, 1 EUR = 27,5 CZK]

Accompanying Person Fee

Conference fee for Accompanying Person is 5 000 CZK and includes Welcome Reception on Monday, 1 September 2014, cultural event and Conference Banquet on Thursday, 4 September 2014.

Cancellation conditions

Cancellation before end for early registration deadline – full refund minus administration fee. Cancellation between 1 July and 15 August – 50% refund. No refund for cancellation after 15 August.

ON-SITE REGISTRATION TIMES

The registration desk will be located at the conference venue and will open on Monday, 1 September 2014 from 7:30. The opening hours will be available at the conference website closer to the start of the conference.

CALL FOR ABSTRACTS

You are invited to submit an abstract of between a minimum of 150 words and a maximum of 250 words, which will be used by the Programme Committee to select contributions for oral or poster presentation. Please note that the deadline for abstract submission is 30 May 2014. Decisions on the acceptance of contributions for oral or poster presentation will be made before 25 June 2014 at the latest. Delegates with accepted abstract will have a possibility to register with early registration fee.

Note that in the abstract submission form, you can indicate the track in which you wish the contribution to be placed. The list of conference tracks and the scope of topics to be covered are as follows:

Computing Technology for Physics Research

• Languages, Software quality, IDE and User Interfaces

Languages (new C++ standard, Java, ...) | Software quality assurance; code reflection; documentation, performance and debugging tools | IDE and frameworks | User Interfaces, Common Libraries

- Distributed and Parallel Computing
 Multilevel parallelism | Distributed computing | GRID and Cloud computing
- New architectures, many and multi-cores
- Many-core | Accelerator-based computing (GPU, etc.) | High precision computing (hardware)
- Virtualization
- Online computing

Advanced Monitoring, Diagnostics and Control | Scalable distributed data collectors | High Level Triggering (HLT) | Stream event processing & High Throughput Computing (HTC)

Data Analysis - Algorithms and Tools

• Machine Learning

Neural Networks and Other Pattern Recognition Techniques | Evolutionary and Genetic Algorithms | Automation of Science: Data to formula

- Advanced Data Analysis Environments
 - Statistical Methods, Multivariate analysis | Data mining
- Simulation, Reconstruction and Visualization Techniques

Detector and Accelerator Simulations, MC and fast MC | Reconstruction Algorithms | Visualization Techniques; event displays

Advanced Computing

Quantum Computing | Bio Computing: life process simulation, brain simulation, Quantum biology

Computations in Theoretical Physics: Techniques and Methods

- Automatic Systems
 - Automatic Computation Systems: from Processes to Event Generators | Multi-dimensional Integration and | Event Generators | Intensive High Precision Numerical Computations: Algorithms and Systems
- Higher orders
 - One-loop event generators | Multi-loop Calculations and Higher Order Corrections
- Computer Algebra Techniques and Applications

- Computational physics, Theoretical and simulation aspects
 - Lattice QCD | Cosmology, Universe Large Scale Structure, Gravitational waves | Nuclear physics N-body computation | Plasma physics | Earth Physics, climate, earthquakes

STUDENT SUPPORT

The organizers offer partial support for a limited number of students. Requests for support should be sent to acat2014@particle.cz with specification of expenses which should be partially covered (e.g. travel ticket, accommodation, conference fee, ...). A proof of student status should be included in the request.

Students are requested to register in usual manner until early registration deadline via the conference web page without payment at this point before sending the above mentioned request. The applicants will be informed by 15 July 2014 on availability of the support.

CULTURAL EVENT

Cultural event will be held on Tuesday 2 September in the evening. Detailed information will be posted on the web page.

TOURS' OFFER FOR WEDNESDAY, 3 SEPTEMBER 2014

We offer a choice of tours for the Wednesday afternoon. Please, make your choice during the on-line registration. The cost of the tours is indicated and will be added to your registration fee.

Sightseeing tour of Prague - 280 CZK

Wednesday, September 3, 14:00 - 17:00 Meeting point: 14:00 - Conference venue

You will see: Old Town Square, Municipal House, Wenceslas Square, Astronomical Clock, Charles Bridge, Nerudova Street, Prague Castle. Sightseeing tour includes approx. 3 hours walking.



Old Town Square

The most significant square of historical Prague. It originated in the 12th century. The square has several dominant features, the baroque St. Nicholas Church (K. I. Dienzenhofer, 1732 – 1737), the rococo Kinský Palace housing the National Gallery exhibition hall, the Stone Bell House — a gothic city palace from the 14th century — now the Municipal Gallery concert and exhibition halls, and the Memorial to Master Jan Hus sculptured by Ladislav Saloun (1915). The very place where the 27 Czech noblemen were executed on 21 June, 1621, is marked in the square pavement.

Charles Bridge



The oldest Prague bridge built in the place of the Judita's Bridge that had been badly damaged by a flood in 1342. The Stone or Prague Bridge in 1870 renamed Charles Bridge, was founded by Charles IV in the year 1357. According to the latest research the construction was started by Master Otto and finished by Peter Parler in 1402. Both ends of the bridge are fortified by towers (Lesser Town Bridge Tower, Old Town Bridge Tower). From 1683 to 1928 thirty sculptures and sculptural groups of the saints were gradually set on

the bridge piers (M. Braun, F. M. Brokof, etc.). The bridge is 515 meters long and 10 meters wide.

Prague Castle

National cultural monument, the symbol of development of the Czech state. Since its foundation in the last quarter of the 9th century it has been developing uninterruptedly throughout the past eleven centuries. It is a monumental complex of ecclesiastical, fortification, residential and office buildings representing all architectural styles and periods, surrounded by three castle courtyards and covering 45 hectares. Originally it used to be the residence of the princes and kings of Bohemia. Since 1918 it has been the seat of the President.



