CURRICULUM VITAE

***UMAPADA PAL**, Ph. D.*

Residencial Address: **57 Poniente 1304-2, Col. Prados Agua Azul, Puebla, Pue. 72430, Mexico.** Tel.: +52-222-2439125. E-mail: umapadapal@hotmail.com

Place and date of birth: Midnapore (West Bengal, India), 23rd January, 1960.

Nationality: Indian

Merital status: **Married (with two children)**

CURP : **PAXU600123HNELXM03**

RFC: **PAXU6001235P9solid state**

Language ability: English (100%), Spanish (90%), Bengali (100%), Hindi (70%)

Present position: **Profesor Investigador Titular 'C' (**Full professor, since May, 1995**), Instituto de Física, Benemérita Universidad Autónoma de Puebla, 18 Sur y Av. San Claudio, Edif. 14, Ciudad Universitaria, Col. San Manuel, Puebla, Pue. 72570, México. Tel:** +52-222- 2295500 Ext. 2047; **Fax:** +52-222-2295611. E-mail: upal@ifuap.buap.mx

PROFESIONAL PREPARATION (Academic Qualifications):

* Bachelor of Science (B.Sc.) [honors in Physics], University of Calcutta, India, (1979-1982).
* Master of Science (M.Sc.) [Physics], University of Calcutta, India, (1982-1984).
* Bachelor of Education (B.Ed.), University of Calcutta, India, (1984-1985).
* Doctor of Philosophy (Ph.D.) in Science, Indian Institute of Technology (IIT), Kharagpur, India, (1985-1991). Thesis Title: *Studies on the structural, electrical, optical and opto-electronic properties of vacuum evaporated ZnTe films and fabrication of CdTe/ZnTe photodetectors.*
* Posdoctoral Fellow, Complutense University, Spain (1993-1994).
* Brain Pool Fellow, Sogang University, Seoul, Republic of Korea (2009).

APPOINTMENTS:

May 1995 – till date	Profesor Investigador Titular `C`, (full professor) Instituto de Física, Benemérita Universidad Autónoma de Puebla, Mexico.
21-12-2008 to 20-12-2009	Brain Pool Fellow, Sogang University, Seoul, Korea.
20-09-01 to 18-12-01	JSPS Fellow, Agency of Industrial Science and Technology (AIST), Tsukuba, Japan.

14-03-99 to 31-03-99	AIST Fellow, National Institute of Materials and Chemical Research (NIMC), Tsukuba, Japan.
27-03-97 to 26-06-97	STA Fellow, National Institute of Materials and Chemical Research (NIMC), Tsukuba, Japan.
01-01-93 to 31-12-94	Posdoctoral Fellow, Instituto de Ciencias Físicas, Depto. Física de Materiales, Universidad Complutense de Madrid, España.
27-05-92 to 28-12-92	Junior Scientific Officer (JSO), Microelectronics Center, Indian Institute of Technology (IIT), Kharagpur, India.
04-11-91 to 30-04-92	Senior Research Asistant (SRA), Microelectronics Center, Indian Institute of Technology (IIT), Kharagpur, India.
01-09-90 to 30-10-91	Research Scientific Staff (poject), Department of Physics and Meteorology, Indian Inst. of Technology, Kharagpur, India.
Specialization:	Nanostructured Materials (Semiconductors, Metals, and Ceramics); Thin films; Plasmonics, Structural, Optical, Electrical, and Opto-electronic properties; Catalysis, Photocatalysis, Solar cells, Sensors (chemical and biological).

Areas of Research Interest:

Synthesis of and characterization of Nanostructured Materials; Semiconductors (metal oxides and other II-VI semiconductors), Ceramics, Metals (mono- and bimetallic systems), and Composites. Thin films (metal, II-VI semiconductors), structural, optical, electrical, magnetic and optoelectronic properties. Catalytic, Photocatalytic, Plasmonic, Display, and Biomedical applications.

Expertise:

Syntesis of nanostructures (metals, semiconductors, ceramics) by physical and chemical techniques; high-vacuum deposition techniques. Materials characterization by XRD, SEM, TEM, HRTEM, XPS, PL, CL, CL-SEM, FTIR, Raman, and UV-Vis spectroscopy techniques. Operation of all high vacuum and ultra-high vacuum systems.

Administrative activities:

1. University Academic Council member (Subtitute), BUAP, 2001-2002.
2. Internal evaluator of the DES (Dependencia de Educacion Superior) and PROFOCIE (Programa de Fortalecimiento de la Calidad en Instituciones Educativas), BUAP. 2003, 2004.
3. Institutional Council Member, IFUAP, 2005-2007.
4. Postgraduate coordinator, Materials Science Program, Institute of Physics, BUAP. February 2010 – 2014.
5. Institutional Council Member, IFUAP, 2013-2016.

Human Resource Development: 56 (8 postdoctoral, 14 Doctoral, 18 Masters, 16 Bachelor) thesis terminated. 1 postdoctoral and 1 master thesis in progress.

Concluded:

1. Name of the student	**Gopal Krishna Bej**
Degree obtained	***Master of Science in Physics***
Institution	Vidyasagar University (Midnapore, India)
Title of the Thesis	**Preparation of PbS thin films for solar absorbers**
Date of Examination	August 1992.
Thesis Directors:	***U. Pal and P.C. Jana***
2. Name of the student	**Soumitra Saha**
Degree obtained	***Master of Science in Physics***
Institution	Vidyasagar University (Midnapore, India)
Title of the Thesis	**Structural and optical characterization of chemically deposited PbS thin films.**
Date of Examination	August 1992.
Thesis Directors:	***U. Pal and P.C. Jana***
3. Name of the student	**Jesús García-Serrano**
Degree obtained	***Master of Science*** (in Materials Science Program) (***with honorific mention by BUAP***)
Institution	Institute of Physics, Autonomous University of Puebla, Puebla, Mexico.
Title of the Thesis	**Estudio micro-estructural y ópticas de compositos de Si/ZnO *(Studies of micorstructural and optical properties of Ai/ZnO composites).***
Date of Examination	24 de Agosto, 1999.
Thesis Director:	***U. Pal and G. Martinez Montes***
	(Best master thesis award by ¨*Sociedad Mexicana de la Ciencia de Superficies y Vacio, Mexico*¨, *2000)*
4. Name of the student	**Alejandro Bautista Hernández**
Degree obtained	***Master of Science*** (in Materials Science Program)
Institution	Institute of Physics, Autonomous University of Puebla, Puebla, Mexico.
Title of the Thesis	**Propiedades ópticas de nanoparticulas metálicas y Semiconductoras *(Optical properties of metallic and semiconducting nanoparticles)*.**
Date of Examination	January 19, 2000.
Thesis Director:	***U. Pal and L. Meza Montes***
	(Best master thesis award by "*Sociedad Mexicana de Ciencia de Superficies y Vacio, Mexico", 2001)*
5. Name of the student	**Gildardo Casarrubia Segura**
Degree obtained	***Bachelor of Science*** (in Electronics)

Institution Faculty of Electrinic Science, Autonomous University of Puebla, Puebla, Mexico.

Title of the Thesis **La influencia del hidrógeno en la luminiscencia de películas amorfas de óxido de silicio *(The influence of hydrogen on the luminescence of amorphous silicon oxide films).***

Date of Examination October 17, 2000.

Thesis Director: ***U. Pal, F. Chávez, and Y. E. Bravo***

6. Name of the student **Manuel Herrera Zaldívar**

Degree obtained ***Doctorate*** (in Materials Science program) (***with honorific mention***)

Institution Instituto de Física, Benemérita Universidad Autónoma de Puebla, Puebla, Mexico.

Title of the Thesis **Estudio de propiedades ópticas y electrónicas del GaN Por técnicas de microscopia electrónica de barrido y microscopia túnel de barrido *(Study of optical and electronic properties of GaN through scanning electron microscopy and scanning tunneling microscopy techniques).***

Date of Examination March 23, 2001.

(Honorific Mention of the **"*Premio IIM-UNAM Certamen Nacional 2001*", ** National University of Mexico)

Thesis Director: ***P. Fernandez, J. Piqueras Noriega, U. Pal***

7. **Name of the student** **Odilón Vázquez Cuchillo**

Degree obtained ***Master of Science*** (in Materials Science Program)

Institution Institute of Physics, Autonomous University of Puebla, Puebla, Mexico.

Title of the Thesis **Preparación y caracterización de nano-compositos Cu/ZnO *(Preparation and characetrization of Cu-ZnO nanocomposites)***.

Date of Examination October 17, 2001.

(Best master thesis award by "*Sociedad Mexicana de Ciencia de Superficies y Vacio, Mexico", 2002)*

Thesis Director: ***U. Pal***

8. **Name of the student** **Gildardo Casarrubia Segura**

Degree obtained ***Master of Science*** (in Semiconductors)

Institution Center of Electronic and Semiconductor Devices, Autonomous University of Puebla, Puebla, Mexico.

Title of the Thesis **Síntesis y caracterización de nano-compositos Ge/ZnO *(Synthesis and characterization of Ge/ZnO nanocomposites).***

Date of Examination May 31, 2002.

Thesis Director: ***U. Pal and O. Zárate Corona***

9. **Name of the student** **Sandra Santiago Asoiazu, and Jaime Ojeda Morales**

Degree obtained ***Matesters in orthodontics***

Institution Faculty of Estomatology, Autonomous University of Puebla, Puebla, Mexico.

