RIGA TECHNICAL UNIVERSITY

Proposal for the Baltic Group School of High Energy Particle Physics and Accelerator Technologies

August, 2020

"Ronīši"

Klapkalnciems

Latvia

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Centre of High Energy Physics and Accelerator Technology

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v1.0

Contents

1 Time Table

<table>
<tr><th>Time Day</th><th>Monday</th><th>Tuesday</th><th>Wednesday</th><th>Thursday</th><th>Friday</th></tr>
<tr><td>07.00 - 07.30</td><td rowspan="8">9.00–10.00
bus from
Riga

Arrival and
registration</td><td rowspan="3">Breakfast</td><td rowspan="3">Breakfast</td><td rowspan="3">Breakfast</td><td rowspan="3">Breakfast</td></tr>
<tr><td>07.30 - 08.00</td></tr>
<tr><td>08.00 - 08.30</td></tr>
<tr><td>08.30 - 09.00</td><td rowspan="4">LB.3</td><td rowspan="4">LB.6</td><td rowspan="4">LB.8</td><td rowspan="4">LB.11</td></tr>
<tr><td>09.00 - 09.30</td></tr>
<tr><td>09.30 - 10.00</td></tr>
<tr><td>10.00 - 10.30</td></tr>
<tr><td>10.30 - 11.00</td><td>Coffee break</td><td>Coffee break</td><td>Coffee break</td><td>Coffee break</td></tr>
<tr><td>11.00 - 11.30</td><td rowspan="3">LB.4</td><td rowspan="3">LB.7</td><td rowspan="3">LB.9</td><td rowspan="3">LB.12</td></tr>
<tr><td>11.30 - 12.00</td></tr>
<tr><td>12.00 - 12.30</td><td rowspan="3">Lunch</td></tr>
<tr><td>12.30 - 13.00</td></tr>
<tr><td>13.00 - 13.30</td><td rowspan="3">Lunch</td><td rowspan="3">Lunch</td><td rowspan="3">Lunch</td><td rowspan="3">DS.4/Close</td></tr>
<tr><td>13.30 - 14.00</td><td rowspan="4">LB.1</td></tr>
<tr><td>14.00 - 14.30</td></tr>
<tr><td>14.30 - 15.00</td><td rowspan="3">DS.1</td><td rowspan="3">DS.2</td><td rowspan="3">DS.3</td></tr>
<tr><td>15.00 - 15.30</td><td rowspan="11">15.00–16.00
bus to Riga</td></tr>
<tr><td>15.30 - 16.00</td><td>Coffee break</td></tr>
<tr><td>16.00 - 16.30</td><td rowspan="4">LB.2</td><td>Coffee break</td><td>Coffee break</td><td>Coffee break</td></tr>
<tr><td>16.30 - 17.00</td><td rowspan="3">LB.5</td><td rowspan="3">Keynote
Speaker</td><td rowspan="3">LB.10</td></tr>
<tr><td>17.00 - 17.30</td></tr>
<tr><td>17.30 - 18.00</td></tr>
<tr><td>18.00 - 18.30</td><td rowspan="2"></td><td rowspan="4"></td><td rowspan="4">School
Dinner</td><td rowspan="4"></td></tr>
<tr><td>18.30 - 19.00</td></tr>
<tr><td>19.00 - 19.30</td><td rowspan="3">Welcome
Drink!</td></tr>
<tr><td>19.30 - 20.00</td></tr>
<tr><td>20.00 –
– 23.00</td></tr>
</table>

Summary of contents:

- 12 × 2-hour Lecture Blocks, LB.1 - LB.12
- 4 × 1.5-hour Discussion Sessions, DS.1 - DS.4
- 1 × Keynote Lecture
- 1 × Welcome drink / social
- 1 × School dinner
- 4 × Catered breakfasts
- 4 × Catered lunches
- 8 × Catered coffee breaks

