ALPACA

Modern algorithms in machine learning and data analysis: from medical physics to research with accelerators and in underground laboratories

ECT* Trento, 20-24 November 2023

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IN NUCLEAR PHYSICS AND RELATED AREAS

EURO-LABS
EUROPEAN LABORATORIES
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Many thanks to the ECT* centre for the incredible support to fund and realize the ALPACA workshop

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Broad & diverse program

Monday, 20 November 2023

09:00	**Registration**
09:45	**Welcome Organizers**
10:00	**ML applications: from Particle Physics to Medical Imaging** - Wojciech Krzemien (National Centre for Nuclear Research)
10:45	**Analysis of positronium decays by the J-PET detector for the me…**
11:15	**Investigation of o-Ps Decays for Improving CP Symmetry Test Prec…**
11:30	**Coffee Break**
12:00	**Machine learning methodologies for single-cell 'omic data** - Guido Sanguinetti
13:00	**Lunch**
14:00	**TBA (online)** - Sofia Vallecorsa
14:45	**Challenges in modern preclinical and clinical imaging**
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16:00	**TBA** - Andrea Di Luca (FBK)

Tuesday, 21 November 2023

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10:30	**The SIDDHARTA-2 Experiment at DAFNE** - Florin Sirghi (INFN-LNF)
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Wednesday, 22 November 2023

09:45	**AI-assisted design of experiments at the frontiers of computation: methods and new perspectives**
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Friday, 24 November 2023

09:15	**ML and Differentiable Programming optimisations for X-ray spectro…**
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10:30	**Photonic spiking neural networks using silicon microring resonators.** - Alessio Lugnan (University of Trento)
11:15	**Coffee break**
11:45	**Reservoir Computing Model For Multi-Electrode Electrophysiological Data Analysis** - Ilya Auslender (University of Trento)
12:30	**TBA** - Jakub Skowronski (Universita degli Studi di Padova)
12:50	**Wrap-up and goodbye**
12:55	**Lunch**

HEP, Nuclear Phys, Bio, Med, Photonic

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29 Talks, 37 participants

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Hands-on sessions

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Tuesday + Thursday after lunch

Check out the indico page for info

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Social events

Monday, 20 November 2023	Tuesday, 21 November 2023	Wednesday, 22 November 2023	Thursday, 23 November 2023	Friday, 24 November 2023
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Welcome dinner

Tuesday, November 21 I 20.00
Restaurant ANTICO POZZO
Vicolo della Sat, 6, 38122 Trento TN