Title of the Thesis **Efectos del electromagnetismo en el movimiento Ortodóntico *(Effect of electromagnetism on orthodontic movements).***

Date of Examination July 24, 2002.

Thesis Director: **J. Vega Galina, H. Chávez Oseki, and *U. Pal***

10. **Name of the student** **José Francisco Sánchez Ramírez**

Degree obtained ***Doctorate in Chemistry*** (in Chemical Science Program)

Institution Faculty of Chemical Engineering, Autonomous University of Puebla, Puebla, Mexico.

Title of the Thesis **Nanopartículas Metalicas: Síntesis, Characterización y Aplicación en Celdas de Combustible *(Metal nanoparticles: Synthesis, characterization and Fuel Cell application).***

Date of Examination October 12, 2004.
(Awarded with honorific mention as the best doctoral thesis by "***The Mexican Society of Science and technology of Surfaces and Vacuum***", October 2005).

Thesis Director: ***U. Pal***

11. **Name of the student** **Eva Aguila Almanza**

Degree obtained ***Master of Science*** (in Materials Science Program)

Institution Institute of Physics, Autonomous University of Puebla, Puebla, Mexico.

Title of the Thesis **Síntesis y caracterización estructurales y ópticas de nanocompositos Au/ZnO *(Synthsis, structural and optical characterization of Au/ZnO nanocomposites).***

Date of Examination March 1, 2005.

Thesis Director: ***U. Pal***

12. **Name of the student** **Coraabdi Luna Perez**

Degree obtained ***Bachelor of Science*** (Chemical Engineering)

Institution Faculty of Chemical Engineering, Autonomous University of Puebla, Puebla, Mexico..

Title of the Thesis **Sintesis y caracterización de nanoparticulas bimetalicas de Ru-Pt para aplicaciones en Celdas de Combustible *(Synthesis and characterization of Ru-Pt bimetallic nanoparticles for applications in fuel cells).***

Date of Examination October 7, 2005.

Thesis Director: ***U. Pal***

13. **Name of the student** **Isaac Moreno Preza**

Degree obtained ***Bachelor of Science*** (in Chemical Engineering)

Institution Faculty of Chemical Engineering, Autonomous University of Puebla, Puebla, Mexico.

Title of the Thesis **Síntesis de nanoparticulas estables de Ru-Pt y su evaluación electro-catalitica para su aplicación en celda de combustible *(Synthesis of stable Ru-Pt nanoparticles and their electrocatalytic evaluation for application in fuel cells).***

Date of Examination March 22, 2006.

Thesis Director: ***U. Pal***

14. **Name of the student** **Jesus Garcia Serrano**
Degree obtained ***Doctorate*** (in Materials Science Program) (***with honorific mention by BUAP)***
Institution Institute of Physics, Autonomous University of Puebla, Puebla, Mexico.
Title of the Thesis **Síntesis de nuevos polímeros de intercambio iónico para aplicaciones en celda de combustible y formación de nanopartículas metálicas** ***(Synthesis of new ion-exchange polymer for applications in fuel cells and metallic nanoparticle growth).***
Date of Examination October 6, 2006.
Thesis Director: ***U. Pal***

15. **Name of the student** **Elizabeth Navarro Ceron**
Degree obtained ***Bachelor of Science*** (in Chemical Engineering)
Institution Faculty of Chemical Engineering, Autonomous University of Puebla, Puebla, Mexico.
Title of the Thesis **Síntesis de nanoparticulas de Óxido de Zinc (ZnO)** ***(Synthesis of Zinc Oxide (ZnO) nanoparticles).***
Date of Examination **October 13, 2006.**
Thesis Director: ***U. Pal***

16. **Name of the student** **Delfino Cornejo Monroy**
Degree obtained ***Master of Science*** (in Materials Engineering)
Institution CICATA-IPN, Lagarias, Mexico.
Title of the Thesis **Efectos de los parámetros de deposicion sobre las propiedades de películas delgadas de ZnO** ***(Effects of deposition parameters on the properties of ZnO thin films).***
Date of Examination December 13, 2006.
Thesis Director: ***J.F. Sánchez Ramirez and U. Pal***

17. **Name of the student** **Julio Martínez García**
Degree obtained ***Bachelor of Science*** (in Chemical Engineering)
Institution Faculty of Chemical Engineering, Autonomous University of Puebla, Puebla, Mexico.
Title of the Thesis **Caracterizacion de Nanoestructuras triangulares de ZnO por CL-SEM** ***(Characterization of triangular ZnO nanostructures by CL-SEM).***
Date of Examination January 30, 2007.
Thesis Director: ***U. Pal and M. Herrea Zaldivar***

18. **Name of the student** **Raúl Sánchez Zeferino**
Degree obtained ***Bachelor of Science*** (in Chemical Engineering)
Institution Faculty of Chemical Engineering, Autonomous University of Puebla, Puebla, Mexico.
Title of the Thesis **Síntesis y caracterizacion Luminiscente de Nanoparticulas de SnO_2** ***(Synthesis and luminescence characterization of SnO_2 nanoparticles).***

Date of Examination February 6, 2007.
Thesis Director: ***U. Pal and M. Herrera Zaldivar***

19. **Name of the student** **Samuel Alejandro Lozano Morales**
Degree obtained ***Bachelor of Science*** (in Chemical Engineering)
Institution Faculty of Chemical Engineering, Autonomous University of Puebla, Puebla, Mexico.
Title of the Thesis **Sintesis y caracterizacion de Nanoestructuras de SnO_2** ***(Synthesis and characterization of SnO_2 nanostructures).***
Date of Examination February 16, 2007.
Thesis Director: ***U. Pal***

20. **Name of the student** **Tizoc Fernando Huerta Garcia**
Degree obtained ***Master of Science*** (In Materials Science Program)
Institution Institute of Physics, Autonomous University of Puebla, Puebla, Mexico.
Title of the Thesis **Síntesis Sonoquimica de Nanoparticulas de Yb** ***(Sonochemical synthesis of Yb nanoparticles).***
Date of Examination February 08, 2007.
Thesis Director: ***U. Pal***

21. **Name of the student** **Ma. De Lourdes Ruiz Peralta**
Degree obtained ***Master of Science*** (Materials Science Program)
Institution Institute of Physics, Autonomous University of Puebla, Puebla, Mexico.
Title of the Thesis **Síntesis de Nanoparticulas Bimetálicas de Au-Pd y su aplicación para el crecimiento de nanoestructuras de Cu por tratamiento térmico** ***(Synthesis of Au-Pd bimetallic nanoparticles and their application for the growth of Cu nanostructures through thermal treatment).***
Date of Examination March 10, 2008.
Thesis Director: ***U. Pal***

22. **Name of the student** **Erick Gómez Hernández**
Degree obtained ***Master of Science*** (in NEMS Program)
Institution Universidad Popular Autonoma del Estado de Puebla (UPAEP), Puebla, Mexico.
Title of the Thesis **Síntesis y Caracterización de Nanocompositos Ag-TiO_2 y su Aplicación como Fotocatalizador** ***(Synthesis and characterization of Ag-TiO_2 nanocomposites and their application as phtocatalyst).***
Date of Examination 23 May, 2008.
Thesis Director: ***U. Pal***

23. **Name of the student** **Mou Pal**
Degree obtained ***Doctorate*** (in Applied Science)
Institution CICAAP, Autonomous University of Morelos State (UAEM), Cuernavaca, Mexico.

Title of the Thesis **Síntesis Controlada de Nanopartículas de TiO_2, y TiO_2:Yb para Aplicaciones Optoelectronicas** ***(Controlled synthesis of TiO_2 and TiO_2:Yb nanoparticles for optoelectronic applications).***

Date of Examination June 08, 2008.

Thesis Director: ***P. Santiago Jacinto and U. Pal***

24. **Name of the student** **Mirna Lopez Fuentes**

Degree obtained ***Doctorate*** (in Materials Science Program)

Institution Institute of Physics, Autonomous University of Puebla, Puebla, Mexico.

Title of the Thesis **Síntesis y Estabilización de Nanopartículas de Oro** ***(Synthesis and stabilization of gold nanoparticles).***

Date of Examination September 26, 2008.

Thesis Director: ***U. Pal and J.F. Rivas Silva***

25. **Name of the student** **Filiberto Tlalpan Valdez**

Degree obtained ***Bachelor of Science*** (in Chemical Engineering)

Institution Faculty of Chemical Engineering, Autonomous University of Puebla, Puebla, Mexico.

Title of the Thesis **Síntesis de Nanoestructuras de SnO_2 con diferentes morfologías por metodo Hidrotérmico** ***(Synthesis of SnO_2 nanstructures of different morphologies using hydrothermal method).***

Date of Examination November 21, 2008.

Thesis Director: ***U. Pal and M. Pal***

26. **Name of the student** **Alejandro Escobedo Morales**

Degree obtained ***Doctorate*** (in Materials Science Program) **(*with honorific mention)***

Institution Institute of Physics, Autonomous University of Puebla, Puebla, Mexico.

Title of the Thesis **Síntesis y Caracterización de ZnO Nanoestructurado dopado con In, Ga y Sb para Aplicaciones Optoelectrónicas** ***(Synthesis and characterization of ZnO nanostructures doped with In, Ga, and Sb for optoelectronic applications).***

Date of Examination December 17, 2008.

(Awarded as best doctoral thesis by "The Mexican Society of Science and Technology of Surface and Materials", 2009).

