

Minutes from TWG1 meeting on May 5th, 2023

Participants: Annalisa D'Angelo, Achim Denig, Bernhard Ketzer, Constantia Alexandrou (co-chair), David Ireland (NuPECC liaison), Diego Bettoni (NuPECC liaison), Elena Perez del Rio, Gernot Eichmann, Jan Matousek, Jeremy Green, Karin Schönning (chair), Luigi del Debbio, Luiz Alvarez-Ruso, Pietro Antonioli, Silvia Niccolai,

Excused: Catarina Quintans, Marc Vanderhaeghen, Gilberto Colangelo

1. Reports since last meeting: Some topics were missing in the community input:
 - a. Hadron spectroscopy from LHCb (Sebastian Neubert will be contacted)
 - b. X17 searches with PADME (Paola Gianotti contacted)
 - c. Time-like form factors from BESIII (Karin Schönning writes a summary)
 - d. Laura Fabbietti from TWG2 has been contacted and she agrees that femtoscopy belongs in the hadron part.
2. We are expected to deliver 20 pages on hadron physics. There is a template from NuPECC that we can use and Constantia has created a google document for the purpose.
3. We agreed on the structure below, where the focus the next two months will be on sections 2-5.

Hadron physics chapter

(template from NuPECC)

1. Introduction

General, maybe written after the other parts, and describe hadron physics in the context of nuclear physics.

2. Hadron Spectroscopy (4p)

- a. Intro / aim (short)
- b. Recent achievements and highlights (medium-long) Focus on achievements by European communities/scientists
- c. Next steps and Future (medium-long)

3. Hadron Structure (4p)

- a. Intro / aim (short)
- b. Recent achievements and highlights (medium-long) Focus on achievements by European communities/scientists
- c. Next steps and Future (medium-long)

4. Hadron Interactions (4p)

- a. Intro / aim (short)
- b. Recent achievements and highlights (medium-long) Focus on achievements by European communities/scientists
- c. Next steps and Future (medium-long)

5. Precision / Rare processes (4p)

- a. Intro / aim (short)

- b. Recent achievements and highlights (medium-long) Focus on achievements by European communities/scientists
- c. Next steps and Future (medium-long)

6. **Perspectives and recommendations** (facilities in Europe and worlds-wide)

To be discussed and clarified:

- a. Is Europe being “left behind” / carry out a large part of the research outside Europe? Among the community input, there is a large focus on facilities outside Europe.
- b. Look for synergies and overlaps with the infrastructure TWG. We would like to include in our chapter the smaller infrastructures with a more limited scope but that are of special interest for hadron physics. The infrastructure chapter may focus on European infrastructures but in hadron physics, we rely also on infrastructures outside Europe. Should coordinate with the Infrastructure TWG. Action point: Karin checks with Wolfram if the Infra TWG includes non-European facilities. Important to also include computational infrastructures.

In addition to sections 1 – 6, there will be “boxes” with cross-sectional topics on theory approaches but also experimental perspectives if needed. In total, we foresee the introduction, the perspectives and the boxes to occupy about 4 pages of text.

3. **Milestones:**

15th of June: First draft (4 pages from each subgroup) – Each coordinator(s) should take care of arranging the meetings and streamlining the writing.

Meeting June 19-23 (make a doodle)

July 14th: Draft of the chapter to be discussed at the June meeting