5. PRODUCTOS DE INVESTIGACIÓN Y DESARROLLO.

5.1 PUBLICACIONES DE LOS INVESTIGADORES

5.1.1. Artículos originales de investigación:
a) Publicados en extenso en revistas de prestigio internacional con arbitraje estricto.

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5. Félix Miranda, **Fernando Castaños** y Bernard Brogliato; Continuous and discrete-time stability of a robust set-valued nested controller; *Automatica*, (2019) 107:406 – 417
6. Carlos Aguilar-Ibanez, Hebertt Sira-Ramirez, Miguel S. Suarez-Castanon and **Ruben Garrido.** Robust trajectory tracking control of a PVTOL under crosswinds, *Asian Journal of Control*. (2019), Vol. 21, No. 3, pp 1293−1306.
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10. J. Maldonado, L. Luna, **R. Garrido**, G. Castro. A Teaching Methodology Based on an Educational Experimental Platform. *IEEE Latin America Transactions* (2019). Vol. 17, No. 8, pp 1363-1370.
11. Ramírez A, Sipahi R., **Mondié S.**, **Garrido R**. Fast consensus in a large-scale multi-agent system with directed graphs using time-delayed measurements. *Phil. Trans. R. Soc. A*. (2019), Vol. 377, No. 2153, pp. 20180130.
12. Ramírez-Neria, H. Sira-Ramírez, **R. Garrido-Moctezuma** and A. Luviano-Juárez. Active Disturbance Rejection Control of the Inertia Wheel Pendulum through a Tangent Linearization Approach. *International Journal of Control, Automation and Systems.* (2019), Vol. 17, No. 1, pp 18−28.
13. Elisa Alòs, Antoine Jacquier y **Jorge A. León**. The implied volatility of forward-start options: ATM short-time level, skew and curvature. *Stochastics, An International Journal of Probability and Stochastic Processes* 91, (1), 37-51, 2019. Doi: 10.1080/17442508.2018.1499105.
14. Elisa Alòs y **Jorge A. León,** A note on the implied volatility of floating strike Asian options**.** *Decisions in Economics and Finance* **42,** 743-758, 2019**.**
15. **J.Morales-Valdez**, L. Alvarez-Icaza, and J. Escobar-Sánchez. "Online Identification System for Damage Location in Building Structures". *IEEE Latin American Transaction*, 17(08), Pag 128-1290. 2019
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45. Cesar U. Solis, Julio B. Clempner, **Alexander S. Poznyak**. Continuous-time gradient-like descent algorithm for constrained convex unknown functions: Penalty method application. *Journal of Computational and Applied Mathematics* 355 (2019) 268–282.

46. Kristal K. Trejo, Julio B. Clempner and **Alexander S. Poznyak**. Proximal constrained optimization approach with time Penalization. ENGINEERING OPTIMIZATION 2019, VOL. 51, NO. 7, 1207-1228, 2019

47. T.Poznyak, I. Chairez, **A. Poznyak**. Output-based modeling of catalytic ozonation by differential neuralnetworks with discontinuous learning law. *Process Safety and Environmental Protection*, 122 (2019) 83-93.

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1. Jorge Morales, **Wen Yu**, Luciano Telesca, Bayesian Analysis of the Magnitude of Earthquakes Located in a Seismic Region of Italy, *MDPI Proceeding*, Vol.24(1), doi:10.3390/IECG2019-06214, 2019.

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3. Santos M. Orozco Soto, Alberto I. Pérez Sanpablo, Elisa Romero Ávila, Catherine Disselhorst Klug, **Juan M. Ibarra Zannatha**. Modelo neurodifuso para el control de un exoesqueleto para rehabilitación de brazo en pacientes con EVC, *Research in Computing Science,* 148(7), 2019

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1. Gian Carlo Gómez-Cortés, **Fernando Castaños** y Jorge Dávila; Sliding motions on SO(3), sliding subgroups. pp. 6954 – 6958.

2. Pedro Flores-Palmeros, Pedro Castillo y **Fernando Castaños**; Backstepping-based controller for flight formation. pp. 254 – 260.

3. D. Bonilla Licea, **M. Bonilla**, M. Ghogho, M. Malabre. "UAV Trajectory Planning for Delay Tolerant Communications".

16th International Conference on Electrical Engineering, Computing Science and Automatic Control (CCE19), Mexico City, Mexico, 2019

4. Erick Asiain, **Rubén Garrido**. Servodrive chaotization: An MRCA approach using a nonlinear reference model.

5. Luis A. Cantera Cantera. Luis Luna. Cristóbal Vargas-Jarillo, **Rubén Garrido**. Parameter Estimation of a Linear Ultrasonic Motor Using the Least Squares of Orthogonal Distances Method.