Thesis Director: ***U. Pal***

27. **Name of the student** **Natalia Morales Flores**

Degree obtained ***Master of Science*** (in Materials Science Program)

Institution Institute of Physics, Autonomous University of Puebla, Puebla, Mexico.

Title of the Thesis **Síntesis de Nanopartículas de ZnO y Pt/ZnO asistidas por polímero triton X-100 y sus aplicaciones en Fotocatálisis *(Triton-assited synthesis of ZnO and Pt/ZnO nanoparticles and their application in photocatalysis).***

Date of Examination January 21, 2010.

Thesis Director: ***U. Pal and E. Sánchez Mora***

28. **Name of the student** **Rodrigo Saavedra Rosiles**

Degree obtained ***Master of Science*** (in Materials Science Program)

Institution Institute of Physics, Autonomous University of Puebla, Puebla, Mexico.

Title of the Thesis **Preparación de Nanopartículas de SnO_2 dopados con Pt para Aplicaciones Ambientales (Catálisis)** ***(Preparation of Pt-doped SnO_2 nanoparticles for ambiental (catalysis) applications).***

Date of Examination February 26, 2010.

Thesis Director: ***U. Pal and G. Corro Hernández***

29. **Name of the student** **Tlatoani Flores Arroyo**

Degree obtained ***Master of Science*** (in Materials Science Program)

Institution Institute of Physics, Autonomous University of Puebla, Puebla, Mexico.

Title of the Thesis **Estudio de la instabilidad luminiscente en silicio poroso** ***(Study of luminescence instability in porous silicon).***

Date of Examination July 23, 2010.

Thesis Director: ***A. Mendez Blas and U. Pal***

30. **Name of the student** **Moisés Ocampo Fernández**

Degree obtained ***Doctotate*** (in Materials Science Program)

Institution Instituto of Basic and Engineering Science, Autonomous University of Hidalgo, Pachuca, Hidalgo, Mexico.

Title of the Thesis **Síntesis y Caracterización de Nuevos Monómeros y Polímeros con Grupos de Ácido Fosfónico *(Synthesis and characterization of monomers and polymers with Phosphonic acid groups).***

Date of Examination November 22, 2010.

Thesis Director: ***J. García Serrano and U. Pal***

31. **Name of the student** **Celia Lizeth Gómez Muñoz**

Degree obtained ***Master of Science*** (in Materials Science Program)

Institution Institute of Physics, Autonomous University of Puebla, Mexico.

Title of the Thesis **Fabricación de Nanopartículas Magnéticas Mono-Dispersas protegidas por Grafito *(Fabrication of monodispersed magnetite nanoparticles protected by graphite).***

Date of Examination February 2, 2011.

Thesis Director: ***U. Pal***

32. **Name of the student** **Federico Ramírez Vergara**
Degree obtained ***Bachelor of Science*** (in Materials Engineering program)
Institution Faculty of Chemical Engineering, Autonomous University of Puebla, Mexico.
Title of the Thesis **Efecto de la incorporación de nanoparticulas de ZnO sobre las propiedades estructurales y ópticas de la Faujasita NaY *(Effect of ZnO nanoparticle incorporation on the structural and optical properties of NaY faujasite).***
Date of Examination October 28, 2011.
Thesis Director: ***A. Escobedo Morales and U. Pal***

33. **Name of the Student** **Araceli Hernández Granados**
Degree obtained ***Bachelor of Science*** (in Industrial Engineering)
Institution Faculty of Chemical Science and Engineering, Autonomous University of Morelos State, Cuernavaca, Mexico.
Title of the Thesis **Propiedades fotoluminiscentes de nanopartículas de óxido zinc embebidos en silicio poroso *(Photoluminescent properties of zinc oxide nanoparticles embedded in porous silicon).***
Date of termination March 22, 2012.
Thesis Director: ***V. Agarwal and U. Pal***

34. **Name of the Student** **Ma. De Lourdes Ruiz Peralta**
Degree obtained ***Doctorate*** (in Materials Science Program)
Institution Institute of Physics, Autonomous University of Puebla, Puebla, Mexico.
Title of the Thesis **Síntesis de nanocompositos de ZnO/M (M = Ag y Au) por irradiación de microondas *(Synthesis of ZnO/M (M = Ag and Au) nanocomposites through microwave irradiation).***
Date of Examination July 19, 2012.
Thesis Director: ***U. Pal and J. García Serrano***

35. **Name of the Student** **Raul Sanchez Zeferino**
Degree obtained ***Doctorate*** (in Materials Science Program)
Institution Institute of Physics, Autonomous University of Puebla, Mexico.
Title of the Thesis **Caracterización luminiscente de nanopartículas de ZnO y de SnO_2 dopadas y nodopadas *(Luminescent characterization of doped and undoped ZnO and SnO_2 nanoparticles).***
Date of Examination October 05, 2012.
Thesis Director: ***U. Pal and M. Barboza Flores***

36. **Name of the Student** **Abraham Palomec Garfias**
Degree obtained ***Master of Science*** (in Materials Science Program)
Institution Institute of Physics, Autonomous University of Puebla, Mexico.
Title of the Thesis **Influencia de Nanopartículas de sílice sobre la tensión superficial de agua en presencia del surfactante SDS *(Influence of silica nanoparticles on the Surface tension of wáter in presence of SDS surfactant).***

Date of Examination January 29, 2014.
Thesis Director: ***C. Marquez Beltrán and U. Pal***

37. **Name of the Student** **Diego Leon Sanchez**
Degree obtained ***Bachelor of Science*** (in Optoelectronics Program)
Institution Faculty of Electronic Science, Autonomous University of Puebla, Mexico.

Title of the Thesis **Estudio del efecto de dopamiento con metales de los grupos II, III y IV en la morfología y propiedades ópticas de nanopartículas de In_2O_3 crecidas por el método VS *(Studies on the effect of group II, III and IV metal doping on the morphology and optical properties of VS grown In_2O_3 nanoparticles).***

Date of Examination May 14, 2014.
Thesis Director: ***U. Pal***

38. **Name of the Student** **Natalia Morales Flores**
Degree obtained ***Doctorate*** (in Semiconductor Devices)
Institution Semiconductor Device Research center, Autonomous University of Puebla, México.

Title of the Thesis **Crecimiento de nanoestructuras de Óxido de Zinc asistidas por irradiación ultrasónica y su aplicación en fotocatálisis *(Fabrication of Zinc oxide nanostructures by ultrasonic irradiation and their photocatalytic applications).***

Date of Examination October 3, 2014
Thesis Director: ***U. Pal and R. Galeazzi***

39. **Name of the Student** **Mariana Colón Figuera**
Degree obtained ***Bachelor of Science*** (Materials Engineering)
Institution Faculty of Chemical Engineering, Autonomous University of Puebla, Mexico.

Title of the Thesis **Crecimiento de nanopartículas de oro por el método Turkevich-Frens y caracterización de sus propiedades ópticas *(Growth of gold nanoparticles by Turkevich-Frens method and their optical characterization).***

Date of Examination March 23, 2015
Thesis Director: ***U. Pal***

40. **Name of the Student** **Sergio Isaac Uribe Madrid**
Degree obtained **Doctorate** (in Materials Science)
Institution Institute of Physics, Autonomous University of Puebla (BUAP), Mexico.

Title of the project **Fabricación de nanoestructuras compuestas de Fe_3O_4@meso-SiO_2 para aplicaciones biológicas *(Fabrication of Fe_3O_4@meso-SiO_2 composite nanostructures for biological applications).***

Date of termination April 24, 2015.
Thesis Director: ***U. Pal***

41. **Name of the Student** **Alejandra López Vazquez**

Degree obtained ***Bachelor of Science*** (Physics)
Institution Faculty of Physics and Mathematical Science, Autonomous University of Puebla, Mexico.

Title of the Thesis **Crecimiento de nano-alambres de óxido de zinc verticalmente alineados usando el método sol-gel hidrotermal *(Growth of aligned zinc oxide nanowires using sol-gel hydrothermal method).***

Date of Examination July 10, 2015
Thesis Director: ***U. Pal***

42. **Name of the Student** **Yessica Torres Luna**
Degree obtained ***Bachelor of Science*** (Mecatronics)
Institution Faculty of Electronic Science, Autonomous University of Puebla, Mexico.

Title of the Thesis **Síntesis controlada de las nanopartículas de $CuSbS_2$ para aplicaciones fotovoltaicas *(Controlled synthesis of CuSbS2 for photovoltaic applications).***

Date of Examination February 10, 2016.
Thesis Director: ***M. Pal and U. Pal***

43. **Name of the Student** **Dafne Aguilar Terrones**
Degree obtained ***Bachelor of Science*** (Chemical Engineering)
Institution Faculty of Chemical Engineering, Autonomous University of Puebla, Mexico.

