

**Radiative corrections and
Monte Carlo tools for
low-energy hadronic cross
sections in e^+e^- collisions**



Report of Contributions

Contribution ID: 1

Type: **not specified**

Overview $g - 2$

Wednesday, 7 June 2023 14:00 (50 minutes)

Presenter: HOFERICHTER, Martin (University of Bern)

Session Classification: Introduction and overview

Contribution ID: 2

Type: **not specified**

Workstop/thinkstart activities: towards a NNLO MC generator for low-energy $e^+e^- \rightarrow$ hadrons

Wednesday, 7 June 2023 15:00 (20 minutes)

Presenter: VENANZONI, Graziano (University of Liverpool)

Session Classification: Introduction and overview

Contribution ID: 3

Type: **not specified**

Experimental overview

Wednesday, 7 June 2023 16:00 (40 minutes)

Presenter: DRIUTTI, Anna (University and INFN Pisa)

Session Classification: Experiments

Contribution ID: 4

Type: **not specified**

Status of dispersive approach

Thursday, 8 June 2023 14:00 (40 minutes)

Presenter: Prof. TEUBNER, Thomas (University of Liverpool)

Session Classification: Hadrons

Contribution ID: 5

Type: **not specified**

WP1: leptonic processes at NNLO & beyond

Thursday, 8 June 2023 16:30 (15 minutes)

Presenter: TORRES BOBADILLA, William (Max-Planck-Institut für Physik)

Session Classification: Loops in QED

Contribution ID: 6

Type: **not specified**

WP2: Form factor contributions at N^3LO

Thursday, 8 June 2023 16:45 (15 minutes)

Presenter: ENGEL, Tim (Uni Freiburg)

Session Classification: Loops in QED

Contribution ID: 7

Type: **not specified**

Closing remarks and drinks

Friday, 9 June 2023 16:10 (50 minutes)

Contribution ID: 8

Type: **not specified**

WP3: Processes with hadrons

Thursday, 8 June 2023 16:00 (20 minutes)

Presenter: STOFFER, Peter (UZH and PSI)

Session Classification: Hadrons

Contribution ID: 9

Type: **not specified**

WP4: parton shower

Friday, 9 June 2023 14:00 (20 minutes)

Presenter: CARLONI CALAME, Carlo (INFN, Pavia (IT))

Session Classification: Parton showers

Contribution ID: **10**

Type: **not specified**

Experimental MUonE

Friday, 9 June 2023 15:00 (20 minutes)

Presenters: ABBIENDI, Giovanni (INFN Bologna); ABBIENDI, Giovanni (INFN Bologna)

Session Classification: MUonE

Contribution ID: **11**

Type: **not specified**

Theoretical MUonE

Friday, 9 June 2023 15:50 (20 minutes)

Presenter: ROCCO, Marco (PSI - Paul Scherrer Institut)

Session Classification: MUonE

Contribution ID: 12

Type: **not specified**

Feasibility Studies for an Inclusive R -Measurement using ISR with BESIII

Wednesday, 7 June 2023 16:50 (20 minutes)

Presenter: LENZ, Thomas (JGU Mainz)

Session Classification: Experiments

Contribution ID: **13**

Type: **not specified**

CMD-3

Wednesday, 7 June 2023 17:20 (20 minutes)

Presenter: IGNATOV, Fedor (University of Liverpool)

Session Classification: Experiments

Contribution ID: 14

Type: **not specified**

Lattice overview

Thursday, 8 June 2023 14:50 (30 minutes)

Presenter: PARATO, Letizia (ETH Zurich)

Session Classification: Hadrons

Contribution ID: 15

Type: **not specified** $e^+e^- \rightarrow \gamma\gamma^*$ **at two loops in massless QED***Thursday, 8 June 2023 17:10 (20 minutes)*

We present an analytic computation of $e^+e^- \rightarrow \gamma\gamma^*$ at two loops in massless QED. We reconstruct the analytic form of the amplitudes from numerical evaluations over finite fields. We express the integrals in a basis of Goncharov polylogarithms to obtain compact expressions. These contributions are required for N³LO predictions of the inclusive process $e^+e^- \rightarrow \gamma^*$ and for NNLO corrections for ISR measurements of $e^+e^- \rightarrow \gamma\gamma^*$.

Presenter: MOODIE, Ryan (Turin University)**Session Classification:** Loops in QED

Contribution ID: 16

Type: **not specified**

Photon splitting corrections to soft-photon resummation

Friday, 9 June 2023 14:30 (20 minutes)

In this talk I will motivate the importance of including QED corrections in a systematic and automated manner. I will present an algorithm to add photon-splitting corrections to the Yennie-Frautschi-Suura-style soft-photon resummation available in the Sherpa Monte-Carlo event generator. Then, I will introduce different lepton dressing strategies which incorporate further leptons and hadrons in addition to the customary photons, and discuss their sensitivity to dressing parameters such as the cone size. I will then present some results for academic and realistic setups.

Presenter: FLOWER, Lois (Durham University)

Session Classification: Parton showers

Contribution ID: 17

Type: **not specified**

Lattice MUonE

Friday, 9 June 2023 15:30 (10 minutes)

Presenter: KOMIJANI, Javad (ETH Zurich)

Session Classification: MUonE