6. Sina Razvarz, Raheleh Jafari, **Cristóbal Vargas-Jarillo** , Modelling and Analysis of Flow Rate and Pressure Head in Pipelines

7. Luis A. Cantera Cantera, Luis Luna, **Cristóbal Vargas-Jarillo**, Rubén Garrido , Parameter Estimation of a Linear Ultrasonic Motor Using the Least Squares of Orthogonal Distances Algorithm

8. L. Venegas and **J. Collado**. Relationship between a Damped Discrete Hill's Equation and an associated Undamped Discrete Hill's Equation

9. **Alejandro J. Malo Tamayo**, Diego R Peredo Ortiz y Abraham E, Rivera Ugalde, Rotary-Wing Aircraft Model for Control

10. PERRUSQUÍA, A; WEN, Y.; **SORIA, A**.- "Optimal contact force of Robots in Unknown Environments using Reinforcement Learning and Model-free controllers

11. Juarez, L., **Mondié, S**., Vite, L., Nested stabilization for connected cruise control via the delay lyapunov matrix
12. Cesar U. Solis, Julio B. Clempner and **Alexander S. Poznyak**. DC Motor Control based on Robust run-time Optimization Algorithm.
13. Jorge Ramirez, **Wen Yu**, Human Behavior Learning in Joint Space Using Dynamic Time Warping and Neural Networks,
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16. Alexis Adrián Ortíz Olvera, **Juan Manuel Ibarra Zannatha**. Walk stability control for position-controlled servo actuated humanoid robot
17. Alberto Isaac Pérez Sanpablo, Catherine Disselhorst-Klug, Alicia Meneses-Peñaloza, Elisa Romero Avila, **Juan Manuel Ibarra Zannatha**, Josefina Gutiérrez Martínez and María Elena Arellano-Saldaña. Muscle Coordination of Elbow Joint During Low Resistance Movements in Healthy Children and Children with Cerebral Palsy

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19. Luis Juárez and **Sabine Mondié**, Dynamic Predictor-based Extended Cooperative Adaptive Cruise Control
20. Jorge-Manuel Ortega-Martínez, Omar-Jacobo Santos-Sánchez, **Sabine Mondié**, On the construction of the Bellman functional for time delay systems
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24. Adolfo Perrusquria, **Wen Yu**, Xiaoou Li, Impedance Control without Environment Model by Reinforcement Learning, 59-63
25. Erick Garcia, **Wen Yu**, Xiaoou Li, Optimal Design of a Parallel Robot Using Neural Network and Genetic Algorithm, 64-69

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26. E. Romero Ávila, A. I. Pérez Sanpablo, C. Disselhorst Klug, A. Meneses Peñaloza, M. E. Arellano Saldaña, J. Gutiérrez Martínez, **J. M. Ibarra Zannatha**. Influence of Increasing Joint Angle, Angular Velocity and External Load in the Extension Movement of the Elbow in Two Different Group Ages.
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1   Gian Carlo Gómez-Cortés, **Fernando Castaños** y Jorge Dávila; Control en la esfera S2 usando modos deslizantes. pp. 778 – 784;

2   **Rubén Garrido**, Eric Asiain. Caotización de un servomecanism de CD mediante un controlador adaptable utilizando un modelo de referencia no lineal.   594-599.

3   Juan Pablo Flores-Flores, **Rafael Martínez-Guerra**, "Sincronizacion de sistemas descritos por ecuaciones diferenciales parciales mediante un controlador dinamico. 743-748

4   **Jesús Morales-Valdez**, Mario Antonio López Pacheco, **Wen Yu**. (2019). Detección de daño en edificios basada en datos de aceleración y redes neuronales convolucionales. 145-150.

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6   Santos M. Orozco Soto, **J.M. Ibarra Zannatha**. N. González Dorantes, M. L. Ramos Andrés, J.M. Ibarra Zannatha, M. Villafuerte Bante, P. Vera Bustamante. Task-Space Control of Robot Manipulator using Robust Visual Estimation.

7   Eleazar Rivera Morales, Daniel Lechuga Rosales, Pablo Vera Bustamante, Mario Villafuerte Bante, **Juan Manuel Ibarra Zannatha**. Autonomous Vehicle's Instrumentation.