Title of the Thesis **Fabricación de celdas solares fotoelectroquímicas tipo "Grätzel": comparación entre diferentes fuentes de TiO_2 poroso y nanoestructurado *(Fabrication of photoelectrochemical solar cells of Grätzel type: Comparison between different sources of porous nanostructured TiO_2).***

Date of Examination February 18, 2016.
Thesis Director: ***J. Villanueva Cab and U. Pal***

44. **Name of the Student** **Dulce Natalia López Castillo**
Degree obtained ***Doctorate*** *in Materials Science* (***with honorific mention)***
Institution Institute of Physics, Autonomous University of Puebla, Mexico.
Title of the Thesis **Uso de hongos como bioplantillas vivas para la fabricación de estructuras metálicas 1D (*Use of fungus as living biotemplate for fabricating metallic 1D structures*).**

Date of Examination June 28, 2016.
Thesis Director: ***U. Pal***

45. **Name of the Student** **Jonathan Rossainz Santos**
Academic Program ***Master in Materials Science***
Institution Institute of Physics, Autonomous University of Puebla, Mexico.
Title of the Thesis **Fabricación de celdas solares sensibilizadas con tinte con diferente porosidad *(Fabrication of dye sensitized solar cells with different porosities).***

Date of Examination Submitted for evaluation.
Thesis Director: ***J. Villanueva Cab and U. Pal***

46. **Name of the Student** **José Luis Montaño Priede**
Degree obtained ***Doctorate in Materials Science*** (*with honorific mention Ad Honorum)*
Institution Institute of Physics, Autonomous University of Puebla, Mexico.
Title of the Thesis **Fabricación de Nanopartículas Compuestas Tipo Multicapa y Estudio de sus Propiedades Ópticas** ***(Fabrication of multilayerd composite nanoparticles and the study of their optical properties).***
Date of Examination October 27, 2017.
Thesis Director: ***U. Pal***

47. Name of the Student **Jesús Alberto Ramos Ramón**
Degree obtained ***Doctorate in Materials Science***
Institution Institute of Physics, Autonomous University of Puebla, Mexico.
Title of the Thesis **Fabricación de nanoestructuras unidimensionales de In_2O_3 dopadas y no dopadas por la técnica Vapor-Líquido-Sólido para aplicación en dispositivos optoelectrónicos** ***(Fabrication of doped and undoped unidimensional In_2O_3 nanostructures by Vapor-Liquid-Solid technique for optoelectronic devices).***
Date of Examination March 8, 2018.
Thesis Director: ***U. Pal***

48. Name of the Student **Aarón Armando Ramírez Daza de la Torre**
Degree obtained ***Bachelor in Mecatronic Engineering***
Institution Faculty of Electronic Science, Autonomous University of Puebla, Mexico.
Title of the Thesis **Crecimineto de nanoalambres de ZnO dopados con Ga, Al e In por el método hidrotermal y su evaluación de defectos** ***(Syntheis of Ga, Al and In doped ZnO nanowires and their defect evaluation).***
Date of Examination May 4, 2018.
Thesis Director: ***U. Pal***

49. **Name of the Student** **Dr. Carol Perez Casas**
Research Program ***Post Doctoral Fellow,*** project #46269 (SEP-CONACyT)
Title of the project **Novel metal oxide nanostructures for optoelectronic and radiation dosimetry applications**.
Date of termination May 31, 2006.
Director: ***U. Pal***

50. **Name of the Student** **Dr. Juan Andres Reyes Nava**
Research program ***Post Doctoral Fellow*** of CONACyT (2008)
Title of the Project **Estudio Teórico-Experimental de las propiedades estructurales, dinámicas (proceso de segregación, y difusión) de nanopartículas**

puras y binarias de metales nobles y de transición *(Teoretical and experimental studyies of structure and dynamics (segregation and diffusion) of pure and binary nanoparticles of noble and transtion metals).*

Starting date May 1, 2008.
Date of termination April 30, 2009.
Director: ***U. Pal***

51. **Name of the Student** **Dr. Ovidio Yordanis Peña Rodríguez**
Research program ***Post Doctoral Fellow***, Project #46269 (SEP-CONACyT)
Title of the Project **Obtención y caracterización de nanocúmulos de cobre en una matriz de ZnO por implantación de iones *(Obtention and characterization of nanoclusters of copper in a ZnO matrix by ion-implantation).***

Starting date September 1, 2007.
Date of termination June 30, 2008.
Director: ***U. Pal***

52. **Name of the Student** **Dr. Armando Perez Centeno**
Research program ***Post Doctoral Fellow*** in the Project # # 46269 (SEP-CONACyT)
Title of the Project **Synthesis and Luminescence Properties of Metal Oxide nanostructures *(Synthesis and luminescence properties of metal oxide nanostructures).***

Starting date September 1, 2007.
Date of termination June 30, 2008.
Director: ***U. Pal***

53. **Name of the Student** **Dr. Mohan Kumar Naidu Pulleparthi**
Research program ***Post Doctoral Fellow*** in the Project # CB-2010/151767 (CONACyT)
Title of the Project **Fabrication of composite structures based on magnetic nanoparticles for biological application.**

Starting date January 1, 2013.
Date of termination June 30, 2013.
Director: ***U. Pal***

54. **Name of the Student** **Dr. Alberto Sandoval**
Research program ***Post Doctoral Fellow*** in the Project # CB-2010/151767 (CONACyT)
Title of the Project **Fabrication of composite nanostructures for ambiental applications**

Starting date July 1, 2013.
Date of termination June 30, 2014.
Director: ***U. Pal***

55. **Name of the Student** **Dr. Manuel Jesus Rodriguez Perez**
Research program ***Visiting Professor, IFUAP***

Title of the Project **Fabrication of graphene and reduced graphene–metal nanocomposites for ambiental applications.**
Starting date March 1, 2016.
Date of termination August 31, 2016.
Director: ***U. Pal***

56. **Name of the Student** **Dr. Sudip Mondal**
Research program ***Post Doctoral Fellow*** (sponsored by PROFOCIE, Sec. Eduucation, Mexico)
Title of the Project **Surface modification of magnetic hydroxyapatite for targeted drug delivery in affected tissues.**
Starting date August 1, 2015.
Date of termination March 31, 2017.
Director: ***U. Pal***

In process:

1. **Aaron Ramirez** (Bachelor in Mecatronics, Faculty of Electronic Science, Autonomous University of Puebla, Mexico).
2. **Francisco Enrique Cancino Gordillo** (Master of Science in Materials Science program, Institute of Physics, BUAP).
3. **José Luis Ortiz** (Post doctoral fellow, BUAP).
4. **Diego León Sánchez** (Doctorate in Materials Science program, Institute of Physics, BUAP).

Accounts of directed thesis

Name of the student	Obtained degree	Year
Gildardo Casarrubia Segura	*Bachelor of Science (Electronic science, BUAP*)	2000
Coraabdi Luna Pérez	*Bachelor of Science (Chemical Engineering, BUAP)*	2005
Isaac Moreno Preza	*Bachelor of Science (Chemical Engineering, BUAP)*	2006
Elizabeth Navarro Cerón	*Bachelor of Science (Chemical Engineering, BUAP)*	2006
Delfino Cornejo Monroy	*Bachelor of Science (Materials Engineering, BUAP)*	2006
Julio Martínez García	*Bachelor of Science (Chemical Engineering, BUAP)*	2007
Raúl Sánchez Zeferino	*Bachelor of Science (Chemical Engineering, BUAP)*	2007
Samuel Alejandro Lozano Morales	*Bachelor of Science (Chemical Engineering, BUAP)*	2007
Filiberto Tlalpan Valdez	*Bachelor of Science (Chemical Engineering, BUAP)*	2008
Federico Ramírez Vergara	*Bachelor of Science (Chemical Engineering, BUAP)*	2011
Araceli Hernández Granados	*Bachelor of Science (Industrial Engineering, CIICAp, UAMor)*	2012

Diego León Sánchez	*Bachelor of Science (Electronic Science, BUAP)*	2014
Mariana Colón Figuera	*Bachelor of Science (Materials Engineering, BUAP)*	2015
Alejandra López Vázquez	*Bachelor of Science (Physics, BUAP)*	2015
Yessica Torres Luna	*Bachelor of Science (Mechatronics, BUAP)*	2016
Dafne Aguilar Terrones	*Bachelor of Science (Chemical Engineering, BUAP)*	2016
TOTAL BACHELOR THESIS	***16***	
Gopal Krishna Bej	*Master of Science (Physics, Vidyasagar Univ., India)*	1992
Soumitra Saha	*Master of Science (Physics, Vidyasagar Univ., India)*	1992
Jesús García-Serrano	*Master of Science (Materials Science, IFUAP)* ***Honorific mention, BUAP;*** **best master thesis award by S*ociedad Mexicana de la Ciencia de Superficies y Vácio, Mexico, 2000***	1999
Alejandro Bautista Hernández	*Master of Science (Materials Science, IFUAP)* **best master thesis award by S*ociedad Mexicana de la Ciencia de Superficies y Vácio, Mexico, 2001***	2000
Odilón Vázquez Cuchillo	*Master of Science (Materials Science, IFUAP)* **best master thesis award by S*ociedad Mexicana de la Ciencia de Superficies yVácio, Mexico, 2002***	2001
Gildardo Casarrubia Segura	*Master of Science* (Semiconductor Devices, BUAP)	2002
Sandra Santiago Asoiazu, and Jaime Ojeda Morales	*Matesters in orthodontics (HUP, BUAP)*	2002
Eva Águila Almanza	*Master of Science (Materials Science, IFUAP)*	2005
Delfino Cornejo Monroy	*Master of Science (Materials Engineering, CICATA-IPN)*	2006
Tizoc Fernando Huerta García	*Master of Science (Materials Science, IFUAP)*	2007
Ma. De Lourdes Ruiz Peralta	*Master of Science (Materials Science, IFUAP)*	2008
Erick Gómez Hernández	*Master of Science (NEMS, UPAEP)*	2008
Natalia Morales Flores	*Master of Science (Materials Science, IFUAP)*	2010
Rodrigo Saavedra Rosiles	*Master of Science (Materials Science, IFUAP)*	2010
Tlatoani Flores Arroyo	*Master of Science (Materials Science, IFUAP)*	2010
Celia Lizeth Gómez Muñoz	*Master of Science (Materials Science)*	2011
Abraham Palomec	*Master of Science (Materials Science, IFUAP)*	2014

