



## Publicaciones Realizadas 2016

Y. Sharma, R. Martinez, R. Agarwal, **D. Barrionuevo**, R. K. Katiyar, A. Kumar and R. S. Katiyar. *Studies on structural, optical, magnetic, and resistive switching properties of doped BiFe<sub>1-x</sub>CrxO<sub>3</sub> thin films*. J. Appl. Phys. 120, 194101 (2016).

**Dr. Danilo Barrionuevo**

**D. Barrionuevo**, Le Zhang, N. Ortega, A. Sokolov, A. Kumar, J. F. Scott, R. S. Katiyar. *Enhanced Tunneling electroresistance in Pt/PZT/LSMO ferroelectric tunnel junctions in presence of magnetic field*. Integrated Ferroelectrics 174, 174-185 (2016).

**S. Lysenko, A. Rua, J. Figueroa, L. Chevres, F. E. Fernandez**, "Ultrafast Light Scattering by Transient Inhomogeneities in Vanadium Dioxide", in International Conference on Ultrafast Phenomena, pp. UW4A-15. OSA (2016). doi: 10.1364/UP.2016.UW4A.15

**S. Lysenko, A. Rua, F. E. Fernandez**, "Effects of Strain in Mesoscale VO<sub>2</sub> Grains on Light-Induced Insulator-Metal Transition", in International Conference on Ultrafast Phenomena, pp. UTu4A-48. OSA (2016). doi:10.1364/UP.2016.UTu4A.48

**Sergiy Lysenko, Armando Rúa, Félix E. Fernández**, "Ultrafast Light Scattering by Transient Inhomogeneities in Vanadium Dioxide", Ultrafast Phenomena XX. Springer International Publishing, (2016, Submitted)

**Sergiy Lysenko, Armando Rúa, Félix E. Fernández**, "Effects of Strain in Mesoscale VO<sub>2</sub> Grains on Light-Induced Insulator-Metal Transition," Ultrafast Phenomena XX. Springer International Publishing, (2016, Submitted)

E. Hernandez, P. Pawar, S. Rodriguez, F. Muzzio, **S. Lysenko**, R. Romanach, "Effect of Shear Applied During a Pharmaceutical Process on Near Infrared Spectra," Applied Spectroscopy, 70, 455-466 (2016).

**Dr. Sergiy Lysenko**

**Dr. Juan E. Ramírez**

*Exploiting multicore compute resources in the CMS experiment.* **J E Ramírez**, A Pérez-Calero Yzquierdo, J M Hernández<sup>3</sup> on behalf of the CMS Collaboration, Journal of Physics: Conference Series, Volume 762, Número 1 (2016).

**Dr. Jun-Qiang Lu**

Feng Zhai, **Junqiang Lu**. General relation between the group delay and dwell time in multicomponent electron systems. Phys. Rev. B 94, 165426 (2016).



Facultad de Artes y Ciencias

Departamento de Física  
Tel. (787) 265-3844

University of Puerto Rico  
MAYAGÜEZ CAMPUS  
Call Box 9000  
Mayagüez, Puerto Rico 00681-9000

College of Arts and Sciences

Department of Physics  
Phone: (787) 265-3844

---

Feng Zhai, Xuanping Jin, Juan Pastrana, **Junqiang Lu**. *Magnetic Switching and Spin Filtering in An Edge-State Device Based on HgTe Waveguides*. Eur. Phys. J. B89, 59 (**2016**).

---

**Dr. Dilsom A. Sánchez**  
*Elastic and inelastic behavior of perovskite multiferroics I: PbZr<sub>0.53</sub>Ti<sub>0.47</sub>O<sub>3</sub>(PZT) - PbFe<sub>0.5</sub>Ta<sub>0.5</sub>O<sub>3</sub>(PFT) perovskite*. M. A. Carpenter , J. Schiemer, I. Lascu, R. Harrison, A. Kumar, **D. A. Sanchez** , R. S. Katiyar, N. Ortega , C. Salazar, W. Schnelle, M. Echizen, H. Shinohara, A. Heap, N. Ragavan, S. Dutton , and J. F. Scott. *Journal of Material Sciences*. doi:10.1007/s10853-016-0330-9 (**2016**).