8   Oscar González Miranda, Santos Miguel Orozco Soto, Juan Manuel Ibarra Zannatha. Potential field-based preview control of an autonomous vehicle using visual feedback.

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5.1.3.   Capítulos de investigación original en extenso en libros especializados publicados por una casa editorial.

1. Miguel Ramirez**, M. Joaquin Collado** and Faddi Donhal**.** "Coupled Mathieu Equations: γ-Hamiltonian and μ-Symplectic", 2019, IntechOpen, https DOI: http://dx.doi.org/10.5772/intechopen.88635, pp. 1-22.
2. Carlos Cuvas, Adrián Ramírez, Luis Juárez, **Sabine Mondié**, Scanning the Space of Parameters for Stability Regions of a Class of Time-Delay Systems; A Lyapunov Matrix Approach, IN: Delays and Interconnections: Methodology, Algorithms and Applications, *Advances in Delays and Dynamics*, vol 10. Springer, 153-167, 2019.
3. Daniel Carrillo and **Wen Yu**, Hierarchical Dynamic Neural Networks for Cascade System Modeling with Application to Wastewater Treatment, Alma Alanis, Nancy Arana and Carlos López (Eds.), *Artificial Neural Networks for Engineering Applications*, 1-8, Academic Press, 2019.
4. Carlos Parga and **Wen Yu**, Design and Modeling of Shoulder Exoskeleton Using Two Spherical Joints, Jacob Rosen and Peter Ferguson (Eds.), *Wearable Robotics*, 133-148, Academic Press, 2019.
5. **Juan Manuel Ibarra Zannatha**. Los Avances de la Robótica Médica en México, *Desarrollo Industrial 2050. Hacia una industria del futuro*. UNAM 2019

5.1.4.   Libros especializados que cubran el trabajo del investigador, publicados por una casa editorial reconocida.

1. **Wen Yu** and Raheleh Jafari, *Modeling and Control of Uncertain Nonlinear Systems with Fuzzy Equations and Z-Number*, Wiley, 2019.
2. **Rafael Martínez-Guerra**, Oscar Martinez-Fuentes, Juan Javier Montesinos-Garcia, *Algebraic and Differential Methods for Nonlinear Control Theory:Elements of Commutative Algebra and Algebraic Geometry*, Springer, 2019.
3. Tatyana I. Poznyak**,** Isaac Chairez Oria, **Alexander S. Poznyak** *Ozonation and Biodegradation in Environmental Engineering: Dynamic Neural Network Approach*. Elsevier, 2019.

5.2 PRODUCTOS DE DESARROLLO

5.2.2. Patentes Otorgadas
c) Nacionales en explotación comercial
Arellano Saldaña ME, Disselhorst-Klug C, Gutiérrez-Martínez J, **Ibarra Zannatha JM,** Pérez Sanpablo AI, Quiñones Uriostegui I, Rodríguez Reyes G, Romero-Ávila E. Base de datos con valores de referencia de velocidad articular y actividad muscular de miembro superior de sujetos pediátricos sanos y con parálisis cerebral. Compilación de Datos (Base de Datos). *INDAUTOR. 03-2019-071510550200-01*

5.2.6.   Divulgación Científica

d) Reseña de artículos

a. **León, J.A.** Reseña de: Multiscale systems, homogenization, and rough paths. *Probability and analysis in interacting physical systems.* Springer Proc. Math. Stat. *(2019), 283:* 17–48pp, de I. Chevyrev; P.K. Friz; A. Korepanov; I. Melbourne; H. Zhang. En: Mathematical Reviews (2019-11-26). Número de reseña**: MR3968507.**

b. **León, J.A.** Reseña de: A Stratonovich-Skorohod integral formula for Gaussian rough paths. *Ann. Probab.* (2019), **47** no. 1: 1–60pp, de T. Cass; N. Lim. En: Mathematical Reviews (2019-07-19). Número de reseña: **MR3909965.**

c. **León, J.A.** Reseña de: Module free white noise flows. *Open Syst. Inf. Dyn.* (2018), **25** , no. 4, 1850018: 34pp, de W. Ayed. Mathematical Reviews (2019-08-02). Número de reseña: **MR3918071.**

d. **León, J.A.** Reseña de: Strong solutions of mean-field stochastic differential equations with irregular drift. *Electron. J. Probab.* (2018), **23**, paper 132: 35pp, de M. Bauer, T. Meyer-Brandis, F. Proske. En: Mathematical Reviews (2019-06-11). Número de reseña: **MR3896869.**

