Accelerator Physics at UADY

Dra. Karla Cantún

Mexican Involvement in FCC Accelerator R&D
Coloquio Virtual de la Comunidad Mexicana de Aceleradores

June 21, 2021
Our team is a recent collaboration formed by:

- Karla Cantún, Enrique Camacho (UADY Professors)
- Humberto Maury (UGTO Professor)
- Alejandro Díaz (Former student)
- Damián Ayim (Current student).

The UADY Group became an official contributor to the FCC Study since March 2021.
Electron-cloud buildup studies for FCC-ee UADY – UG Collaboration

2018 Simulation for quadrupolar gradients
Electron distribution in cross section

Electron cloud study at quadrupolar sections for Future Circular Collider for positron ring using PyECLOUD

- Alejandro Díaz Serrano 2018, physics engineer student.

2021

- Simulations of EC build-up for dipole and quadrupole magnets of the CERN FCCe+e-

Contents

- EC simulations for dipole magnets.
  - Input parameters used for dipole simulations.
  - \( e \)-distributions of EC build-up.
  - Implementation of chamber with winglets.
  - Summary.
- EC simulations for quadrupole magnets.
  - Input parameters used for quadrupole simulations.
  - \( e \)-distributions of EC build-up.
  - Implementation of chamber with winglets.
  - Summary.

Implementation of chamber with winglets

- \( b_{spac} = 10 \text{ ns}, n_0 = 1e - 3, \text{SEY} = 1.1 \)
Thank you!
R&D Developed at UAS

C. Valerio
Facultad de ciencias fisico matematicas.
Universidad Autonoma de Sinaloa.
Five years ago, a new group dedicated to accelerator physics has been created
• Particle Sources
• system design
• Beam Simulation
• Outgoing collaborations with different institutes
We develop research on particle sources. Specially the interaction between the beam and the residual gas.

In electron guns there is an outgoing collaboration with Jefferson Lab in the CEBAF photocathode Gun.

In ion sources a collaboration with CERN has been established where CERN has donated a copy of the ion source to UAS.

Memorandum of Understanding for the Future Circular Collider (FCC) has been signed by the University Rector.
Radiofrecuencia cavity design

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<td>SIMULACIÓN PS(MHz)</td>
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<td>3002</td>
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Error porcentual en comparación con la medición
GRACIAS!!