---

**Jury, M R, 2016**, *Convective outbreak over the Red Sea and downstream easterly waves*, *Earth Interactions*, doi:10.1175/EI-D-16-0009.1

---

**Jury, M R, 2016**, *Determinants of bi-modal rains over southeast Ethiopia*, *Dynamics Atmos. Oceans*, 76, 63-71.

---

Chiao, S, and **Jury, M.R. 2016**, *Southern Caribbean Hurricane Regional Observations and WRF Model Simulations*, *Intl J Marine Science*, 6, 39, 1-13, doi:10.5376/ijms.2016.06.0039.

---

*Coastal upwelling at Cape Frio: its structure and weakening*, **Jury, Mark R.**, *Cont. Shelf Res*, 132, 19-28, doi:10.1016/j.csr.2016.11.009.

---

**Jury, M.R., 2016**: *Multiple drivers of intense coastal upwelling at Cape Town*, *J Coastal Research*, doi:10.2112/JCOASTRES-D-16-00040.1

---

**Jury, M.R., 2016**, *Climate influences on Vaal River flow*, *Water SA*, 42, 232-242.

---

**Jury M R, 2016**, *Large-scale features of Africa's diurnal climate*, *Physical Geography*, 37, 120-131.

---

**Jury, M R, 2016**, *Summer climate of Madagascar and monsoon pulsing of its vortex*, *Meteorol Atmos Physics*, 128, 117-129

---

**Jury, M.R. 2016**, *Characterizing surface water deficits in the upper Limpopo valley*, *Water SA*, 42, 63-71.

---

*Search for long-lived charged particles in proton-proton collisions at  $\sqrt{s} = 13 \text{ TeV}$*   
By CMS Collaboration (Vardan Khachatryan et al.).  
*Phys.Rev. D94 (2016)* no.11, 112004.

---

*Studies of inclusive four-jet production with two  $b$ -tagged jets in proton-proton collisions at 7 TeV*  
By CMS Collaboration (Vardan Khachatryan et al.).  
*Phys.Rev. D94 (2016)* no.11, 112005.

**Dr. Mark Jury**

**Dr. Sudhir Malik**



Facultad de Artes y Ciencias

Departamento de Física  
 Tel. (787) 265-3844

*College of Arts and Sciences*

**Department of Physics**  
 Phone: (787) 265-3844

*Decomposing transverse momentum balance contributions for quenched jets in PbPb collisions at  $\sqrt{s_{\text{NN}}} = 2.76 \text{ TeV}$*   
 By CMS Collaboration (Vardan Khachatryan et al.).  
*JHEP 1611 (2016) 055.*

*Measurement of the mass of the top quark in decays with a  $J/\psi$  meson in pp collisions at 8 TeV*  
 By CMS Collaboration (Vardan Khachatryan et al.).  
*JHEP 1612 (2016) 123.*

*Measurement of the ZZ production cross section and Z  $\rightarrow \ell^+\ell^-\ell^+\ell^-$  branching fraction in pp collisions at  $\sqrt{s} = 13 \text{ TeV}$*   
 By CMS Collaboration (Vardan Khachatryan et al.).  
*Phys.Lett. B763 (2016) 280-303.*

*Measurement of electroweak production of a W boson and two forward jets in proton-proton collisions at  $\sqrt{s} = 8 \text{ TeV}$*   
 By CMS Collaboration (Vardan Khachatryan et al.).  
*JHEP 1611 (2016) 147.*

*Search for dark matter in proton-proton collisions at 8 TeV with missing transverse momentum and vector boson tagged jets*  
 By CMS Collaboration (Vardan Khachatryan et al.).  
*JHEP 1612 (2016) 083.*

*Search for lepton flavour violating decays of the Higgs boson to  $e \tau$  and  $e \mu$  in proton-proton collisions at  $\sqrt{s} = 8 \text{ TeV}$*   
 By CMS Collaboration (Vardan Khachatryan et al.).  
*Phys.Lett. B763 (2016) 472-500.*

*Search for new physics in final states with two opposite-sign, same-flavor leptons, jets, and missing transverse momentum in pp collisions at  $\sqrt{s} = 13 \text{ TeV}$*   
 By CMS Collaboration (Vardan Khachatryan et al.).  
*JHEP 1612 (2016) 013.*

