



FOURTH BULLETIN

XXXIV Annual Meeting of the Division of Particles and Fields

IMPORTANT DATES

Abstract submission and registration reopening:

June 2, 2020.

Abstract submission deadline: **June 26, 2020.**

Online registration deadline:
July 1, 2020.

REGISTRATION VOLUNTARY FEE

Students:

200 MXN

Postdocs and Professors:

400 MNX

ORGANIZING COMMITTEE

Salvador Carrillo Moreno
(Univ. Iberoamericana)

Eduard De La Cruz Burelo
(CINVESTAV)

Ivan Heredia de la Cruz
(CONACYT-CINVESTAV)

Pablo Roig (CINVESTAV)

MEETING VENUE

This year the meeting will be an on-line event and will take place from July 9th to 10th of 2020 and is being organized by the Physics Department of CINVESTAV IPN in Av. IPN 2508, San Pedro Zacatenco, Gustavo A. Madero, Mexico City, Mexico. And by the Physics and Mathematics Department of Universidad Iberoamericana Ciudad de México y Tijuana, Prol. Paseo de la Reforma 880, Mexico City, Mexico.

More information will be sent later, on how to connect to the meeting, once you are registered.

Final Program with contributed and Poster Session at the end of this Bulletin

REGISTRATION (WILL CONTINUE OPEN)

Participants are encouraged to register at:

<https://indico.nucleares.unam.mx/event/1546/registration/>

CONFIRMED INVITED TALKS

We will have the following invited talks in addition to contributions from our community:

- **Review talk: HEP Perspectives from the theory side after LHC**, *Lorenzo Díaz Cruz, BUAP, Mexico.*
- **The status and prospects of the muon g-2**, *by Pere Masjuan, UAB-IFAE, Spain.*
- **Tau physics**, *by Sergi González-Solís, Indiana University, USA*
- **Dark matter searches and neutrinos physics**, *Estela Garcés, IF-UNAM, México.*
- **Hadron Structure, a partial status of experimental and theoretical efforts**, *by Aurore Courtoy, IF-UNAM, México.*
- **Recent results from CMS and ATLAS experiments** *by José Benítez, University of Sonora, Mexico.*

You can find more details about the scientific program at:

<https://indico.nucleares.unam.mx/event/1546/program>

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FEE PAYMENT (VOLUNTARY)

Students: 200 MXN (with 16% IVA included)
Postdocs and professors: 400 MXN (with 16% IVA included)

We encourage professors to pay the SMF membership, which amounts to MXN 1,500 (MXN 1,740 with 16% IVA included).

It can be paid by bank transfer to the following account:

Cliente Sociedad Mexicana de Física, A.C.
Banco Banamex, S.A., Suc. 349
Número de cuenta 1866151
CLABE 002180034918661519
Referencia RADPyC2020

GENERAL ASSEMBLY DIVISION OF PARTICLES AND FIELDS

July 10th 16:00 hrs. (Not a Public Event)

An order of the day will be released soon with at least the following items in the agenda:

VICE PRESIDENT VOTING RESULTS**ELECTED PRESIDENT TAKES PROTEST****FUTURE ORGANIZATION OF MEXICAN SCHOOL AND WORKSHOP**

We encourage all participants to continue with the safety precautions for the present COVID-19 disease.

NEXT PAGES FULL PROGRAM

INVITED TALKS (40 + 5 MINUTES)

CONTRIBUTED TALKS (17 + 3 MINUTES)

POSTERS (10 MINUTES)