Jonathan Rossainz Santos	*Master of Science (Materials Science, IFUAP)*	2016 (submitted)
TOTAL MASTER THESIS	***18***	
Manuel Herrera Zaldívar	*Doctorate (Materials Science, IFUAP)* ***honorific mention by BUAP; Premio IIM-UNAM Certamen Nacional 2001***	2001
José Francisco Sánchez Ramírez	*Doctorate (Chemical Science, ICUAP)* ***honorific mention by BUAP; best doctoral thesis award by Sociedad Mexicana de la Ciencia y Tecnología de Superficie y Vació, México, 2005***	2004
Jesús García Serrano	*Doctorate (Materials Science, IFUAP)* ***honorific mention by BUAP***	2006
Mou Pal	*Doctorate (Applied Science, CIICAp, UAMor)*	2008
Mirna López Fuentes	*Doctorate* (Materials Science, IFUAP)	2008
Alejandro Escobedo Morales	*Doctorate* (Materials Science, IFUAP) ***honorific mention by BUAP; Best doctoral thesis award by Mexican Society of Science and Technology of Surfaces and Material, 2009***	2008
Moisés Ocampo Fernández	*Doctorate (Materials Science, UAEH, Pachuca)*	2010
Ma. De Lourdes Ruiz Peralta	*Doctorate (Materials Science, IFUAP)*	2012
Raúl Sánchez Zeferino	*Doctorate (Materials Science, IFUAP)*	2012
Natalia Morales Flores	*Doctorate (Semiconductor Devices, BUAP)*	2014
Sergio Isaac Uribe Madrid	*Doctorate (Materials Science, IFUAP)*	2015
Dulce Natalia López Castillo	*Doctorate (Materials Science, IFUAP)*	2016
José Luis Motaño Priede	*Doctorate (Materials Science, IFUAP),* ***honorific mention by BUAP.***	2017
Josus Alberto Ramos Ramón		2018
TOTAL DOCTORAL THESIS	***14***	
Dr. Carol Perez Casas	*Postdoctoral Fellow*	2006
Dr. Armando Perez Centeno	*Postdoctoral Fellow*	2007
Dr. Ovidio Yordanis Peña Rodríguez	*Postdoctoral Fellow*	2008
Dr. Juan Andrés Reyes Nava	*Postdoctoral Fellow*	2009
Dr. Mohan Kumar Naidu Pulleparthi	*Postdoctoral Fellow*	2013
Dr. Alberto Sandoval	*Postdoctoral Fellow*	2013
Dr. Manuel Jesús Rodríguez Pérez	*Postdoctoral Fellow*	2016
Dr. Sudip Mondal	*Postdoctoral Fellow*	2017
TOTAL POSTDOCTROAL	***8***	

PUBLICATIONS in Journal:

1. Structural characterization of thin films of cadmium telluride. – S. Saha, **U. Pal**, B.K. Samantaray, A.K. Chaudhuri, and H.D. Banerjee; *Thin Solid Films* **164** (1988) 85-89. (Elsevier, ISSN: 0040-6090, IF= **1.879**).

2. X-ray line broadening and electron microscopic studies on evaporated ZnTe films. – **U. Pal**, S. Saha, B.K. Samantaray, H.D. Banerjee, A.K. Chaudhuri and V.V. Rao; *Phys. Stat. Solidi (a)* **111** (1989) 515-522. (Wiley, ISSN: 1862-6300, IF= **1.775**).

3. Some optical properties of evaporated ZnTe films. – **U. Pal**, S. Saha, A.K. Chaudhuri, V.V. Rao, and H.D. Banerjee; *J. Phys. D: Appl. Phys.* **22** (1989) 965-970 (IOP, ISSN: 0022-3727, IF= **2.588**). Also published in *Engineering Optics* vol. **22** (1989) 413-418.

4. Optical Properties of CdTe thin films. – S. Saha, **U. Pal**, A. K. Chaudhuri, V.V. Rao, and H.D. Banerjee; *Phys. Stat. Solidi (a)* **114** (1989) 721-729. (Wiley, ISSN: 1862-6300, IF= **1.879**).

5. On the mechanism of long-term relaxation in polycrystalline cadmium telluride and zinc telluride films. – **U. Pal**, S. Saha, S.K. Dutta and A.K. Chaudhuri*; Semicond. Sci. Technol.* **5** (1990) 429-434. (IOP, ISSN: 0268-1242, IF=**2.305**).

6. X-ray and electron microscopic determination of Debye characteristic temperature, stacking fault energy and other microstructural parameters in ZnTe films. – **U. Pal**, S. Saha, B.K. Samantaray, H.D. Banerjee and A.K. Chaudhuri; *Zeitschrift fur Kristallographie* **193** (1990) 33-45. (Springer, ISSN: 00442968, IF=**3.179**).

7. X-ray, electron microscopy and photovoltaic studies on thin films of cadmium telluride deposited normally at different substrate temperatures. – S. Saha, **U.Pal**, B.K. Samantaray, and A.K. Chaudhuri; *J. Mater. Sci.* **25** (1990) 4987-4991. (Springer, ISSN: 0022-2461, IF= **2.599**).

8. Effect of preferred orientation on photovoltage of CdTe thin films. - S. Saha, **U. Pal**, B.K. Samantaray, and A.K. Chaudhuri; *Solid State Commun*. **74** (1990) 839-841. (Elsevier, ISSN: 0038-1098, IF=**1.458**).

9. Contribution of junction and surface space charge on the generation of photovoltage in CdTe thin films. - S. Saha, **U. Pal**, and A.K. Chaudhuri; *Solid State Commun*. **75** (1990) 175-177. (Elsevier, ISSN: 0038-1098, IF=**1.458**).

10. Upgradation and studies on semiconducting properties of pyrite (FeS_2) for device applications. – H.D. Banerjee, N. Godgaunkar and **U. Pal**; *Mater. Lett.* **10** (1990) 99-104. (Elsevier, ISSN: 0167-577X, IF=**2.572**).

11. The anomalous photovoltaic effect in polycrystalline zinc telluride films. – **U. Pal,** S. Saha, A.K. Chaudhuri and H.D. Banerjee; *J. Appl. Phys.* **69** (1991) 6547-6555. (AIP, ISSN: 0021-8979, IF= **2.068**).

12. New conducting polymer 3*; doping, stability, electrical and optical properties of poly (P-phenyl acetylenic phosphine). – Md. S. Rahaman, **U. Pal**, A.K. Chaudhuri and S. Maiti; *Colloid & Polymer Sci.* **269** (1991) 576-582. (Springer, ISSN: 0303-402X, IF= **1.89**).

13. Structural characterization of cadmium selenide thin films by x-ray diffraction and electron microscopy.- **U. Pal**, D. Samanta, S. Ghorai, B.K. Samantaray and A.K. Chaudhuri; *J. Phys. D: Appl. Phys.* **25** (1992) 1488-1494. (IOP, ISSN: 0022-3727, IF= **2.558**).

14. Dark- and photoconductivity in doped and undoped zinc telluride films. – **U. Pal**; *Semicond. Sci. Technol.* **8** (1993) 1331-1336. (IOP, ISSN: 0268-1242, IF=**2.305**).

15. Optical constants of vacuum evaporated polycrystalline cadmium selenide thin films. – **U. Pal**, D. Samanta, S. Ghorai and A.K. Chaudhuri; *J. Appl. Phys.* **74** (1993) 6368-6374. (AIP, ISSN: 0021-8979, IF= **2.068**).

16. Low cost solar selective absorbers from Indian galena ore. – S. Chatterjee and **U. Pal**; *Optical Engineering* **32** (1993) 2923-2929. (SPIE, ISSN: 0091-3286, IF= **1.082**).

17. Anomalous photovoltage in $Cd_{0.8}Zn_{0.2}Te$ thin films. – B. Samanta, A.K. Chaudhuri, S.L. Sharma and **U. Pal**; *J. Appl. Phys.* **75** (1994) 2733-2735. (AIP, ISSN: 0021-8979, IF= **2.068**).

18. Electron diffraction study of the texture of cadmium selenide thin films. – D. Samanta, S. Ghorai, B.K. Samanataray, A.K. Chaudhuri and **U. Pal***; Indian Journal of Pure & Appl. Phys.* **32** (1994) 909-911. (CSIR-NISCAIR, ISSN: 0019-5596, IF= **0.521**).

19. Study of point defects in CdTe and CdTe:V by cathodoluminescence. – **U. Pal**, J. Piqueras, P. Fernandez, M.D. Serrano and E. Dieguez; *J. Appl. Phys.* **76** (1994) 3720-3723. (AIP, ISSN: 0021-8979, IF= **2.068**).

20. Cathodoluminescence spectroscopy for evaluation of defect passivation in GaSb. – **U. Pal**, J. Piqueras, P.S. Dutta, H.L. Bhat, G.C. Dubey. Vikram Kumar and E. Dieguez; *Mater. Res. Bull.* Vol. **406** (1995) 537-542. (Elsevier, ISSN: 0025-5408, IF= **2.446**).