*Measurement of the differential cross sections for top quark pair production as a function of kinematic event variables in pp collisions at  $\sqrt{s} = 7$  and 8 TeV*

By CMS Collaboration (Vardan Khachatryan et al.).  
*Phys.Rev. D94 (2016) no.5, 052006.*

*Searches for  $R$ -parity-violating supersymmetry in pp collisions at  $\sqrt{s} = 8 \text{ TeV}$  in final states with 0-4 leptons*  
 By CMS Collaboration (Vardan Khachatryan et al.).  
*Phys.Rev. D94 (2016) no.11, 112009.*



Facultad de Artes y Ciencias

Departamento de Física  
 Tel. (787) 265-3844

*College of Arts and Sciences*

**Department of Physics**  
 Phone: (787) 265-3844

*Phenomenological MSSM interpretation of CMS searches in pp collisions at  $\sqrt{s} = 7$  and 8 TeV*

By CMS Collaboration (Vardan Khachatryan et al.).  
*JHEP 1610 (2016) 129.*

*Measurements of the Higgs boson production and decay rates and constraints on its couplings from a combined ATLAS and CMS analysis of the LHC pp collision data at  $\sqrt{s}=7$  and 8 TeV*

By ATLAS and CMS Collaborations (Georges Aad et al.).  
*JHEP 1608 (2016) 045.*

*Measurement of the W boson helicity fractions in the decays of top quark pairs to lepton + jets final states produced in pp collisions at  $\sqrt{s}=8$  TeV*

By CMS Collaboration (Vardan Khachatryan et al.).  
*Phys.Lett. B762 (2016) 512-534.*

*Search for supersymmetry in pp collisions at  $\sqrt{s}=13$  TeV in the single-lepton final state using the sum of masses of large-radius jets*

By CMS Collaboration (Vardan Khachatryan et al.).  
*JHEP 1608 (2016) 122.*

*Measurement of the double-differential inclusive jet cross section in proton-proton collisions at  $\sqrt{s} = 13$  TeV*

By CMS Collaboration (Vardan Khachatryan et al.).  
*Eur.Phys.J. C76 (2016) no.8, 451.*

*Search for new physics in same-sign dilepton events in proton-proton collisions at  $\sqrt{s} = 13$  TeV*

By CMS Collaboration (Vardan Khachatryan et al.).  
*Eur.Phys.J. C76 (2016) no.8, 439.*

*Search for Higgs boson off-shell production in proton-proton collisions at 7 and 8 TeV and derivation of constraints on its total decay width*

By CMS Collaboration (Vardan Khachatryan et al.).  
*JHEP 1609 (2016) 051.*

*Measurement of the integrated and differential  $t\bar{t}$  production cross sections for high- $p_t$  top quarks in  $pp$  collisions at  $\sqrt{s} = 8$  TeV*

By CMS Collaboration (Vardan Khachatryan et al.).  
*Phys.Rev. D94 (2016) no.7, 072002.*

*Evidence for exclusive  $\gamma\gamma \rightarrow W^+ W^-$  production and constraints on anomalous quartic gauge couplings in  $pp$  collisions at  $\sqrt{s}=7$  and 8 TeV*

By CMS Collaboration (Vardan Khachatryan et al.).  
*JHEP 1608 (2016) 119.*



*Search for dark matter particles in proton-proton collisions at  $\sqrt{s}=8$  TeV using the razor variables*

By CMS Collaboration (Vardan Khachatryan et al.).  
*JHEP 1612 (2016) 088.*

*Search for two Higgs bosons in final states containing two photons and two bottom quarks in proton-proton collisions at 8 TeV*

By CMS Collaboration (Vardan Khachatryan et al.).  
*Phys.Rev. D94 (2016) no.5, 052012.*

*Measurements of  $t\bar{t}$  charge asymmetry using dilepton final states in  $pp$  collisions at  $\sqrt{s}=8$  TeV*

By CMS Collaboration (Vardan Khachatryan et al.).  
*Phys.Lett. B760 (2016) 365-386.*

*Search for new physics with the  $M_{T2}$  variable in all-jets final states produced in  $pp$  collisions at  $\sqrt{s}=13$  TeV*