e. **León, J.A.** Reseña de: Stochastic evolution equations with Wick-polynomial nonlinearities. *Electron. J. Probab.* (2018), **23**, paper 116: 25pp, de T. Levajković; S. Pilipović; D. Seleši; M. Žigić. En: Mathematical Reviews (2019-09-13). Número de reseña: **MR3885549.**

f. **León, J.A.** Reseña de: Weak differentiability of Wiener functionals and occupation times. *Bull. Sci. Math.* (2018), **149**: 23-65pp, de D. Leão; A. Ohashi; A.B. Simas. En: Mathematical Reviews (2019-04-08). Número de reseña**: MR3868115.**

g. **León, J.A.** Reseña de: Kolmogorov equations and weak order analysis for SPDEs with nonlinear diffusion coefficient. *J. Math. Pures Appl.* (2018), **119**: 193-254pp, de C.-E.
h. Bréhier; A. Debussche. En: Mathematical Reviews (2019-03-01). Número de reseña**: MR3862147.**

i. **León, J.A.** Reseña de: Stochastic Burgers' equation on the real line: regularity and moment estimates. *Stochastics* (2018), **90**: 1053-1086pp, de P. Lewis; D. Nualart. En: Mathematical Reviews (2019-03-06). Número de reseña**: MR3854527.**

j. **León, J.A.** Reseña de: Gradient estimates for SDEs without monotonicity type conditions. *J. Differential Equations* (2018), **265**: 1984-2012pp, de G. Da Prato; E. Priola. En: Mathematical Reviews (2019-01-17). Número de reseña**: MR3800108.**

Martha Rzedowski Calderon
a. Reseñas para la AMS (American Mathematical Association):
b. Marzo 2019 (3 885 142) Chuang,Wei;2019-05-07)
c. Julio 2019 (3 947 643) König,Legrand,Neftin,;2019-09-08)
d. Octubre 2019 (3 990 961) Harbater, Hartmann,Krashen,Parimala,Raman;)

Gabriel Villa Salvador
a. Mathematical Reviews (American Mathematical Society):3846350 Lüdtke, Martini (11 de junio de 2019) (MR3846350)
b. Reseña del Artículo: MR3846350 Lüdtke, Marti, *A birational anabelian reconstruction theorem for curves over algebraically closed fields in arbitrary characteristic*, Israel J. Math. **227** (2018), no. 2, 987–1011. 3861043 Greither, Cornelius; Popescu, Cristian D. (17 de noviembre de 2018) (MR3861043)

c. Reseña del Artículo: MR3861043 Greither, Cornelius; Popescu, Cristian D., *Abstract l–adic –motives and Tate's canonical class for number fields*, Doc. Math. **23** (2018), 839–870.3880299 Jacinto, Joaquín Rodrigues (19 de febrero de 2019) (MR3880299)

d. Reseña del Artículo: MR3880299 Jacinto, Joaquín Rodrigues, *La conjecture   locale de Kato en dimension* 2, Math. Ann. **372** (2018), no. 3–4, 1277–1334.3959855 Thorne, Jack A. (6 de agosto de 2019) (MR3959855)

e. Reseña del Artículo: MR3959855 Thorne, Jack A., *Elliptic curves over* $\mathbf{Q}_\infty$ *are modular*, J. Eur. Math. Soc. (JEMS) **21** (2019), no. 7, 1943–1948. Zentralblatt für Mathematik/Mathematics Abstracts, DEB18814 Oswald, Nicola; Steuding, Jörg (19 de septiembre de 2018) (Zbl 1413.11107)

f. Reseña del Artículo: Zbl 1413.11107 Oswald, Nicola; Steuding, Jörg, *A uniqueness theorem for entire functions having a Dirichlet series representation*, Ann. Univ. Sci. Budap. Rolando Eötvös, Sect. Comput. **48**, 117–128 (2018). DE065997782 Anglès, Bruno; Ngo Dac, Tuan; Tavares Ribeiro, Floric (16 de octubre de 2018) (Zbl 1401.11127)

g. Reseña del Artículo: Zbl 1401.11127 Anglès, Bruno; Ngo Dac, Tuan; Tavares Ribeiro, Floric, *Twisted characteristic p zeta functions*, J. Number Theory **168**, 180–214 (2016). DE063774536 Lagemann, Thorsten (18 de octubre de 2018) (Zbl 1401.11150)

