



PETRI NETS 2022

43rd International Conference on Application and Theory of Petri

Nets and Concurrency

June 19 - 24, 2022, Bergen, Norway

PROGRAMME AND PRACTICAL INFORMATION

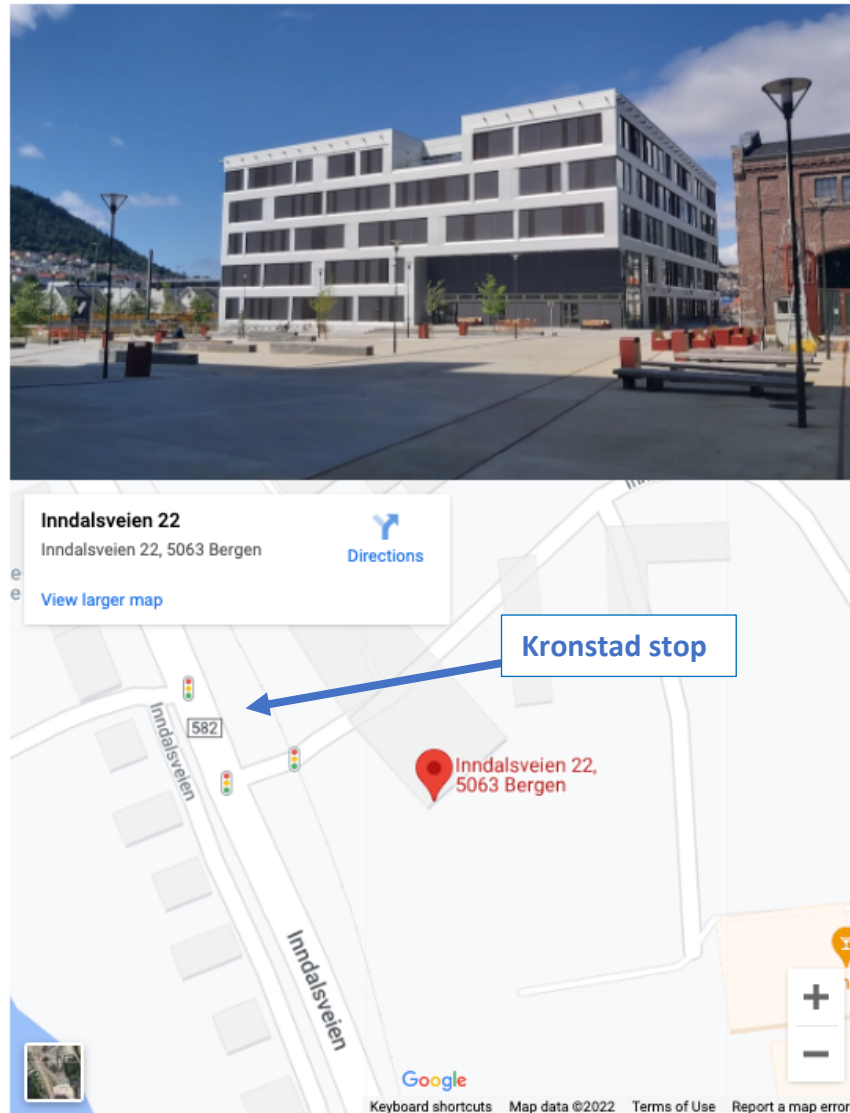
Updated 11.06.2022

<https://petrinets2022.github.io/>



CONFERENCE VENUE

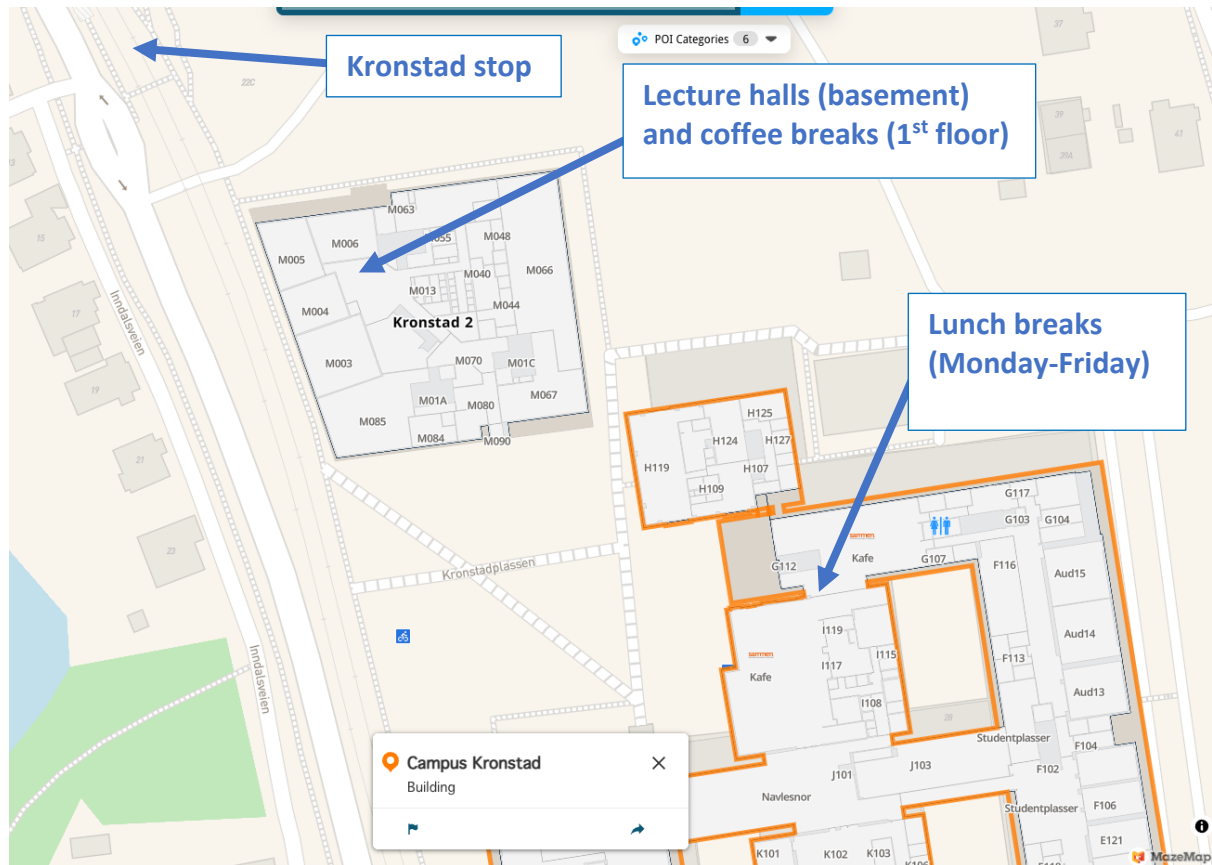
The conference takes place at Western Norway University of Applied Sciences, Campus Bergen in the K2 Building



The conference venue is located next to stop “Kronstad” on the Bergen Light Rail line:
<https://www.skyss.no/en/travel/timetables-and-maps/timetable-for-bergen-light-rail/>

CONFERENCE ROOMS

A detailed map of the rooms where the conference takes place is available via Mazemap:
<https://use.mazemap.com/#v=1¢er=5.349874,60.369764&zoom=17.7&sharepoi=poi&sharepoi=1000459424&zlevel=1&campusid=9>



COFFEE BREAKS

Coffee breaks will take place in room M130/M131 in Kronstad 2, 1st floor.

LUNCH

Lunch on Monday-Friday will be served in the canteen in the Kronstad 1 building just across from the Kronstad 2 building.

On Sunday, lunch will be in M130/M131 (same room as coffee breaks)

INTERNET ACCESS

Wireless Internet access is provided throughout the conference site / Campus.

- **Eduroam** can be used by participants that have access via their home institution.
- Participants without an Eduroam account can obtain WiFi access via self-registration on the **HVL Guest** network.

PROJECTORS

All lecture halls are equipped with two screens and a Windows PC with MS Office installed. This PC can be used for presentation. Presenters can also connect their own PC using HDMI.