PROGRAM – FRIST DAY**Thursday, July 9th 2020.**Morning 1 Chair: Salvador CARRILLO**8:45 - 9:00:** Salvador CARRILLO / c, Inauguration**9:00 - 9:45 :** Pere MASJUAN, **The status and prospects of the muon g-2****9:45 - 10:05:** Dr. CARRAMINANA, Alberto (INAOE), The HAWC sky survey at the highest photon energies**10:05 - 10:25:** Dr. ARTEAGA VELAZQUEZ, Juan Carlos (Instituto de Física y Matemáticas, Universidad Michoacana), Potential of MATHUSLA for cosmic ray research**10:25 - 10:45:** Mr. MEJIA CAMACHO, Juan Manuel (National Technological of Mexico), Initial development of a control system for the FDD detector in the ALICE experiment for operation on LHC Run-3**Break (10:45 - 11:05)**Morning 2 Chair: Eduard DE LA CRUZ BURELO**11:05 - 11:50:** Sergi GONZÀLEZ-SOLÍS, **Tau physics****11:50 - 12:10:** Ms. GARCÍA HERNÁNDEZ, Marcela (CINVESTAV), Tau Physics at Belle II**12:10 - 12:30:** Mr. RICALDE HERRMANN, Daniel Enrique (Universidad Autonoma de Sinaloa), Background noise characterization and simulation on the LABM**12:30 - 12:50:** Mr. YOUSSEF, Sarkis (UNAM), Study of the ionization efficiency for nuclear recoils**12:50 - 13:10:** Mr. GARCIA DE LA VEGA, Leon Manuel (Instituto de Fisica), Dirac neutrino masses and axion + WIMP dark matter from Peccei Quinn symmetry**Lunch (13:10 - 14:20)**Afternoon 1 Chair: Ivan HEREDIA DE LA CRUZ**14:20 - 15:05:** Estela A. GARCES, **Dark matter searches and neutrino physics****15:05 - 15:25:** Dr. NATH, Newton (Instituto de Física, UNAM, Mexico City), Recent development in non-standard neutrino interactions.**15:25 - 15:45:** Dr. FLORES, Luis (IFUNAM), New interactions in Coherent Elastic Neutrino-nucleus Scattering measurements**15:45 - 16:05:** Mr. SANDERS, Oscar (Departamento de Física, CINVESTAV), Current and future constraints on sterile neutrinos from Cevns**Break (16:05 - 16:15)****Poster session (16:15 - 17:45) [FULL PROGRAM LAST PAGE]**

PROGRAM – SECOND DAY**Friday, July 10th 2020.**Morning 1 *Chair: Pablo ROIG GARCES***9:00 - 9:45: Aurore COURTOY, Hadron structure, a partial status of experimental and theory efforts****9:45 - 10:05:** FERNANDEZ RAMIREZ, Cesar (ICN-UNAM), The Pc(4312) exotic**10:05 - 10:25:** Dr. RAYA, Alfredo (IFM-UMSNH), Chiral Symmetry Breaking in Reduced QED with a Chern-Simons term**10:25 - 10:45:** JHOVANNY, Mejia (Universidad de Antioquia), Production studies on heavy quarkonium in pp collisions at 13 TeV**Break (10:45 - 11:05)**Morning 2 *Chair: TBD***11:05 - 11:50: José Feliciano BENITEZ, Recent results from the CMS and ATLAS experiments****11:50 - 12:10:** ROYON, Christophe (University of Kansas), Anomalous coupling studies with forward protons at the LHC**12:10 - 12:30:** TRIPATHY, Sushanta (Instituto de Ciencias Nucleares (ICN), UNAM, Mexico City), Topological studies of light-flavor hadron production in small collision systems with ALICE at the LHC**12:30 - 12:50:** Prof. URIBE ESTRADA, C. (Benemerita Universidad Autonoma de Puebla, Mexico), MRPC Detectors for Ultra High Rate Applications**12:50 - 13:10:** Mr. OLIVAS, Yaithd D. (Instituto de Ciencias Nucleares UNAM), Holography, quantum information and gravity**Lunch (13:10 - 14:20)**Afternoon 1 *Chair: TBD***14:20 - 14:40:** Dr. CASTANEDA, Alfredo (Universidad de Sonora), Optimization in the search for rare Higgs processes during the HL-LHC using AI algorithms**14:40 - 15:00:** BAUR, Alexander (Technical University of Munich & Nacional Autonomous University of Mexico), Flavor Symmetry from String Theory**15:00 - 15:45:** Lorenzo DIAZ-CRUZ, HEP Perspectives from the theory side after LHC**Break (15:45 - 16:00)****General Assembly (16:00 - 17:40)**

List of Contributed talks:

1. JHOVANNY, Mejia (Universidad de Antioquia), Production studies on heavy quarkonium in pp collisions at 13 TeV
2. Dr. NATH, Newton (Instituto de Física, UNAM, Mexico City), Recent development in non-standard neutrino interactions.
3. Dr. RAYA, Alfredo (IFM-UMSNH), Chiral Symmetry Breaking in Reduced QED with a Chern-Simons term
4. Dr. CASTANEDA, Alfredo (Universidad de Sonora), Optimization in the search for rare Higgs processes during the HL-LHC using AI algorithms.
5. ROYON, Christophe (University of Kansas), Anomalous coupling studies with forward protons at the LHC
6. TRIPATHY, Sushanta (Instituto de Ciencias Nucleares (ICN), UNAM, Mexico City), Topological studies of light-flavor hadron production in small collision systems with ALICE at the LHC
7. BAUR, Alexander (Technical University of Munich & Nacional Autonomous University of Mexico), Flavor Symmetry from String Theory
8. FERNANDEZ RAMIREZ, Cesar (ICN-UNAM), The $P_c(4312)$ exotic
9. Dr. FLORES, Luis (IFUNAM), New interactions in Coherent Elastic Neutrino-nucleus Scattering measurements
10. Mr. RICALDE HERRMANN, Daniel Enrique (Universidad Autonoma de Sinaloa), Background noise characterization and simulation on the LABM
11. Dr. CARRAMINANA, Alberto (INAOE), The HAWC sky survey at the highest photon energies
12. Mr. SANDERS, Oscar (Departamento de Física, CINVESTAV), Current and future constraints on sterile neutrinos from Cevns
13. Mr. YOUSSEF, Sarkis (UNAM), Study of the ionization efficiency for nuclear recoils
14. Dr. ARTEAGA VELAZQUEZ, Juan Carlos (Instituto de Física y Matemáticas, Universidad Michoacana), Potential of MATHUSLA for cosmic ray research
15. Mr. GARCIA DE LA VEGA, Leon Manuel (Instituto de Física), Dirac neutrino masses and axion + WIMP dark matter from Peccei Quinn symmetry
16. Mr. OLIVAS, Yaithd D. (Instituto de Ciencias Nucleares UNAM), Holography, quantum information and gravity.
17. Prof. URIBE ESTRADA, C. (Benemerita Universidad Autonoma de Puebla, Mexico), MRPC Detectors for Ultra High Rate Applications
18. Ms. GARCÍA HERNÁNDEZ, Marcela (CINVESTAV), Tau Physics at Belle II
19. Mr. MEJIA CAMACHO, Juan Manuel (National Technological of Mexico), Initial development of a control system for the FDD detector in the ALICE experiment for operation on LHC Run-3

Posters:

- P1. Mr. MIRANDA, Jesús (CINVESTAV), Isospin-breaking corrections to tau to pi pi nu decays and the muon g-2
- P2. RAYA, Khépani (IFM), Structure functions, transition form factors and the muon g-2
- P3. BALDENEGRO BARRERA, Cristian (University of Kansas), Study of hard color singlet exchange in dijet events with proton-proton collisions at $\sqrt{s} = 13 \sim \text{TeV}$
- P4. Mr. MIGUEL COLÍN, Osvaldo (Universidad Iberoamericana), CMS RPC Longevity Studies
- P5. AYALA TORRES, Marco Alberto (Cinvestav, Zacatenco), Liquid Argon scintillation light detection efficiency of the X-ARAPUCA double side
- P6. RAMIREZ MORALES, Andres (Kyungpook National University), Frontiers in particle physics through precision experiments and machine learning
- P7. Mr. RENDON, Javier (Cinvestav), Exclusive hadronic tau decays as probes of non-SM interactions,
- P8. SÁNCHEZ GARCÍA, Gonzalo (CINVESTAV), Nonstandard interactions and nuclear constraints from coherent elastic neutrino-nucleus scattering.
- P9. Study of the scalar box diagram through the Loop-Tree Duality. AGUILAR QUIROZ, Jesús Andrés; Dr. HERNÁNDEZ-PINTO, Roger José
- P10. Quantum Machine Learning as HEP-tool. Dr. ORDUZ-DUCUARA, Javier-andres
- P11. Neutrinos in left right mirror model. Dr. GAITAN, Ricardo
- P12. Cosmic Rays on Multigap Resistive Plate Chambers Operated in Streamer Mode. Mr. DEL RIO VIERA, Manuel Alejandro
- P13. Eco-Gas studies for the CMS improved RPC for the High Luminosity Large Hadron Collider. Ms. RAMÍREZ GUADARRAMA, Dalia Lucero
- P14. Implementación de procesos físicos en simulaciones de plasma confinado. Mr. LIZÁRRAGA RUBIO, Víctor Manuel
- P15. Non-collectivity bound in p-p collisions to the RHIC and LHC energies. Mr. MANCILLA XINTO, Nestor Raul; Dr. BAUTISTA, Irais