2 Scientific Program

- Quantum Field Theory

LB.1: Introduction

LB.2: Quantum Electrodynamics

LB.3: Quantum Chromodynamics

- Standard Model

LB.4: QFT recap - SM introduction

LB.5: Electroweak Unification

LB.6: Spontaneous Symmetry Breaking and the Higgs Mechanism

- Beyond Standard Model

LB.7: Supersymmetry

LB.8: Neutrino Physics and other BSM (excl. DM and DE)

LB.9: Dark Matter and Dark Energy

- Accelerator Technologies

LB.10: Accelerator technologies and applications (excl. medical applications)

LB.11: Detector technologies (excl. medical applications)

LB.12: Medical applications of accelerator technologies and high energy physics

3 Organisation

The 2020 edition of the Baltic Group School of High Energy Particle Physics and Accelerator Technologies (*HEPP & ATech*) is hosted and chiefly organised by the Riga Technical University (RTU).

Lecturers and Teaching Assistants. The proposed school plan requires four lecturers to be contracted, one for each of the proposed scientific topics, for a teaching time of six hours each. Moreover, each lecturer should be present during the discussion session dedicated to their respective lectures, bringing the total contracted teaching hours up to eight. A more precise outline of each individual research topic is to be devised in coordination with the contracted lecturers. In addition, it would be hugely beneficial to have said lecturers present at both proposed networking events - Welcome Drink and the School Dinner - as well as to encourage them to be present as much as possible in general, though it is understood that such commitments are not guaranteed.

Furthermore, this school would require the presence of up to four teaching assistants, depending on the number of students present. These individuals would spend the entire length of the school based at the site and make themselves available for informal teaching through *Q&A* with the students. The teaching assistants would lead the discussion sessions for the students, who would be divided into groups.

It is not excluded that there can be an overlap between the role of the lecturer and the teaching assistant, ie. one or more of the lecturers could also be the leaders of the discussion sessions. In this case, however, they should be based on site for the duration of the school fulfilling the role of the teaching assistant outside their respective lectures.

With respect to the COST Action proposal, both lecturers and teaching assistants are referred to as trainers, while the students are referred to as trainees.

Administration and Dissemination. The host institution takes the leading role in administration and dissemination duties, however, a considerable effort is expected from the partner institutions for the latter.

Firstly, a dedicated web-page must be developed for the school. This can be done either through a CERN based indico account or through the web-site of the RTU. A simple logo and a standardised name for this school must be agreed upon between the partner institutions; the current proposal is *"Baltic Group School of HEPP & ATech"*.

Once the web presence is established, the partner institutions should put considerable effort into advertising the event to their graduate students. Two places from each partner institution are the be funded by the COST Action proposal; further student entries should be funded by their respective institutions or other viable means. It is expected that there will be, on average, five students participating from each partner institution, bringing the total number of students to around 40. Furthermore, it is not excluded that further students from outside the partner institutions and outside the Baltic States could be attracted.

The RTU is further responsible for arranging the preparation of the teaching materials as well as for the organisation of the transport between Riga and the site of the school, accommodation, catering and the social events. RTU, in consultation with the partner institutions, should also identify and invite a keynote speaker for the school.

It is expected that three to four individuals from the RTU (or contracted by RTU) should be assigned to the administrative and dissemination duties.

4 On-site staff, Trainers and Trainees

The organisational staff of this meeting, comprising of the aforementioned three to four individuals, is to be provided by the RTU, the host institution of the 2020 edition of the Baltic Group School *HEPP & ATech*. The exact personnel is TBD.

The four main topics of the school and the three discussion sessions requires a minimum of four trainers to participate. The exact personnel is TBD.

An invited keynote speaker is to give a talk on the Wednesday and will be invited to join at the school's dinner, allowing the trainees to have a more informal exchange with the speaker.

The trainees are to mainly be PhD and Master's students from the eight participating institutions from the three Baltic states, however, the school is to be advertised and further trainees invited from the aforementioned institutes as well as from other institutes from the Baltic region and beyond.

The COST Action proposal is to fully cover the fees for two trainees from each of the eight participating institutes. Other invited trainees are expected to cover the school fees through the financing options available at their respective institutes.