The conference organisers will have some adapters available in case this is needed. As there may be a shortage of adapters, we encourage presenters that do not have an HDMI port on their PC to bring their own adapter.

PETRI NETS PROCEEDINGS

The proceedings of the main conference is published by Springer-Verlag as volume 13288 in the Lecture Notes in Computer Science Series (LNCS).

Participants registered for the conference have free online access to the proceedings granted for 4 weeks, between 16 June - 16 July 2022. The access is available via:

<https://petrinets2022.github.io/proceedings>

The organisers have received 50 physical copies of the proceedings from Springer. These copies have been provided to authors of papers accepted for the main conference and the programme committee chairs.

Participants who have received a physical copy, but who are not interested in a physical copy may return the copy to the registration to be benefit of other main conference participants.

Programme Overview

| Sunday 19 Jun | Monday 20 Jun | Tuesday 21 Jun | Wednesday 22 Jun | Thursday 23 Jun | Friday 24 Jun |
|---|---|---|---|--|--|
| PN Course Time: 9:00-17:00 Room: M125 | PN Course Time: 9:00-17:30 Room: M125 | MC Contest Time: 16:00-17:30 Room: M003 | | | |
| | PNSE Time: 9:00-17:30 Room: M004 | ATAED Time: 9:00-17:30 Room: M004 | | | |
| | FCPP Time: 14:00-17:30 Room: M005 | MbSE4PNs Time: 9:00-17:30 Room: M005 | Main Track Time: 9:00-16:15 Room: M003 | Main Track Time: 9:00-16:00 Room: M003 | Main Track Time: 9:00-14:30 Room: M003 |
| | HEDA Time: 11:00-17:30 Room: M006 | HEDA Time: 9:00-17:30 Room: M006 | Tool Demonstrations Time: 16:15-18:00 Room: M130/131 | | |
| | PNSE Poster Session Time: 17:30-18:30 Room: M130/131 | | | | |

| | |
|---|---|
| Welcome Reception Time: 20:00- Venue: Håkonshallen | Conference Dinner Time: 20:00- Venue: Grand Bergen |
|---|---|

Session Schedule Overview

| | Sunday 19 Jun | Monday 20 Jun | Tuesday 21 Jun | Wednesday 22 Jun | Thursday 23 Jun | Friday 24 Jun |
|-------------------|------------------|------------------|-------------------|---------------------|--------------------|------------------|
| Registration | 8:30-9:00 | | | | | 9:00-9:30 |
| Technical session | 9:00-10:00 | 9:00-10:30 | | | 9:00-10:00 | 9:30-10:30 |
| Coffee Break | 10:00-10:30 | 10:30-11:00 | | | 10:00-10:30 | 10:30-11:00 |
| Technical session | 10:30-12:00 | 11:00-12:30 | | | 10:30-12:00 | 11:00-12:00 |
| Lunch | 12:00-13:00 | 12:30-14:00 | | | 12:00-13:30 | 12:00-13:00 |
| Technical session | 13:00-14:30 | 14:00-15:30 | | 14:00-15:00 | 13:30-14:30 | 13:00-14:30 |
| Coffee Break | 14:30-15:00 | 15:30-16:00 | | 15:00-15:30 | 14:30-15:00 | 14:30- |
| Technical session | 15:00-16:30 | 16:00-18:30 | 16:00-17:30 | 15:30-18:00 | 15:00-18:00 | |

SUNDAY – JUNE 19

| | |
|---|--------------------------------------|
| Petri nets PhD course - Room M125 | |
| https://petrinets2022.github.io/pncourse/ | |
| | |
| 8.30 – 9.00 | Registration |
| | |
| 9.00 – 10.30 | Basic net classes I |
| 10.30 – 11.00 | Coffee break in M130/M131 |
| 11.00 – 12.30 | Basic net classes II |
| 12.30 – 13.30 | Lunch in M130/M131 |
| 13.30 – 15.00 | Coloured Petri nets and CPN Tools I |
| 15.00 – 15.30 | Coffee break in M130/M131 |
| 15.30 – 17.00 | Coloured Petri nets and CPN Tools II |