h. Reseña del Artículo: Zbl 1401.11150 Lagemann, Thorsten, *Distribution of Artin–Schreier–Witt extensions*, J. Number Theory **148**, 288–310 (2015). DE069284031 Roquette, Peter (3 de enero de 2019) (Zbl 1414.11003)

i. Reseña del Libro: Zbl 1414.11003 Roquette, Peter, *The Riemann hypothesis in characteristic p in historical perspective*, Lecture Notes in Mathematics **2222**. History of Mathematics Subseries. Cham: Springer (ISBN 978-3-319-99066-8/pbk; 978-3-319-99067-5/ebook). ix, 233 p. (2018).DE070236494 Chang, Chieh-Yu; Papanikolas, Matthew A.; Yu, Jing (6 de marzo de 2019) (Zbl 1417.11139)

j. Reseña del Artículo: Zbl 1417.11139 Chang, Chieh-Yu; Papanikolas, Matthew A.; Yu, Jing, *An effective criterion for Eulerian multizeta values in positive characteristic*, J. Eur. Math. Soc. (JEMS) **21**, No. 2, 405–440 (2019). DEB19287 Azizi, A.; Jerrari, I.; Talbi, M. (12 de abril de 2018) (Zbl 07058283)

k. Reseña del Artículo: Zbl 07058283 Azizi, A.; Jerrari, I.; Talbi, M., *On the rank of the* 2*–class group of an extension of degree 8 over* $\mathbf{Q}$, Period. Math. Hung. **78**, No. 1, 128–134 (2019). DE070705252 Bank, Efrat; Foster, Tyler (27 de junio de 2019) (Zbl 07070525)

l. Reseña del Artículo: Zbl 07070525 Bank, Efrat; Foster, Tyler, Primes in short intervals on curves over finite fields, Math. Ann. **374**, No. 1–2, 447–474 (2019). DE070365446 Platonov, V. P.; Zhgoon, V. S.; Petrunin, M. M.; Shteinikov, Yu. N. (20 de junio de 2019) (Zbl 07036544)

m. Reseña del Artículo: Zbl 07036544 Platonov, V. P.; Zhgoon, V. S.; Petrunin, M. M.; Shteinikov, Yu. N., *On the finiteness of hyperelliptic fields with special properties and periodic expansion of* $\sqrt{f}$, Dokl. Math. **98**, No. 3, 641–645 (2018); translation from Dokl. Akad. Nauk, Ross. Akad. Nauk **483**, No. 6, 603–608 (2018).DE070736965 Mazhouda, Kamel; Smajlovi´c, Lejla (28 de junio de 2019) (Zbl 07073696)

n. Reseña del Artículo: Zbl 07073696 Mazhouda, Kamel; Smajlovi´c, Lejla, *Evaluation of the Li coefficients on function fields and applications*, Eur. J. Math. **5**, No. 2, 540–550 (2019). DE070057715 Ma, Liming; Xing, Chaoping (2 de agosto de 2019) (Zbl 07005771)

o. Reseña del Artículo: Zbl 07005771 Ma, Liming; Xing, Chaoping, *On subfields of the Hermitian function field involving the involution automorphism*, J. Number Theory **198**, 293–317 (2019). DE070507926 Doyle, John R. (20 de septiembre de 2018) (Zbl 07050792)

p. Reseña del Artículo: Zbl 07050792 Doyle, John R., *Dynamical modular curves for quadratic polynomial maps*, Trans. Am. Math. Soc. **371**, No. 8, 5655–5685 (2019).DE070817947 Dan, Ananyo; Kaur, Inder (10 de septiembre de 2019) (Zbl 07081794)

q. Reseña del Artículo: Zbl 07081794 Dan, Ananyo; Kaur, Inder, *Examples of varieties*

with index one on C_1–fields. J. Number Theory **203**, 242–248 (2019).