Trip to Karštejn Castle - 1100 CZK

Wednesday, September 3, 14:00 - 18:30 Meeting point: 14:15 - Conference venue minimum 15 persons, maximum 48 persons

The price includes entrance to the castle and a picnic snack.

A visit to a majestic gothic castle founded 650 years ago by Charles IV, King of Bohemia and of the Roman Empire. The castle was built in the

14th century as a place for safekeeping of royal treasures, especially the coronation jewels. Located in a picturesque site on the Dragon's rock in the middle of dense forests just about a hour's drive from Prague, for many visitors this is one of the most popular destinations. A trip includes 30 minutes walking.

Trip to Kutná Hora - 950 CZK

Wednesday, September 3, 14:00 - 18:30 Meeting point: 13:45 - Conference venue minimum 15 persons, maximum 48 persons

The price includes entrance to the gothic cathedral of St. Barbara, the Sedlec Ossuary and a picnic snack.

The picturesque medieval town of Kutná Hora, part of the UNESCO World Cultural and Natural Heritage, is situated approximately 60 km east of Prague.

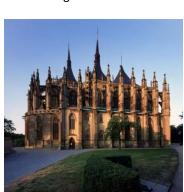
The sources of the beauties and riches of Kutná Hora are in the silver mines that were exploited most intensively in the 14th and 15th century. At that time the town rivalled Prague in importance. During this excursion you will see interesting and impressive sights as the unique gothic cathedral of St. Barbara, the patron saint of miners, Italian Court which is an important building, originally a Royal Mint that once produced Prague Groschen as well. Then you will see the gothic fountain, and the Archdeacon's Church of St. James.

Pilsner Urquell brewery excursion - 1150 CZK

Wednesday, September 3, 14:00 - 18:30 Meeting point: 13:45 - Conference venue minimum 15 persons, maximum 48 persons

The price includes excursion and a picnic snack.

You will learn about the history and secrets behind making the legendary Pilsner Urquell lager. You can see the actual spot in the brewery where Pilsner Urquell beer has been brewed since 1842. We shall guide you through our modern bottling plant, with its capacity of 120,000 bottles per hour; a unique exposition on the ingredients we use; and the historic and modern Pilsner Urquell brewhouse. The tour of the Pilsner Urquell brewery would not be complete without a visit to the historic brewery cellars, where you can taste unfiltered and unpasteurized Pilsner Urquell on tap straight from oak lager barrels.



CONFERENCE DINNER

All participants registered to the ACAT 2014 and their registered Accompanying Persons are warmly invited to the conference dinner that will take place at the Petřínské terasy Restaurant (<u>www.petrinsketerasy.cz</u>) on Thursday 4 September from 19:00. Restaurant is located in one of the most beautiful places of the ancient city of Prague. Restaurant sits in the middle of the east slope of Petrin hill with a unique view of the whole city.



IMPORTANT DATES AND DEADLINES

Abstracts submission deadline Contribution acceptance announced Early registration by Off-site registration by On-site registration Paper submission by 30 May 2014 25 June 2014 1 July 2014 15 August 2014 1-5 September 2014 30 September 2014

DRAFT PROGRAMME

Monday	Tuesday	Wednesday	Thursday	Friday
opening ceremony plenary session	plenary session	plenary session	plenary session	summary talks
coffee exhibits and poster	coffee exhibits and poster	coffee exhibits and poster	coffee exhibits and poster	coffee
plenary session	plenary session	plenary session	plenary session	summary talks
lunch	lunch	lunch	lunch	
parallel sessions	parallel sessions	tours	parallel sessions]
coffee	coffee		coffee	
parallel sessions	parallel sessions	1	parallel sessions]
welcome reception				-
	cultural		conference dinner	
	event			
	opening ceremony plenary sessioncoffee exhibits and posterplenary sessionlunchparallel sessionscoffee parallel sessionswelcome reception	opening ceremony plenary sessionplenary sessioncoffee exhibits and postercoffee exhibits and posterplenary sessionplenary sessionplenary sessionplenary sessionlunchlunchparallel sessionsparallel sessionscoffee 	opening ceremony plenary sessionplenary sessionplenary sessioncoffee exhibits and postercoffee exhibits and postercoffee exhibits and posterplenary sessionplenary sessionplenary sessionplenary sessionplenary sessionplenary sessionlunchlunchlunchparallel sessionsparallel sessionstourscoffeecoffeecoffeeparallel sessionsparallel sessionstourswelcome receptionculturalcultural	opening ceremony plenary sessionplenary sessionplenary sessionplenary sessioncoffee exhibits and postercoffee exhibits and postercoffee exhibits and postercoffee exhibits and posterplenary sessionplenary sessionplenary sessionplenary sessionlunchlunchlunchlunchparallel sessionsparallel sessionsparallel sessionscoffeeparallel sessionsparallel sessionscoffeecoffeeparallel sessionscoffeecoffeecoffeeparallel sessionscoffeecoffeecoffeeparallel sessionscoffeecoffeecoffeeparallel sessionscoffeecof

FURTHER INFORMATION

The conference is co-organized by the following Czech institutions:

- Charles University in Prague, Faculty of Mathematics and Physics
- Czech Technical University in Prague, Faculty of Nuclear Sciences and Physical Engineering
- Institute of Physics, Academy of Sciences of the Czech Republic
- Nuclear Physics Institute, Academy of Sciences of the Czech Republic

Conference Secretariat:

Nina Tumova

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