21. Microstructural features of $Cd_{0.8}Zn_{0.2}Te$ thin films studied by x-ray diffraction and electron microscopy. –B. Samanta, **U. Pal**, B.K. Samantaray, T.B. Ghosh, S.L. Sharma and A.K. Chaudhuri, *Bull. Mater. Sci.* **18** (1995) 81-91. (Springer, ISSN: 0250-4707, IF= **0.899**).

22. Deep level cathodoluminescence in deformed CdTe crystals. – C. Diaz Guerra, **U. Pal**, P. Fernandez and J. Piqueras; *Phys. Stat. Solidi (a)* **147** (1995) 75-80. (Wiley, ISSN: 1862-6300, IF= **1.775**).

23. Effect of thermal annealing on Te precipitates in CdTe wafres studied by Raman scattering and cathodoluminescence. – N.V. Sochinskii, F. Agullo-Rueda, M.D. Serrano, E. Dieguez, **U. Pal**, J. Piqueras and P. Fernandez; *J. Appl. Phys.* **77** (1995) 2806-2808. (AIP, ISSN: 0021-8979, IF= **2.068**).

24. Study of defects in CdTe:Cl by cathodoluminescence microscopy. – **U. Pal**, P. Fernandez and J. Piqueras; *Mater. Lett.* **23** (1995) 227-230. (Elsevier, ISSN: 0167-577X, IF= **2.572**).

25. Cathodoluminescence characterization of Ge-doped CdTe crystals. – **U. Pal**, P. Fernandez, J. Piqueras, N.V. Sochinskii and E. Dieguez, *J. Appl. Phys.* **78** (1995) 1992-1995. (AIP, ISSN: 0021-8979, IF= **2.068**).

26. Cathodoluminescence microscopic studies of □ -HgI_2 platelets and crystals. – **U. Pal**, J. Piqueras, P. Fernandez, M.D. Serrano, N.V. Sochinskii and E. Dieguez, *Appl. Phys. A* **61** (1995) 645-649. (Springer, ISSN: 0947-8396, IF= **1.455**).

27. Elimination of Te precipitates from CdTe wafers. – N.V. Sochinskii, M.D. Serrano, E. Dieguez, F. Agullo-Rueda, **U. Pal**, J. Piqueras and P. Fernandez; *Semicond. Sci. Technol.* **10** (1995) 870-875. (IOP, ISSN: 0268-1242, IF=**2.305**).

28. Passivation of surface and bulk defects in p-GaSb by hydrogenated amorphous silicon treatment. – P.S. Dutta, A.K. Sreedhar, H.L. Bhat, G.C. Dubey, Vikram Kumar, E. Dieguez**, U. Pal**, and J. Piqueras; *J. Appl. Phys.* **79** (1996) 3246-3252. (AIP, ISSN: 0021-8979, IF= **2.068**).

29. Electrical characterization of stable air-oxidized CdSe films prepared by thermal evaporation. – D. Samanta, B. Samanta, S. Ghorai, A.K. Chaudhuri and **U. Pal**; *Semicond. Sci. Technol.* **11** (1996) 548-553. (IOP, ISSN: 0268-1242, IF=**2.305**).

30. Near band gap photoreflectance studies in CdTe, CdTe:V and CdTe:Ge crystals. – **U. Pal**, J.L. Herrera Perez, J. Piqueras and E. Dieguez; *Mater. Sci. Eng. B* **42** (1996) 297-301. (Elsevier, ISSN: 0921-5107, IF= **2.552**).

31. Optical characterization of vacuum evaporated cadmium sulfide films. – **U. Pal**, R. Silva Gonzalez, G. Martinez Motes, J.M. Gracia Jimenez, M.A. Vidal and Sh. Torres; *Thin Solid Films* **305** (1997) 345-350. (Elsevier, ISSN: 0040-6090, IF= **1.879**).

32. Electron beam induced structural modification of the oxidized silicon micro-clusters in ZnO matrix. – **U. Pal**, N. Koshizaki, S. Terauchi and T. Sasaki; *Microscopy, Microanalysis and Microstructure* **8** (1997) 403-411. (EDP Sci., ISSN: 1154-2799, IF= **0.824**).

33. Infrared absorption and evidence of Si_3 nanocluster formation in Si/ZnO composites. **U. Pal**, J. Garcia-Serrano; *Solid State Commun.* **111** (1999) 427-430. (Elsevier, ISSN: 0038-1098, IF=**1.458**).

34. Effect of thermal treatment on the optical properties of colloidal Cu nanoparticles prepared by ion-implantation in quartz glass. – A. Bautista Hernandez, **U. Pal**, L. Rodriguez Fernandez and J.C Cheang Wong; *Superficies y Vacío* **9** (1999) 296-299. (ISSN: 1665-3521, IF=**0.0217**).

35. Structure of Si nano-clusters in ZnO matrix. – J. Garcia Serrano, **U. Pal***; Superficies y Vacio* **9** (1999) 184-187. (ISSN: 1665-3521, IF=**0.0217**)

36. Nanostructure and photoluminescence property of Si/MgO and Si/ZnO co-sputtered films.- N. Koshizaki, H. Umehara, T. Sasaki and **U. Pal**; *Nanostructured Materials*, Vol. **12** (1999) 975-978 (Pergamon-Elsevier, ISSN: 0965-9773, IF= **0.969**).

37. Effect of thermal annealing on the optical properties of high-energy Cu implanted silica glass. – A. Bautista Hernandez, **U. Pal**, L. Rodriguez Fernandez and J.C. Cheang Wong; *J. Non-Cryst. Solids* **275** (2000) 65-71. (Elsevier, ISSN: 0022-3093, IF= **2.124**).

38. Synthesis of CdS nanoparticles through colloidal rout. – **U. Pal**, G. Loaiza Gonzalez, A. Bautista Hernandez, O. Vazquez Cuchillo; *Superficies y Vacio* **11** (2000) 40-43. (ISSN: 1665-3521, IF=**0.0217**).

39. Preparation and characterization of functional and non-functional nanocomposites. **– U. Pal**, J. Garcia Serrano, A. Bautista Hernandez, O. Vazquez Cuchillo, E. Aguila Almanza, N. Koshizaki, and T. Sasaki; *Rev. Mex. Fis. (Mexican Journal of Physics)* **46** (S2) (2000) 79-82. (Acad. Mex. Fís, ISSN: 0035-001X, IF= **0.482**).

40. Synthesis of GaAs nanoparticles embedded in SiO_2 matrix by radio frequency co-sputtering. – **U. Pal**, A. Bautista Hernandez, N. Koshizaki, T. Sasaki and S. Terauchi; *Scripta Materialia* **44** (2001) 1841-1846. (Elsevier, ISSN: 1359-6462, IF= **3.747**).

41. Preparation of Au/ZnO nanocomposites by radio frequency co-sputtering. – **U. Pal**, E. Aguila Almanza, N. Koshizaki, T. Sasaki and S. Terauchi; *Solar Energy Materials and Solar Cells* **70** (2001) 363-368. (Elsevier, ISSN: 0927-0248, IF= **4.784**).

42. Synthesis of Cu/ZnO nanocomposites by radio frequency co-sputtering technique. – O. Vazquez Cuchillo, **U. Pal**, C. Vazquez Lopez; *Solar Energy Materials and Solar Cells* **70** (2001) 369-377. (Elsevier, ISSN: 0927-0248, IF= **4.784**).

43. Evolution of Cu Nanoparticles in Cu/ZnO nanocomposites. – O. Vazquez Cuchillo, **U. Pal**, C. Vazquez Lopez; *Acta Microscopica,* Vol. October 2001, PP 283-284. (Soc. Microsc. Electronica-CIASEM IF= **0.07**).

44. Effect of laser annealing on the distribution of defect levels in CdSe films. – **U. Pal**, S. Muñoz, L. Prado Gonzalez, R. Silva Gonzalez and J.M. Gracia Jimenez*; Thin Solid Films* **381** (2001) 155-159. (Elsevier, ISSN: 0040-6090, IF= **1.879**).

45. Formation and vibrational structure of Si nano-clusters in ZnO matrix. – J. Garcia Serrano and **U. Pal**; *Rev. Mex. Fis.* (Mexican Journal of Physics) **47** (2001) 26-29. (Acad. Mex. Fís, ISSN: 0035-001X, IF= **0.482**).

46. Determination of optical constants of Si/ZnO nano-composites by spectroscopic ellipsometry. – J. Garcia Serrano, N. Koshizaki, T. Sasaki, G. Martinez Montes, **U. Pal**; *J. Mater. Res.* **16** (2001) PP 3554-3559. (MRS, ISSN: 0884-2914, IF= **1.673**).

47. Study of the optical absorption of Cu clusters in the Cu/ZnO system.- O. Vazquez Cuchillo, A. Bautista Hernandez, **U. Pal**, and L. Meza Montes, *Modern Phys. Lett. B, Vol.* **15** (2001) PP 626-629. (World Scientific, ISSN: 0217-9849, IF= **0.617**).

48. Synthesis and characterization of Au/ZnO nanocompostes. **–U. Pal,** E. Aguila Almanza, O. Vazquez, N. Koshizaki, T. Sasaki and S. Terauchi; *Modern Phys. Lett. B, Vol.* **15** (2001) PP 679-682. (World Scientific, ISSN: 0217-9849, IF= **0.617**).