MONDAY – JUNE 20

| | | | | |
|---------------|---|--|--|--------------------------------------|
| 8.30 – 9.00 | Registration | | | |
| Room | M125 | M004 | M005 | M006 |
| | Petri Net PhD Course | PNSE Workshop Detailed programme on next page | Tutorial on Aggregate Programming | HEDA Meeting |
| 9.00 – 10.30 | Verification and model checking of Petri Nets I | Session I: Welcome and invited talk | | |
| 10.30 – 11.00 | Coffee break in M130/M131 | | | |
| 11.00 – 12.30 | Verification and model checking of Petri Nets II | Session II | | Project meeting (by invitation only) |
| 12.30 – 14.00 | Lunch in the canteen area of building K1 | | | |
| 14.00 – 15.30 | Timed and Stochastic Petri Nets I | Session III | Module I | Project meeting (by invitation only) |
| 15.30 – 16.00 | Coffee break in M130/M131 | | | |
| 16.00 – 17.30 | Timed and Stochastic Petri Nets II | Session IV | Module II | Project meeting (by invitation only) |
| 17.30 – 18.30 | PNSE poster session in combination with drinks and light serving in M130/M131 | | | |

PNSE PROGRAMME

<https://petrinets2022.github.io/pnse/>

Session 1 [9:00 – 10:30] Session I: Welcome and keynote (H. Rölke)

Einar Broch Johnsen (University of Oslo): *Digital Twins - An Emerging Paradigm for Model-Centric Engineering*

Session 2 [11:00 – 12:30] Session II: Long paper presentations (25+5)

- Federica Adobbati, Luca Bernardinello, Görkem Kılınc Soylu and Lucia Pomello: *Information flow among transitions of bounded free-choice nets*
- Bart-Jan Hilbrands, Debjyoti Bera and Benny Akesson: *Partial Specifications of Component-Based Systems using Petri Nets*
- Lukas Voß, Sven Willrodt, Daniel Moldt, and Michael Haustermann: *Between Expressiveness and Verifiability: P/T-nets with Synchronous Channels and Modular Structure*

Session 3 [14:00 – 15:30] Session III: Long paper presentations (25+5)

- Michael Köhler-Bußmeier and Heiko Rölke: *Analysing Adaption Processes of Hornets*
- Ruben Dobler Strand, Lars Michael Kristensen and Laure Petrucci: *Formal Specification and Validation of a Data-driven Software System for Fire Risk Prediction*
- Rüdiger Valk and Daniel Moldt: *On Reduction of Cycloids*

Session 4 [16:00 – 17:30] Session IV: Short paper presentations (10+5)

- Franck Pommereau, Colin Thomas and Cedric Gauchere: *EDEN framework for interactive analysis of ecosystems models*
- Federica Adobbati and Łukasz Mikulski: *Analysing multi-agent systems using 1-safe Petri nets*
- Laif-Oke Clasen, Daniel Moldt and Marcel Hansson: *Enhancement of Renew to Version 4.0 Using JPMS*
- Nadiyah Almutairi: *Probabilistic Communication Structured Acyclic Nets*
- Tuwailaa Alshammari: *Towards Automatic Extraction of Events for SON Modelling*
- Jörg Desel: *The Chameleon Game*

Session 5 [17:30 – 17:40] Session V: Poster teaser presentations (2)