1. **ESTUDIANTES GRADUADOS**

   1.1. MAESTRÍA

   1. JAVIER EDUARDO PEREYRA ZAMUDIO
      TESIS: Nuevo diseño de backstepping con retardos artificiales para sistemas con retardos puntuales
      GRADO OBTENIDO: Maestría
      DIRECTOR DE TESIS: **SABINE MONDIE CUZANGE**
      FECHA: 29/08/2019
   2. Jorge Ramirez
      Título de tesis: Aprendizaje de comportamiento humano en espació articular del robot utilizando redes neuronales
      Especialidad: Control Automático
      Director de tesis: **Dr. Wen Yu**
      Fecha de obtención de grado: 12/08/2019
   3. Luis Guillermo Venegas Pineda
      Título de tesis: Ecuación de Hill discreta sin y con amortiguamiento
      Especialidad: Control Automático
      Director de tesis: **Dr. Joaquín Collado Moctezuma**
      Fecha de obtención de grado: 12/09/2019
   4. Aline Iobana Acevedo Velazquez
      Título de tesis: Control de sistemas bilineales en malla abierta
      Especialidad: Control Automático
      Director de tesis: **Dr. Joaquín Collado Moctezuma**
      Fecha de obtención de grado: 24/09/2019
   5. Olga Lidia Jiménez Morales
      TESIS: Estudio comparativo de motores de CD orientados a la construcción de prototipos de bajo costo.
      GRADO OBTENIDO: Maestría
      DIRECTOR DE TESIS: **Rubén Alejandro Garrido Moctezuma.**
      FECHA: 30/08/2019.
   6. Oscar González Miranda.
      TESIS: Modelado y Control de un vehículo autónomo.
      GRADO OBTENIDO: Maestría
      DIRECTOR DE TESIS: **Juan Manuel Ibarra Zannatha.**
      FECHA: 17/12/2019.

   1.2. DOCTORADO

   1. SINA RAZVARZ
      TESIS: Modelado, Simulación y Detección de Fallas en una Red de Tuberías
      GRADO OBTENIDO: Doctorado en la Especialidad de Control Automático
      DIRECTOR DE TESIS: **Cristóbal Vargas Jarillo**
      FECHA: 27 de agosto de 2019.
   2. ELIZABETH RAMÍREZ RAMÍREZ

TESIS: Campos de géneros extendidos de campos globales y extensiones abelianas imaginarias con número de clases de ideales uno.
GRADO OBTENIDO: Doctorado
DIRECTOR DE TESIS: **Martha Rzedowski Calderon**
FECHA: 26 de abril de 2019.

3. Salvado Ortiz
   Título de tesis: Localización y mapeo simultáneo robusto aplicado a la planeación de trayectorias en robot móviles
   Especialidad: Control Automático
   Director de tesis: **Dr. Wen Yu**
   Fecha de obtención de grado: 10/02/2019

4. Jesús González
   Título de tesis: Modelado de sistemas dinámicos usando redes neuronales recurrentes profundas
   Especialidad: Control Automático
   Director de tesis: **Dr. Wen Yu**
   Fecha de obtención de grado: 13/12/2019

5. Marco Antonio Ortiz Castillo
   Título de tesis: "Representaciones implícitas de sistemas conmutados: Aplicaciones al diseño LQR".
   Especialidad: Control Automático
   Director de tesis: **Dr. Moisés Bonilla Estrada**
   Fecha de obtención de grado: 06/12/2019

6. Oscar Martinez Fuentes
   Tesis: Observadores Mittag-Leffler para Sistemas Fraccionarios
   Especialidad: Control Automático
   Director de Tesis: **Rafael Martínez-Guerra**
   Fecha de Obtencion: 16 Agos/2019

7. Juan Javier Montesinos Garcia
   Tesis: Comunicaciones Seguras en Sistemas Fraccionales
   Especialidad: Control Automático
   Director de Tesis**: Rafael Martínez-Guerra**
   Fecha de Obtencion: 16 Agos/2019.

8. Cesar Ulices Solis
   Tesis: Extremum seeking by a dynamic plant using mixed integral sliding mode controller with synchronous detection gradient estimation
   Especialidad: Control Automático
   Director de Tesis: **Dr. Alexander Pozniak Gorbatch**
   Fecha de Obtencion: 06 de diciembre de 2019.

2. PREMIOS Y DISTINCIONES

3. PARTICIPACIÓN EN COMISIONES DE EVALUACIÓN, COMITÉS TÉCNICOS Y COMITÉS EDITORIALES DE REVISTAS

1. **Fernando Castaños Luna**
   IFAC Technical Committee "Nonlinear Systems",
   Associate Editor International Journal of Robust and Nonlinear Control,
   Program Committee CNCA 2019,

Program Committee CCE 2019.

2. **Jorge Alberto León Vázquez**
   Comité Editorial de *Aportaciones Matemáticas de la Sociedad Matemática Mexicana*.

3. **Jorge Alberto León Vázquez**
   Comité Editorial de Mixba'al. Revista Metropolitana de Matemáticas.