49. Preparation and characterization of Cu/ZnO nanocomposites. – O. Vazquez Cuchillo, **U. Pal**, C. Vazquez Lopez, *Modern Phys. Lett. B, Vol.* **15***,* (2001) PP 675-678. (World Scientific, ISSN: 0217-9849, IF= **0.617**).

50. Electron microscopic study of the formation of Au nanopatricles in Al_2O_3 matrix.- J. García Serrano, and **U. Pal**; *Acta Microscopica*, Vol. **October 2001**, (2001) PP 279-280. (Soc. Microsc. Electronica-CIASEM, ISSN: 07984545, IF=**0.07**)

51. Electron Microscopic characterization of bimettalic Au/Pd Nanoparticles.- J.F. Sánchez-Ramírez, G.A. Díaz-Guerro, A. Vázquez-Zavala, and **U. Pal**; *Acta Microscopica*, Vol. **October 2001**, (2001) PP 285-286. (Soc. Microsc. Electronica-CIASEM, ISSN: 07984545, IF=**0.07**)

52. Electron Microscopy study on the formation of Au nanoparticles in ZnO matrix.- E. Aguila Almanza, **U. Pal,** N. Koshizaki, T. Sasaki and S. Terauchi; *Acta Microscopica*, Vol. **October 2001**, (2001) PP 287-288. (Soc. Microsc. Electronica-CIASEM, ISSN: 07984545, IF=**0.07**).

53. Cathodoluminescence in Europium doped KCl Crystals.- R. Aceves, R. Perez-Salas, M. Barboza-Flores, U. Pal, M. Herrera Zaldivar, J. Piqueras; *Radiation Effects & Defects in Solids,* Vol. 154, (2001) PP 313-317. (Taylor & Francis, ISSN: 1042-0150, IF= 0.443).

54. Optical absorption of colloidal dispersion of bimetallic Au/Pd nanoparticles.- J. Francisco Ramirez, **U. Pal**; *Superficies y Vacio*, Vol. **13** (2001) 114-116. (ISSN: 1665-3521, IF=**0.0217**)

55. Optical characterization of Ge/ZnO nanocomposites.- G. Casarrubia segura, O. Zarate Corona, **U. Pal**; *Superficies y Vacio*, Vol. **13** (2001) 27-29. (ISSN: 1665-3521, IF=**0.0217**)

56. Preparation and optical absorption of collidal dispersion of Au/Cu nanoparticles.- J.F. Sanchez ramirez, C. Vazquez Lopez, **U. Pal**; *Superficies y Vacio*, Vol. **15** (2002) 16-18. (ISSN: 1665-3521, IF=**0.0217**)

57. Cathodoluminescence and optically active regions of intinsic and induced defects in Eu^{2+}- doped KCl crystals.- R. Aceves, R. Perez Salas, **U. Pal**; *Phys. Stat. Solidi b* **233** (2002) 364-372. (Wiley, ISSN: 1521-3951, IF= **1.674**).

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2. ***Production of biogas through photocatalytic delignification of biomass and the processes therein,*** *patent application # MX/a/2013/013482. Inventors: Griselda Corro and Umapada Pal.*
3. ***Process for producing a highly active photocatalyst from the scrap from nickel-cadmium electric storage batteries,*** *patent application # MX/a/2014/004300. Inventors: Griselda Corro and Umapada Pal.*

4. ***Fabrication and regeneration process of an adsorbent containing mixed oxide nanoparticles of Ti and Si efficient for adsorbing cationic dye molecules,*** *patent application # MX/a/2015/011850. Inventors: Umapada Pal and Griselda Corro.*

5. *Process of producing a photocatalyst of Cromium-silica for the production of biodiesel utilizing nonedible oils and solar radiation*, *patent application # MX/a/2016/016249. Inventors: Griselda Corro and Umapada Pal.*

DEVELOPD RESEARCH PROJECTS:

As Project leader: **25**

- **Fabricación de Heteroestructuras Semiconductoras de baja dimensionalidad para aplicación en Dispositivos Optoelectrónicos** (CONACyT, Mexico, No. 1351-PA), March 1996-February 1998.
- **Crecimiento y caracterización de Nuevos Nanocompositos Funcionales y No-funcionales para aplicaciones Optoelectrónicos y Fabricación de Detectores de Gases Tóxicos** (CONACyT, Mexico, No. 28380-E), January 1999-December 2001.
- **Preparation and characterization of Ge/ZnO nanocomposites** (VIEP-SEP-CONACyT, Mexico, No. II13I01), 2001-2002.
- **Synthesis and characterization of bimetallic nanoparticles of Pt- Ru for applications in electro-catalysis and fuel cells (**BUAP-CONACyT-SEP: II-194-04/EXC/I), July 2004-February 2005.
- **Syntesis, optical and elecetrical characterization of CdTe/ZnO and Ge/ZnO nanocomposites de (**BUAP-CONACyT: II-13I02**), May 2003-January 2004.**
- **Síntesis y caracterizacion de nanoparticulas bimetalicas de Pt-Ru para aplicaciones en electrocatalisis y Celdas de Combustible** (VIEP-BUAP-CONACyT, Mexico. Grant No. 11/I/EXC/05), June 2005-March 2006.

- **Novel metal oxide nanostructures for optoelectronic and radiation dosimetry applications** (CONACyT-SEP, Mexico. Grant No. 46269-A), July 2005-June 2008.
- **Investigating the effects of doping and trap states on the optical, electronic and structural properties of oxide nanostructures** (UC-MEXUS-CONACyT, Grant No. CN-05-215), July 2005-December 2006.
- **3rd Topical Meeting on Nanostructured Materials and Nanotechnology (NANOTECH-2006)** (Complimentary finance for Cientific Activities; CONACyT, Mexico, Grant No. 86). January 2006-September 2006.
- **Synthesis of zinc oxide nanostructures of different morphologies through thermolysis (VIEP-BUAP, Grant No. 27/EXC/06-1),** July 2006-June 2007.
- **Studies of luminescent properties of doped zinc oxide (ZnO) and tin oxide (SnO_2) nanostructures (VIEP-BUAP/2007),** July 2007-June 2008.
- **Morphology controlled hydrothermal synthesis of Tin Oxide nanostructures (VIEP/EXC/93/2008-1)**, July 2008-December 2009.
- **Synthesis of monodispersed magnetite nanoparticles protected by porous silica for biomedical applications (VIEP-BUAP/EXC/2011), January 2011-December 20111.**
- **Evaluation of Composite magnetite@meso-silica nanoparticles for Biological Applications (VIEP-BUAP/EXC/2012)**, January 2012-December 2012.
- **Fabrication of composite structures based on magnetic nanoparticles for biological applications** (CONACyT, Mexico, No. CB-2010/151767), May 2012-April 2015.
- **Synthesis of Cu-Zn bimetallic nanoparticle-supported TiO_2 nanospheres for catalytic applications** (VIEP-BUAP, VIEP/EXC/2013), January-December 2013.
- **Synthesis of Cu-Zn and Ag-Au bimetallic nanoparticle decorated mesoporousTiO_2 nanospheres for photocatalytic applications** (VIEP-BUAP, VIEP/EXC/2014), January-December 2014.
- **Acquiring infrastructure for the development of research in advanced materials at IFUAP** (CONACyT, INFRA-2014/ 230530, May-December, 2014)
- **Sintesis y auto-ensamble de nanopartículas de oro con diferentes tamaños y morfologías para fabricación de sensores químicos y biólogicos** (CUV-DITCo/2014-3).
- **Self-assembled gold nanoparticles for the fabrication of chemical and biological sensors (Stage-1)** (CUV-DITCo/2015-38, April-December, 2015).
- **Low-dimensional hybrid hierarchical nanoporous materials for environmental applications** (INDIA-MEXICO Billataral Project, CONACyT-DST, # 00163646), Sept 2012-August 2015.
- **Synthesis of Cu-Zn and Ag-Au bimetallic nanoparticle decorated mesoporousTiO_2 nanospheres for photocatalytic applications** (VIEP-BUAP, VIEP/EXC/2015), March - December 2015.
- **Self-assembled gold nanoparticles for the fabrication of chemical and biological sensors (Stage-2)** (CUV-DITCo/2016-13, April-December, 2016).
- **Development of reduced Graphene oxide -Metal oxide Nanocomposites for Photocatalytic applications** (VIEP-BUAP, VIEP/EXC/2016), March-December 2016.
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As Participant: 23