The total number of trainees is expected to be 30-40.

Summary of personnel:

- 30-40 trainees
- A minimum of 4 and a maximum of 8 trainers
- 1 invited keynote speaker
- 2-3 organisational staff

Total number of people: 40-50

5 Preliminary costings

5.1 Travel

For the trainees arriving from abroad, it is expected that they make their way to Riga on Sunday, NNth of August or early morning of Monday, XXth of August. In case of the former, they are also expected to seek their own, reasonably priced overnight accommodation in Riga.

5.2 Accommodation

The recommended option for the trainees is the "Bungalo" (2 persons) and "Kotedža" (3 persons) type accommodation at the site. The former is priced at 59 EUR/night, the latter at 45 EUR/night. This results in an approximate cost of 20-25 EUR per night per trainee.

As the trainers should be highly encouraged to stay at the site for the entire duration of the school in order to accommodate informal teaching and discussions with the trainees, the trainers should be placed in the "Bungalo" (2 persons) type accommodation at the site. This results in an approximate cost of 30 EUR per night per trainer.

5.3 Organised transport

A hired coach transport should be organised for transport of trainers and trainees from Riga to "Ronīši" on the morning of Monday, XXth of August and from "Ronīši" to Riga on the afternoon of Friday, ZZth of August. Furthermore, a coach transport should be organised to transport all attendees to and from the School Dinner on Wednesday, YYth of August, most likely to take place in Jurmala, Riga or Tukums. The approximate price for the above is expected to be around 500 EUR.

Alternatively trainees are welcome to utilise their own transportation to travel to the location. However, the price of parking is 2 EUR per day and will not be refunded.

5.4 Catering

The required catering needs include breakfast ($\times$4), lunch ($\times$4), coffee breaks ($\times$8) and a welcome social event.

The breakfast is to be of continental variety consisting of simple pastries, bread and various spreads and simple sandwich toppers. Tea, coffee, juice and water should also be included. The lunches should consist of a variety of sandwiches and finger food and include the aforementioned beverages. Similarly, the coffee breaks should provide tea, coffee and water, alongside simple pastries, such as croissants. The trainees and trainers are expected to self-cater for the evenings of Monday, Tuesday and Thursday; there is a small grocery store nearby.

The welcome social should be catered with a variety of finger-food similarly to the catered lunches. In addition a variety of non-alcoholic and alcoholic beverages should be offered, such as red and white wine, bottled beer and a selection juices.
[No cost estimate available at this time; assume 20 per person per day]

5.5 School Dinner

The school dinner will take place on Wednesday, YYth of August. The precise location is TBC, however this will most likely take place in either Riga, Jurmala or Tukums.

[No cost estimate available at this time; assume 40 per person]

5.6 Keynote speaker

[No cost estimate available at this time;]

5.7 Printing, office supplies and other expenses

The main cost associated with this section is the printing and/or photo-copying cost for the lecture notes. The lecture notes should come in the form of transparencies printed double sided at two transparencies per side. Thus, the expected printing amount per trainee is expected to be 150 to 200 sheets of double sided A4 paper. This results in approximate cost of 18 to 24 EUR per trainee. Each attendee should be provided with a name-tag, notebook and a pen at the approximate cost of 5 EUR per attendee.

Other necessary items, such as extension leads, projectors, and audio equipment should be sourced from the participating institutes and thus no additional costs are expected. The cost of the lecture room rental is 250 EUR per day.

5.8 Preliminary cost summary

Description	Unit Cost [EUR]	Units	Total [EUR]
Accommodation	120.00	35	4'200.00
Transport	500.00	1	500.00
Catering	100.00	45	4'500.00
School Dinner	40.00	45	1'800.00
Keynote Speaker	950.00	1	950.00
Printing and photo-copying costs	26.00	45	1'170.00
Personnel (150 hours per person)	25.00	4	15'000.00
		Sum	28'120.00
		Other expenditure (10%)	2'812.00
		Total	30'932.00