4. **Martha Rzedowski Calderón**
   Coordinadora del Área de Reoría de Números del **52 Congreso de la Sociedad Matemática Mexicana de marzo a octubre de 2019.**
   Lugar: Universidad Autónoma de Nuevo León

5. Miembro de la Comissión Dictaminadora del aréa VII del SNI, 2019; **Sabine Mondié.**
   Vice chair of the IFAC Technical Comittee of Linear systems; **Sabine Mondié**.

6. **Wiederhold Petra**: Miembro del Comité del Programa y Revisor de 3 artículos para ICIEV&IVPR 2019
   (Joint 8th Int. Conf. on Informatics, Electronics & Vision (ICIEV) & 3nd Int. Conf. on Imaging, Vision & Pattern Recognition (IVPR), April 2019, Washington, USA), reviewing period: Jan. 2019.
   Revisor para la revista *Annals of Mathematics and Artificial Intelligence* (*AMAI, Springer*), reviewing period: Aug. 2019.
   Revisor para *Journal of Theoretical Computer Science* (Elsevier), reviewing period: Nov. 2019.
   Revisor para *FILOMAT journal of pure and applied mathematics* (ISSN: 2406-0933, Faculty of Sciences and Mathematics, University of Nis, Republic of Serbia), reviewing period: Nov.-Dec. 2019

7. **Alexander Ponzniak:** Comité de evaluación SNI: sección Eméritos 2019-2020.
   - He is Fellow of IMA (Institute of Mathematics and Its Applications, Essex UK)
   - Associated Editor of
     - Oxford-**IMA Journal on Mathematical Control and Information**,
     - **Kybernetika** (Chech Republic),
     - **Nonlinear Analysis: Hybrid systems** (IFAC).

8. Revisor para las revistas internacionales en el 2019: **Rafael Martínez Guerra**
   - INTERNATIONAL JOURNAL ROBUST AND NONLINEAR CONTROL
   - INTERNATIONAL JOURNAL OF THE FRANKLIN INSTITUTE
   - AUTOMATICA
   - JOURNAL OF APPLIED MATHEMATICS
   - CONFERENCE ON DECISION AND CONTROL (CDC), 2019.
   - AMERICAN CONTROL CONFERENCE (ACC), 2019.
   - CCE, 2019.
   - AMCA 2019.
   - ICCMA 2019.

9. **Jesús Morales Valdez**
   - Program Chair - CCE 2019
   - Revisor para la revista IEEE Latin American Transaction,
   - Revisor para la revista International Journal of Dynamics and Control
   - Revisor para la revista IEEE Transactions on Automation Science and Engineering

10. **J. M. Ibarra Zannatha**
    - Member of the Editorial Board of the Springer Series on Touch and Haptic Systems.
    - Member of the Advisory Board of the AMRob Journal, Robotics: Theory and Applications.
    - Revisor de las revistas siguientes:
      - IEEE Transactions on Mechatronics
      - Robotics and Autonomous Systems, Elsevier
      - Computer Methods and Programs in Biomedicine, Elsevier
      - Mathematical Problems in Engineering, Hindawi Publishing Corporation
    - Comité Editorial de la Revista Ingeniería y Desarrollo, Colombia
    - Evaluador de Proyectos de Investigación (CONICET, Argentina)
    -
    - Evaluador de Proyectos de Investigación para la Fundación para la Educación y el Desarrollo

Social (FES) Colombia. Proyectos evaluados durante 2018:

Desarrollo y evaluación de un sistema multiespectral para el diagnóstico y monitoreo de cultivo de aguacate Hass

Corrección y calibración de imágenes multiespectrales e hiperespectrales capturadas desde plataformas aéreas en un ambiente tropical andino

Caracterización de aguacate Hass para monitoreo de cambios fisiológicos, producción, calidad y diagnóstico de plagas y enfermedades usando firmas espectrales

Desarrollo de plataformas aéreas para aplicaciones de percepción remota en un ambiente tropical andino.

1. PROYECTOS FINANCIADOS POR AGENCIAS NACIONALES O INTERNACIONALES DE APOYO A LA CIENCIA (CONACYT, COSNET, FUNDACIÓN ROCKEFELLER, ETC.)