Session 6 [17.40 – 18.30] Session VI: Poster presentations in M130/131

TUESDAY – JUNE 21

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|---------------|---|---|--|--|
| 8.30 – 9.00 | Registration | | | |
| Room | M003 | M004 | M005 | M006 |
| | Model Checking Contest | ATAED Workshop Detailed programme on next page | Tutorial on Petri Nets and Software Engineering | HEDA Workshop Detailed programme on next page |
| 9.00 – 10.30 | | Welcome and keynote | Module I | Opening and keynote |
| 10.30 – 11.00 | Coffee break in M130/M131 | | | |
| 11.00 – 12.30 | | Stochastics & Statistics | Module II | Health data Modelling and Standards |
| 14.00 – 15.30 | | Region Theory | Module III | Health Data Analysis and Applications |
| 15.30 – 16.00 | Coffee break in M130/M131 | | | |
| 16.00 – 17.30 | Session on presentation of results | Strategies for Behavioral Analysis | Module IV | Panel session |
| 20.00 – 22.00 | <p>Reception with drinks and finger food hosted and sponsored by the Municipality of Bergen</p> <p>Address: Bergenhus 10, 5003 Bergen https://bymuseet.no/museum/the-king-hakons-hall/?lang=en</p> <p>It is important that attendees will be at the entrance before 20.00 as the doors will be closed.</p> <div data-bbox="699 1500 1133 1977" data-label="Image"> <p>The image shows a photograph of The King Håkon's Hall, a large stone building with a green roof, and a map showing its location in Bergenhus. The map includes labels for 'The King Håkon's Hall', 'Havrommet', and 'BERGENHUS'.</p> </div> | | | |

ATAED PROGRAMME

<https://petrinets2022.github.io/ataed/>

Session 1 [9:00 – 10:15] Welcome and keynote

Sander Leemans, Full Professor RWTH Aachen University: *Leveraging frequencies in event data: a pledge for stochastic process mining*

Session 2 [11:00 – 12:30] Regular Papers (2x (30+15)) [Stochastics & Statistics]

- Jarne Vandenabeele, Gilles Vermaut, Jari Peeperkorn and Jochen De Weerd. *Enhancing Stochastic Petri Net-based Remaining Time Prediction using k-Nearest Neighbors*
- Patrizia Schalk and Lisa Petrak. *Taking on Noise in Event Logs using Hypothesis Tests*

Session 3 [14:00 – 15:30] Regular Papers (2x (30+15)) [Region Theory]

- Marta Pietkiewicz-Koutny and Aishah Ahmed. *Minimising the synthesised ENL-systems*
- Robin Bergenthum and Jakub Kovář. *A First Glimpse at Petri Net Regions*

Session 4 [16:00 – 17:30] Regular Papers (2x (30+15)) [Strategies for Behavioral Analysis]

- Federica Adobbati, Luca Bernardinello, Lucia Pomello and Riccardo Stramare. *Implementable strategies for a two-player asynchronous game on Petri nets*
- Gabriel Juhás, Ana Juhásova and Tomáš Kováčik. *Deadlocks and livelocks in resource constrained workflow nets*

HEDA PROGRAMME

<https://petrinets2022.github.io/heda/>

09.00-10.45: Opening, Keynote and Short Presentations

- **Keynote:** Health Sense
- Markus Bertl, Gunnar Piho and Peeter Ross. *Exploratory Analysis of Health Insurance Billing Data from People with Psychiatric Diseases in Estonia: An Opportunity for Data Science and Artificial Intelligence?*
- Jaroslaw Pasiak, Wojciech Pasiak, Harald Soleim, Remy Andre Monsen, Atle Birger Geitung, Guri-Elise Holgersen and Thomas Fiskeseth Larsen. *VR supported self-help treatment for adolescents with psychosis*
- Marten Kask. *Distributed Health Data: Challenges and Opportunities for Maintaining Data Integrity*

11.00-12.30: Health data Modelling and Standards

- Rainer Randmaa, Igor Bossenko, Toomas Klementi, Gunnar Piho and Peeter Ross. *Evaluating business meta-models for semantic interoperability with FHIR resources*
- Igor Bossenko, Gunnar Piho and Peeter Ross. *Forward and backward compatibility design techniques applying the HL7 FHIR standard*
- Kristian Kankainen, Toomas Klementi, Peeter Ross and Gunnar Piho. *Using the Snomed CT as a semantic model for Controlled Natural Language capture of clinical data*
- Toomas Klementi, Kristian Kankainen, Gunnar Piho and Peeter Ross. *Prospective research topics toward preserving persons' electronic health records in decentralised content-addressable storage networks*
- Tanel Sõerd, Kristian Kankainen, Gunnar Piho, Peeter Ross and Toomas Klementi. *Specification of medical processes in accordance with international standards and agreements*