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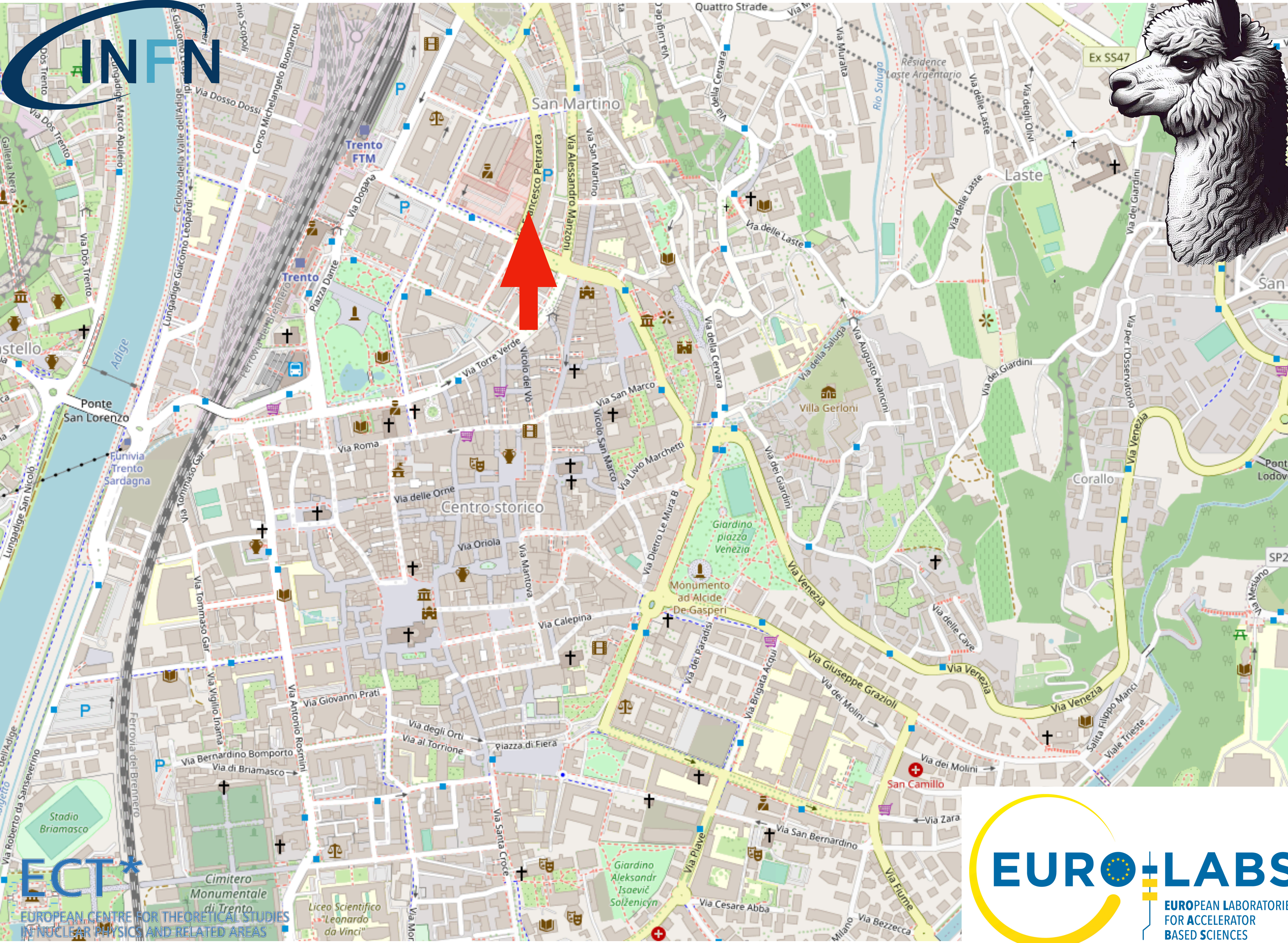
INFN
San Martino
Quattro Strade
Residence
Laste Argentario
Ex SS47
Laste
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Trento
Via Francesco Petrarca
Via Alessandro Manzoni
Via San Martino
Via Dosso Dossi
Corso Michelangelo Buonarroti
Via Dogana
Piazza Dante
Via delle Laste
Via della Cervara
Rio Saluga
Via Muralta
Via degli Olivi
Via dei Giardini
Via della Saluga
Via Augusto Avancini
Villa Gerloni
Via per l'Osservatorio
San D
Ponte Lodovico
Corallo
Via Venezia
SP204
Via Torre Verde
Vicolo del Vò
Via San Marco
Vicolo San Marco
Via Livio Marchetti
Via Roma
Via delle Orne
Centro storico
Via Oriola
Via Mantova
Via Dietro Le Mura B
Giardino piazza Venezia
Monumento ad Alcide De Gasperi
Via Calepina
Via dei Paradisi
Via Brigata Acqui
Via Giuseppe Grazioli
Via dei Molini
Via delle Cave
Salita Filippo Manci
Viale Trieste
Via Mesiano
Ponte San Lorenzo
Funivia Trento Sardagna
Adige