By CMS Collaboration (Vardan Khachatryan et al.).  
*JHEP 1610 (2016) 006.*

*Search for neutral resonances decaying into a Z boson and a pair of b jets or  $\tau$  leptons*

By CMS Collaboration (Vardan Khachatryan et al.).  
*Phys.Lett. B759 (2016) 369-394.*

*$\Upsilon(nS)$  polarizations versus particle multiplicity in  $pp$  collisions at  $\sqrt{s} = 7$  TeV*

By CMS Collaboration (Vardan Khachatryan et al.).  
*Phys.Lett. B761 (2016) 31-52.*

*Search for s channel single top quark production in  $pp$  collisions at  $\sqrt{s}=7$  and 8 TeV*

By CMS Collaboration (Vardan Khachatryan et al.).  
*JHEP 1609 (2016) 027.*

*Measurement of the t-tbar production cross section in the e-mu channel in proton-proton collisions at  $\sqrt{s} = 7$  and 8 TeV*

By CMS Collaboration (Vardan Khachatryan et al.).  
*JHEP 1608 (2016) 029.*

*Measurement of the differential cross section and charge asymmetry for inclusive  $p\bar{p} \rightarrow W^{\pm} + X$  production at  $\sqrt{s} = 8$  TeV*

By CMS Collaboration (Vardan Khachatryan et al.).  
*Eur.Phys.J. C76 (2016) no.8, 469.*

*Search for direct pair production of supersymmetric top quarks decaying to all-hadronic final states in  $pp$  collisions at  $\sqrt{s} = 8$  TeV*

By CMS Collaboration (Vardan Khachatryan et al.).  
*Eur.Phys.J. C76 (2016) no.8, 460.*



Facultad de Artes y Ciencias

Departamento de Física  
 Tel. (787) 265-3844

*College of Arts and Sciences*

**Department of Physics**  
 Phone: (787) 265-3844

*Search for supersymmetry in electroweak production with photons and large missing transverse energy in pp collisions at  $\sqrt{s} = 8 \text{ TeV}$*   
 By CMS Collaboration (Vardan Khachatryan et al.).  
*Phys.Lett. B759 (2016) 479-500.*

*Measurement of the  $Z \rightarrow \nu\bar{\nu}$  production cross section in pp collisions at  $\sqrt{s}=8 \text{ TeV}$  and limits on anomalous  $ZZ \rightarrow \gamma\gamma$  and  $Z\gamma\gamma$  trilinear gauge boson couplings*  
 By CMS Collaboration (Vardan Khachatryan et al.).  
*Phys.Lett. B760 (2016) 448-468.*

*Measurement of dijet azimuthal decorrelation in pp collisions at  $\sqrt{s}=8 \text{ TeV}$*   
 By CMS Collaboration (Vardan Khachatryan et al.).  
*Eur.Phys.J. C76 (2016) no.10, 536.*

*Search for R-parity violating decays of a top squark in proton-proton collisions at  $\sqrt{s}=8 \text{ TeV}$*   
 By CMS Collaboration (Vardan Khachatryan et al.).  
*Phys.Lett. B760 (2016) 178-201.*

*Azimuthal decorrelation of jets widely separated in rapidity in pp collisions at  $\sqrt{s}=7 \text{ TeV}$*   
 By CMS Collaboration (Vardan Khachatryan et al.).  
*JHEP 1608 (2016) 139.*

*Search for supersymmetry in events with soft leptons, low jet multiplicity, and missing transverse energy in proton-proton collisions at  $\sqrt{s}=8 \text{ TeV}$*   
 By CMS Collaboration (Vardan Khachatryan et al.).  
*Phys.Lett. B759 (2016) 9-35.*

*Study of Z boson production in pPb collisions at  $\sqrt{s_{NN}} = 5.02 \text{ TeV}$*   
 By CMS Collaboration (Vardan Khachatryan et al.).  
*Phys.Lett. B759 (2016) 36-57.*

*Measurement of the inelastic cross section in proton-lead collisions at  $\sqrt{s_{NN}} = 5.02 \text{ TeV}$*   
 By CMS Collaboration (Vardan Khachatryan et al.).  
*Phys.Lett. B759 (2016) 641-662.*