14.00-15.30: Health Data Analysis and Applications

- Philipp Bende, Olga Vovk, David Caraveo, Ludwig Pechmann and Martin Leucker. *A Case Study on Data Protection for a Cloud- and AI-based Homecare Medical Device*
- Severin A. Eliassen, Harald Soleim, Atle B. Geitung and Lars Peder V. Bovim. *VR-based rehabilitation of cognitive functions among stroke-survivors*
- Patrick Stünkel, Sabine Leh and Friedemann Leh. *Process Data Science for Workflow Optimization in Digital Pathology: A status report*
- Fazle Rabbi, Bahareh Fatemi and Wendy MacCaull. *Analysis of patient pathways with contextual process mining*
- Peter Pfeiffer, Heike Sander, Peter Fettke and Wolfgang Reisig. *A Standard Process for Supporting the Safety and Conformity of Medical Devices*

15.45-17.00 Panel session

- On Secondary use of health data in Estonia, Germany and Norway

WEDNESDAY – JUNE 22

| Main conference - Room M003 | |
|---|--|
| https://petrinets2022.github.io/mainconference/ | |
| 8.00 – 9.00 | Registration |
| 9.00 – 9.30 | Welcome and opening session |
| 9.30 – 10.30 | Distinguished Carl Adam Petri Lecture (Chair: Alex Yakovlev) Paulo Esteves-Verissimo: Assumptions in computer science: mere mathematical hypotheses, or representations of the physical world? |
| 10.30 – 11.00 | Coffee break in M130/M131 |
| 11.00 – 12.30 | Session 1: Application of Concurrency to System Design |
| | <ul style="list-style-type: none">▪ Vegard Steinsland, Lars Kristensen and Shujun Zhang: Towards the Application of Coloured Petri Nets for Design and Validation of Power Electronics Converter Systems▪ Abel Armas Cervantes and Farbod Taymouri: Leveraging Concurrency for Discovering Unseen Behaviour▪ Clément Bertrand, Hanna Klaudel and Frederic Peschanski: Layered Memory Automata: recognizers for quasi-regular languages with unbounded memory |
| 12.30 – 14.00 | Lunch in the canteen area of building K1 |
| 14.00 – 15.00 | Session 2: Timed models |
| | <ul style="list-style-type: none">▪ Loic Helouet and Pranay Agrawal: Waiting Nets▪ Xavier Allamigeon, Marin Boyet and Stephane Gaubert: Computing Transience Bounds of Emergency Call Centers: a Hierarchical Timed Petri Net Approach |
| 15.00 – 15.30 | Coffee break in M130/M131 |
| 15.30 – 16.15 | Session 3: Tools (Chair: Fabrice Kordon) |
| | <ul style="list-style-type: none">▪ Nicolas Amat and Louis Chauvet Kong: a Tool to Squash Concurrent Places▪ Fernando Pereira, Filipe Moutinho, Anikó Costa, João-Paulo Barros, Rogério Campos-Rebello and Luis Gomes: IOPT-Tools - From executable models to automatic code generation for embedded controllers development▪ Jan Niklas Adams and Wil van der Aalst: OCrt: Object-Centric Process Insights |
| 16.15 – 18.00 | Tool demonstrations and exhibition in M130/M131 |
| 20.00 | Conference dinner |

TOOL DEMONSTRATIONS AND EXHIBITION

Alongside the main conferences there will be a tool exhibition and demonstration from Wednesday until Friday in the same room as the coffee breaks.

The tool exhibition will be opened as part of the tools session of the main conference on wednesday afternoon combined with light serving of finger food and drinks.