Lungadige San Nicolò
Via Tommaso Gar
Via Vigilio Inama
Via Antonio Rosmini
Via Giovanni Prati
Via degli Orti
Via al Torrione
Piazza di Fiera
Via Santa Croce
Via Bernardino Bomporto
Via di Briamasco
Ferrovia del Brennero
Stadio Briamasco
Cimitero Monumentale di Trento
Liceo Scientifico "Leonardo da Vinci"
Giardino Aleksandr Isaevič Solženicyn
Via Plave
Via Cesare Abba
Via San Bernardino
Via Zara
Via Fiume
Via Bezzecca
San Camillo
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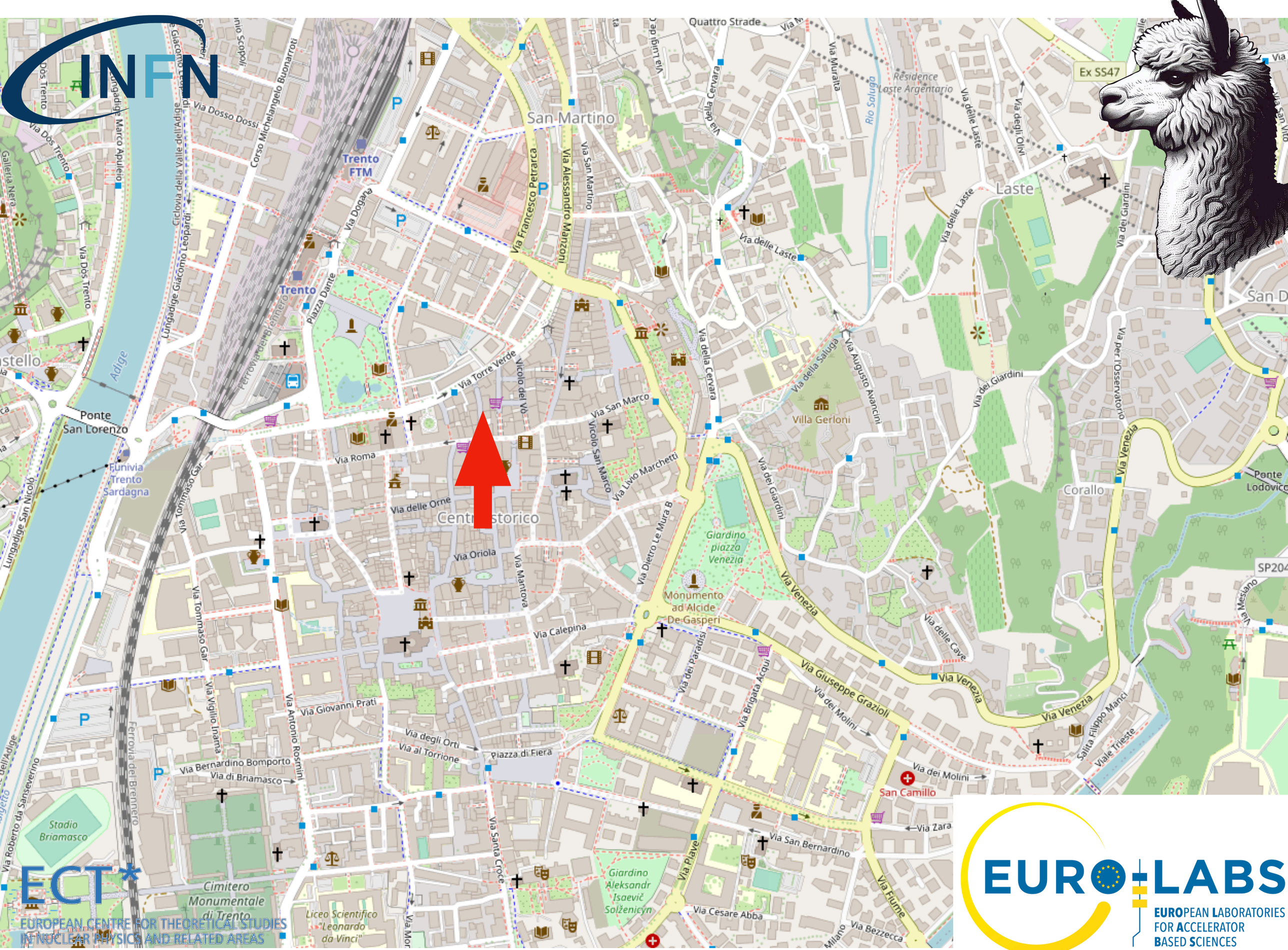

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Organizers

Fabrizio Grosa

Raffaele Del Grande

Magdalena Skurzok

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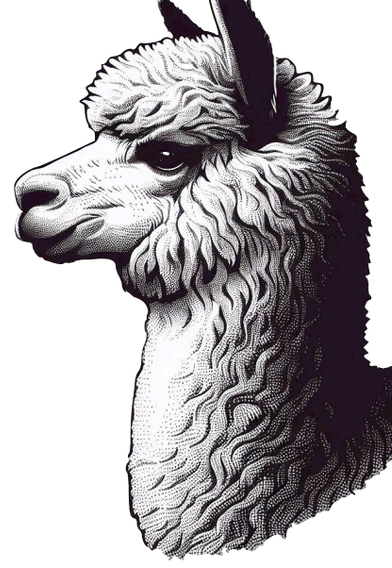

Infos

- **Coffee breaks and lunches are here in ECT***
- **Please prepare your presentation in time in the PC (before the start of the session)**
- **Sign your presence + lunch & dinners**
- **Enjoy!**

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