1. Titulo: "Control e implementación de un sistema fotovoltaico de alta concentración".
   Clave del proyecto: CONACyT 222140.
   Vigencia: Marzo 2015-Marzo 2019.
   Responsable : **Rubén Alejandro Garrido Moctezuma**
   Participantes: Dr. Arturo Díaz, Dr. Juan José Soto Bernal, M. en C. Kevin López,
                Ing. Yves Pérez.
   Fuente: Proyectos Ciencia Básica SEP-CONACyT
   Monto: $ 1,326,578.00 pesos

2. Proyecto: "Matriz de Lyapunov para sistemas con retardos y sus aplicaciones"
   Clave: A1-S-24796
   Vigencia: Noviembre 2019 a Noviembre 2021.
   Responsable: **Dra. Sabine Mondié Cuzange**
   Participantes: Dr. Omar Santos, Dr. Alexey Egorov, Dr. Liliam Rodriguez, Dr. Marco Antonio Gomez, M. en C. Luis Juarez, M. En C. Reynaldo
   Fuente de financiamiento: Fondo Sectorial SEP-Conacyt de Investigación básica
   Monto: $ 1,261,648.00 Pesos

3. Proyecto: "Matriz de Lyapunov para sistemas con retardos"
   Clave: 155
   Vigencia: marzo 2019 a marzo 2021.
   Responsable: **Dra. Sabine Mondié Cuzange**
   Participantes: Dr. Rubén Garrido Moctezuma, Dr. Alexey Egorov, M. En C. Kevin Lopez Preciado, M. en C. Luis Juarez,
   Fuente de financiamiento: Fondo SEP-CINVESTAV
   Monto: $ 300,000.00 Pesos

4. Titulo: Modeling and Control for Human-Robot Interaction with Deep Reinforcement Learning
   Responsable: **Wen Yu**
   Agencia de financiamiento: CONACyT-A1-S-8216
   Tipo de proyecto: Investigación
   Monto: $ 1,927,000.00 pesos
   Vigencia   Noviembre 2019- Noviembre 2022.

5. Titulo: Development of machine learning-based innovative methods of seismic forecasting in Italy and Mexico
   Responsable: **Wen Yu**

Agencia de financiamiento: CNR (Consejo Nacional de Investigación Italiano)
Tipo de proyecto: Investigación
Monto: $ 1,050,000.00 pesos
Vigencia   Marzo 2019- Marzo 2021.

6. Titulo: Semi-Active Control of Building Structures Based on Structure Health Monitoring and Deep Learning Techniques
   Responsable: **Wen Yu**
   Agencia de financiamiento: SEP-CINVESTAV
   Tipo de proyecto: Investigación
   Monto: $ 250,000.00 pesos
   Vigencia   Mayo 2019- Mayo 2021.

7. Numero: 251552
   Área: Ciencias de la Ingeniería.
   Titulo: Desarrollo de Sistema de Estabilización y Orientación para Satélites Atados en Base de Modos Deslizantes Adaptables.
   Vigencia: julio 2016 - marzo 2020.
   Responsable: **ALEXANDER SEMION POZNIAK GORBATCH**
   Fuente: SEP-CONACyT
   Monto: $ 1,470,000.00 pesos

8. Proyecto: SMARTMOVE (Smart orthotic device to improve movement capacity of patients suffering from spasticity)
   Programa: Foncicyt (proyecto No. 267734)
   Instituciones Participantes: RWTH Aachen University (Dra. C. Disselhorst Klug)
                                  Instituto Nacional de Rehabilitación (Dra. Josefina Gutiérrez)
                                  Cinvestav
   Responsable: **Juan Manuel Ibarra Zannatha**
   Vigencia: enero 2017 – diciembre 2019
   Monto: $ 2,700,000.00

2. DIRECCIÓN POSTAL Y ELECTRÓNICA

Dr. Wen Yu Liu
Jefe del Departamento de Control Automático

Ma. Elizabeth León Meza
Asistente secretarial de la Jefatura

Av. Instituto Politécnico Nacional 2508 Colonia San Pedro Zacatenco
07360 México, DF, México
Tels: (55) 57 47 37 36 y (55) 57 47 37 95
Fax: (55) 57 47 39 82
yuw@ctrl.cinvestav.mx
eleon@ctrl.cinvestav.mx

Dr. Moisés Bonilla Estrada
Coordinador Académico del Departamento de Control Automático

Catalina Montelongo Ávila
Secretaria de Coordinación Académica

Av. Instituto Politécnico Nacional 2508, Colonia San Pedro Zacatenco
07360 México, DF, México
Tels: (55) 57 47 37 37 y (55) 57 47 37 96
Fax: (55) 57 47 39 82
cmontelongo@ctrl.cinvestav.mx
mbonilla@ctrl.cinvestav.mx