The following tools will be part of the tool exhibition

- Ecco
- I Love Petri Nets
- ePNK
- GPenSim
- Tina
- GreatSPN
- Titan
- IOPT-Tools

Further information about the tools and the contact persons are available via the conference web site: <https://petrinets2022.github.io/tools/>

THURSDAY – JUNE 23

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|---|---|
| Main conference - Room M003 | |
| https://petrinets2022.github.io/mainconference/ | |
| | |
| 8.30 – 9.00 | Registration |
| | |
| 9.00 – 10.00 | Invited talk (Chair: Jetty Kleijn) Volker Diekert: Petri Nets and Mazurkiewicz Traces Partnership when Honeymoon is Forgotten |
| 10.00 – 10.30 | Coffee break in M130/M131 |
| 10.30 – 12.00 | Session 4: Applications (Chair: Karsten Wolf) |
| | <ul style="list-style-type: none"> ▪ Rafal Graczyk, Waldemar Bujwan, Marcin Darmetko, Marcin Dziezyc, Damien Galano, Konrad Grochowski, Michal Kurowski, Grzegorz Juchnikowski, Marek Morawski, Michal Mosdorf, Piotr Orleanski, Cedric Thizy and Marcus Voelp: From Graphs to the Science Computer of a Space Telescope. The power of Petri Nets in Systems Engineering. ▪ Franck Pommereau, Colin Thomas and Cedric Gauchere: Petri Nets Semantics of Reaction Rules (RR), a Language for Ecosystems Modelling ▪ Maxim Storetvedt, Latchezar Betev, Nikola Hardi, Håvard Helstrup, Kristin Fanebust Hetland and Bjarte Kileng: Modelling the Next Generation ALICE Grid Middleware using Coloured Petri Nets |
| 12.00 – 13.30 | Lunch in the canteen area of building K1 |
| 13.30 – 14.30 | Session 5: Synthesis (Chair: Lucia Pomello) |
| | <ul style="list-style-type: none"> ▪ Raymond Devillers and Ronny Tredup: Synthesis of inhibitor-reset Petri nets: algorithmic and complexity issues ▪ Paul Hannibal and Ernst-Rüdiger Olderog: The Synthesis Problem for Repeatedly Communicating Petri Games |
| 14.30 – 15.00 | Coffee break in M130/M131 |
| 15.00 – 16.00 | Session 6: Petri nets architecture |
| | <ul style="list-style-type: none"> ▪ Victor Khomenko, Maciej Koutny and Alex Yakovlev: Avoiding Exponential Explosion in Petri Net Models of Control Flows ▪ Elvio Gilberto Amparore and Susanna Donatelli: The ins and outs of Petri net composition |
| 16.15 – 18.00 | Petri Nets steering committee meeting (by invitation only) |
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| Evening | Nordic mid-summer celebration in the city centre |

FRIDAY – JUNE 24

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|---|---|
| Main conference - Room M003 | |
| https://petrinets2022.github.io/mainconference/ | |
| 9.00 – 9.30 | Registration |
| 9.30 – 10.30 | Invited talk (Chair: Maciej Koutny) Marieke Huisman: VerCors and Alpinist: correctness of GPU applications throughout the development of cycle |
| 10.30 – 11.00 | Coffee break in M130/M131 |
| 11.00 – 12.00 | Session 7: Process mining I (Chair: Abel Armas Cervantes) |
| | <ul style="list-style-type: none"> ▪ Lisa Luise Mannel and Wil van der Aalst: Improving the Noise Filtering Technique of the eST-Miner by Providing Fitness Guarantees ▪ Dominique Sommers, Natalia Sidorova and Boudewijn van Dongen: Aligning Event Logs to Resource-Constrained nu-Petri nets |
| 12.00 – 13.00 | Lunch in the canteen area of building K1 |
| 13.00 – 14.00 | Session 8: Process mining II (Chair: Robert Lorenz) |
| | <ul style="list-style-type: none"> ▪ Viki Peeva, Lisa Luise Mannel and Wil van der Aalst: From Place Nets to Local Process Models ▪ Jan Martijn E. M. van der Werf, Andrey Rivkin, Artem Polyvyanyy and Marco Montali: Data and Process Resonance: Identifier Soundness for Models of Information Systems |
| 14.00 – 14.30 | Closing session and hand-over ceremony |
| | <ul style="list-style-type: none"> ▪ M. Koutny: Information from the steering committee ▪ L. Gomes: Presentation of Petri nets 2023 venue |
| 14.30 | Coffee and drinks in M130 M131 |