



Search for the ECO-friendly gas-mixtures for the muon detectors at LHC and beyond

 Monday May 29, 2023, 8:45 AM → 6:15 PM Europe/Zurich

 32/1-A24 (CERN)



Aleksandra Radulovic (University of Belgrade (RS)) , Beatrice Mandelli (CERN) , Dubravka Milovanovic (University of Belgrade (RS)) , Gabriella Pugliese (Universita e INFN, Bari (IT)) , Katerina Kuznetsova (University of Florida (US)) , Nebojsa Begovic (University of Belgrade (RS))

Description Several types of particle detectors use greenhouse gases as important component of the working gas mixtures. These gases are subjects of the European measures for the F-gas emission reduction, so either significant reduction of their content in the detector working gases or their replacement with more ecological alternatives is well motivated. Searches for ecological gas mixtures for Resistive Plate and Cathode Strip Chambers are ongoing. The goal of the mini-workshop is to share the current experience and approaches developed by different groups and to define potential fields of common interests.

In case you are interested to contribute to the conference with your studies/results, please feel free to contact the organisers of the workshop directly via email.

Workshop is organised in Belgrade on May 29, 2023, as a satellite event to the [LHP Physics 2023 conference](#) that is taking place in Belgrade in period May 22-26, 2023.

Videoconference























ECO-gas-mixtures-LHC

Registration



Workshop registration form

Participants

 Aleksandra Radulovic	 Aman Phogat	 Anton Petrov	 Beatrice Mandelli	 Borislav Pavlov
 Cecilia Uribe Estrada	 Daniele Fasanella	 Danijela Randjelovic	 Dario Stocco	 Dilson De Jesus Damiao
 Dubravka Milovanovic	 Gabriella Pugliese	 Ian Crotty	 Ingo Deppner	 Joao Pedro Gomes Pinheiro
 Katerina Kuznetsova	 luca quaglia	 Marcello Abbrescia	 Marnik Metting van Rijn	 Michael Tytgat



Nebojsa Begovic



Predrag Milenovic



Riccardo Farinelli



Roberto Guida



Sanja PETRONIC

Contacts

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9:00 AM

→ 9:30 AM

Opening & welcome

9:00 AM

Welcome ⌚ 5m

Welcome and opening by the organisers

9:05 AM

Introduction ⌚ 25m

Overview of CERN strategies/technologies

Speaker: Beatrice Mandelli (CERN)

Intro_BMandelli.pdf

9:30 AM

→ 10:45 AM

Ongoing R&D: RPC eco-gas searches**Conveners:** Beatrice Mandelli (CERN), Katerina Kuznetsova (University of Florida (US))

9:30 AM

Characterisation of RPC detector with eco-friendly gas mixtures (15'+10') ⌚ 25m**Speaker:** Marcello Abbrescia (Universita e INFN, Bari (IT))

Abbrescia@Belgrad...


Abbrescia@Belgrad...

9:55 AM

Studies on RPC performance with eco-friendly gas mixtures at GIF++ (15'+10') ⌚ 25m**Speaker:** Alessandra Pastore (Universita e INFN, Bari (IT))

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10:20 AM

Possible SF6 alternatives for RPC detectors (15'+10') ⌚ 25m**Speaker:** Gianluca Rigoletti (CERN) LHCP mini worksho...

10:45 AM

→ 11:15 AM

Coffee break ⌚ 30m

11:15 AM


→ 12:30 PM

Ongoing R&D: CF4 replacement/reduction**Conveners:** Beatrice Mandelli (CERN), Katerina Kuznetsova (University of Florida (US))

11:15 AM

CF4 use and perspectives for reduction or replacement ⌚ 15m

CF4 use and reduction/replacement R&D activities in different projects/experiments

Speaker: Katerina Kuznetsova (University of Florida (US)) CF4_230529_MiniW...

11:30 AM

Optical readout methodology (10'+5') ⌚ 15m**Speaker:** Florian Maximilian Brunbauer (CERN) OpticalReadout_EC...

11:45 AM

CSC approaches (10'+5') ⌚ 15m**Speaker:** Katerina Kuznetsova (University of Florida (US)) Eco_CMSCSC_2305...

12:00 PM

"Use of CF4 and C4F10 in AMBER(NA66)" ⌚ 15m**Speakers:** Maxim Alexeev (Universita e INFN Torino (IT)), Dr Stefano Levorato (INFN Trieste (IT) and CERN) Stefano_Levorato_A... Stefano_Levorato_A...

12:30 PM → 2:00 PM **Lunch break** ⌚ 1h 30m

2:00 PM → 2:45 PM **Common/future approaches: Modelling and experimental measurements**

Conveners: Gabriella Pugliese (Universita e INFN, Bari (IT)), Katerina Kuznetsova (University of Florida (US))

2:00 PM **Pulsed Townsend experiment and electron transport coefficient (15'+5')** ⌚ 20m

Speaker: Marnik Metting van Rijn

 MarnikMettingVanR...

2:20 PM **CF4 dynamics modeling (15'+5')** ⌚ 20m

Speaker: Nebojsa Begovic (University of Belgrade (RS))

 N_Begovic_CF4_dyn...  N_Begovic_CF4_dyn...


2:45 PM → 3:15 PM **Coffee break** ⌚ 30m

3:15 PM → 4:40 PM **Common/future approaches: Detector material analyses**

Conveners: Gabriella Pugliese (Universita e INFN, Bari (IT)), Katerina Kuznetsova (University of Florida (US))

3:15 PM **Chemical analyses of deposits in the RPC chambers (10'+5')** ⌚ 15m

Speaker: Dayron Ramos Lopez (Universita e INFN, Bari (IT))

 chemical.pdf

3:30 PM **Overview of analysis techniques used for CSC studies - results (10'+5')** ⌚ 15m

Speaker: Aleksandra Radulovic (University of Belgrade (RS))


 Overview of analysi...

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3:45 PM **Analysis techniques used for CSC studies - systematisation (10'+5')** ⌚ 15m

Speaker: Dubravka Milovanovic (University of Belgrade (RS))

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 D.Milovanovic - Syst...

4:00 PM

Principles and applications of SEM / EDS (8'+2') ⌚ 10m

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Speaker: Mr Nenad Nikolić (University of Belgrade, Institute of multidisciplinary research, Belgrade, Serbia) NN SEM - principles... NN SEM - principles...

4:10 PM

Principles of AFM (8'+2') ⌚ 10m


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Speaker: Dr Danijela Randelović (University of Belgrade, Institute of Chemistry, Technology and Metallurgy, Belgrade, Serbia) DRandjelovic_Prese...

4:20 PM

Raman spectroscopy principles and applications (8'+2') ⌚ 10m

📍 32/1-A24

Speaker: Dr Jelena Senćanski (Institute of General and Physical Chemistry, Belgrade, Serbia) Raman- Jelena Sen... Raman- Jelena Sen...


4:40 PM

→ 5:00 PM

Coffee breaks ⌚ 20m

5:00 PM

→ 5:15 PM

Prospectives of the use of F-gases for the future ⌚ 15m**Speaker:** Roberto Guida (CERN) Belgrado20230529....

5:15 PM

→ 5:45 PM

Closing & discussion: Round-table discussion (all)