1. Optical properties of nanoparticles produced through ion implantation en cuartz simples (UNAM, Mexico, Grant # INI104999), Nov.2000-October 2002.
2. Síntesis, optical and structural characterization of Au/Al_2O_3 nanocomposites (UAEH, Hidalgo, Mexico, Grant No. PAU 2000), July 2000-June 2001.
3. Development of postgraduate program: Maestres and Doctorate program in physics and materials science (CONACYT, Mexico, Grant No. 481110-000/456/0/PAD) 1996-1998.
4. Caracterization of Semiconductor, Superconductor and Metal composites through SEM, EDS y AES techniques (CONACYT, Mexico, Grant No. 1600P-E9507), 1997-1999.
5. Complementary Experimental and Computacional Infrastructures for Investigation and postgraduates programs of IFUAP (FOMES96), SEP, Mexico, 1996.
6. Development of Postgraduate and Investigation of IFUAP (FOMES 97-98), 1997-1998.
7. Development of Postgraduate and Investigation in Materials Science of IFUAP (transversal project 1998-99), 1998-1999.
8. Development of Research streams and postgraduate programs of Instituto de Física "Luis Rivera Terrazas" (FOMES 99-22-09), SEP, Mexico, 2000.
9. Infrastructure development and betterment of Physics program of IFUAP (FOMES 2000-22-13), SEP, Mexico, 2000-2001.
10. Síntesis y caracterización óptica y estructural de nanocompositos de Au/Al_2O_3 (No. PAU 2000), Universidad Autonoma del Estado de Hidalgo, Mexico; July 2000 - June 2001.
10. Investigation and optimization of the CdTe/CdS Interface in an unconventional device configuration (CONACyT, Mexico, Grant No. 38542-U), 2002-2004.
11. Development of CdTe thin films over metallic substrates by Close Space Sublimation and development of a CdTe/CdS solar Cell with inverse structure (PAPIIT- UNAM, Mexico, Grant # IN115102), 2003-2005.
12. Development of New Materials for PEM type Fuel Cells (CIAM- CONACyT, Mexico, Grant No. 42146), 2004-2006.
13. Caracterization of Nanostructure systems by Transmisión Electron Microscopy (TEM) and Electron Holography (UNAM, Mexico, PAPIIT-IX107204), January 2004-December 2004.
14. Synthesis and characterization of unidimensional systems using mesoporos Al_2O_3 templates (UNAM, Mexico, PAPIIT- IN108303-3), January 2004-December 2006.
15. Studies and analysis of Linear and Nonlinear optical properties of nanostructure Systems (CONACyT, Mexico, Grant No. 42823), July 2004–June 2007.
16. Tunneling Microscopy and Spectroscopy in ZnO nanorods (SEP-CONACyT, Mexico; Grant No. 47505), July 2004-June 2008.
17. Development of polycrystalline thin film solar cells based on $CuIn(Ga)Se_2$ and CdTe (SEP-CONACyT, Mexico; Grant No. 47587), July 2005-June 2008.
18. Fuel Cells with nanostructured Pt and Pt-alloys supported on carbon nanotubes (CONACYT-Puebla Govt., Mexico; Grant No. 13), January 2005-December 2007.
19. **Nanohilos Semiconductores con Brecha de Energia Ancha. Crecimiento, Estudio de su Estructura Electronica y propiedades Luminiscentes** (SEP-CONACyT, Mexico, Grant No. 102519), January 2009-December 2011.
20**. Estudio de las propiedades Ópticas y electrónicas de defectos e impurezas en nanoestructuras de ZnO y SnO_2 por cátodoluminiscencia y espectroscopía túnel** (UNAM, Mexico, PAPIIT-IN107208), January 2008-December 2010.

21. **Depositación de nanopartículas de TiO_2 y ZnO en zeolitas para aplicaciones cataliticas** (UNAM, Cuernavaca, Mexico, PAPIIT-IN101709), January 2009-December 2011.
22. **Crecimiento y Estudio de Nanoestructuras de ZnO Unidimensionales Aplicadas en la Fabricación de Diodos** (CONACyT CB-2011/168027) 2012-2015.
23. **Structural changes associated with environmental factors in Lead-Halide Perovskite and TiO_2 Dye Sensitized Solar Cells** (CONACyT-CB-256946), August 2016-July 2019.

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2. Cathodoluminescence studies of α-HgI_2 platelets.- **U. Pal**, J. Piqueras, P. Fernández, M.D. Serrano, N.V. Sochinskii and E. Dieguez; Presented at *"The eleventh international conference on crystal growth (ICCG XI)*", The Hague (The Netherland), June 18-23, 1995.

3. Elimination of Te precipitates from CdTe wafers.- N.V. Sochinskii, M.D. Serrano, E. Dieguez, F. Agullo-Rueda, **U. Pal**, J. Piqueras, P. Fernández,; Presented at *"The eleventh international conference on crystal growth (ICCG XI)"*, The Hague (The Netherland), June 18-23, 1995.

4. Near band gap photoreflectance studies in CdTe, CdTe:V and CdTe:Ge crystals. – **U. Pal**, J.L. Herrera Perez, J. Piqueras and E. Dieguez; Proc. of the *"4th International Workshop on Beam Injection Assessment of Defects in Semiconductors (BIADS-4)"*, June 3-6, 1996, El Escorial, Spain, P 70.

5. Photoluminescence property of Si/MgO and Si/ZnO nanocomposites. – N. Koshizaki, H. Umehara, T. Sasaki, T. Oyama and **U. Pal**; Proc. of "*The first NIMC International Symposium on the Photoreaction Control and Photofunctional Materials [PCPM'98]"* (16-18 March, 1998, NIMC, Tsukuba, Japan) P4-17.

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86. Estudio de la Actividad Fotocatalítica de los Nanocompositos de Ag-TiO2.- E. Gómez, E. S. Mora, y **U. Pal**; "*VII Taller Nacional de Estudiantes de Posgrado de Física y Ciencia de Materiales (VII TNEPFCM)*", 11-13 March, Puebla, Mexico, 2008.
87. Effect of Antimony Doping on the Morphology and Luminescence Properties of Zinc Oxide Nanostructures.- A. Escobedo Morales and **U. Pal**; "*3rd Mexican Workshop on Nanostructured Materials*", 11-13 June, Mexico D.F., Mexico, 2008.
88. Caracterización Óptica y Morfológica de Nanoestructuras de ZnO Dopadas con Samario.- G. Muñoz Hernández, **U. Pal**, A. Escobedo Morales, R. Silva González, and Rosendo Andrés, "*3rd Mexican Workshop on Nanostructured Materials*", 11-13 June, Mexico D.F., Mexico, 2008.
89. Chemical Ordering in Ir-Pt, Rh-Pd and Pd-Ag Nanoclusters.- J. A. Reyes-Nava, **U. Pal**, and E. Valenzuela-Mondaca, "*3rd Mexican Workshop on Nanostructured Materials*", 11-13 June, Mexico, D.F., Mexico, 2008.
90. Formación de Nanopartículas Poliédricas de Au por Reducción con Polímeros Iónicos.- J. García-Serrano, A. M. Herrera, and **U. Pal**, "*3rd Mexican Workshop on Nanostructured Materials*", 11-13 June, Mexico D.F., Mexico, 2008.
91. Nanofluids Containing Monodisperse SiO_2 Nanospheres with Different Sizes and Concentrations.- D. Cornejo Monroy, J. F. Sanchez-Ramirez, J. A. Balderas-Lopez, **U. Pal**, J. G. Mendoza Alvarez, and M. E. Sánchez-Espíndola, "*3rd Mexican Workshop on Nanostructured Materials*", 11-13 June, Mexico D.F., Mexico, 2008.
92. Synthesis and Characterization of Colloidal Platinum Nanoparticles for PEMFC Applications.- B. Escobar Morales, S.A. Gamboa, **U. Pal**, Rene Guardián, D. Acosta, Carlos Magaña, and X. Mathew, "*3rd Mexican Workshop on Nanostructured Materials*", 11-13 June, Mexico, D.F., Mexico, 2008.

93. Synthesis, Characterization and Photocatalytic Application of Yb Doped TiO_2 Nanoparticles.- Mou Pal, **U. Pal**, R. Silva, and E. Sanchez. Mora, "*3rd Mexican Workshop on Nanostructured Materials"*, 11-13 June, México D.F., Mexico, 2008.
94. Efecto de la Concentración de HF en Propiedades de Emisión de Silicio Poroso.- T Flores-Arroyo, A Méndez-Blas, and **U Pal**, "*3rd Mexican Workshop on Nanostructured Materials*", 11-13 June, Mexico D.F., Mexico, 2008.
95. Synthesis and thermal stability of bimetallic nanoparticles.- **U. Pal**, H.B. Liu, P. Santiago, and J.F. Sanchez Ramirez; *"Joint Mexican-German topical Workshop. New opportunities for the understanding of structure-property relations of inorganic complex materials*", September 1-5, 2008, Puerto Escondido, Oaxaca, Mexico.
96. Effect of Ag doping on the optical properties of ZnO nanoparticles.- R. Sánchez-Zeferino, A. Escobedo-Morales, M. Barboza-Flores, and **U. Pal**; *NanoMex-2010* (Encuentro Internacional e Interdisciplinario em Nanociência y Nanotecnologia-2010), 18-19 Dicember, 2010, Cuernavaca, Morelos, México.
97. Fabricating iron oxide nanoparticles in hematite and magnetite phases by hydrothermal method. C.L. Gómez Muñoz, **U. Pal**; *NanoMex-2010* (Encuentro Internacional e Interdisciplinario em Nanociência y Nanotecnologia-2010), 18-19 December, 2010, Cuernavaca, Morelos, México.
98. ZnO/Ag nanocomposites grown by microwave assited chemical synthesis.- L. Ruiz Peralta, and **U. Pal**; *NanoMex-2010* (Encuentro Internacional e Interdisciplinario em Nanociência y Nanotecnologia-2010), 18-19 Dicember, 2010, Cuernavaca, Morelos, México.
99. Optical properties of hydrothermally grownAg doped SnO2 nanoparticles.- R. Sánchez Zeferino, A.Escobedo Morales, **U. Pal**; *LIII Congreso Nacional de Física*, 25-29 October 2010, Boca del Rio, Veracruz, Mexico. P156.
100. Synthesis of iron oxide nanoparticles with hematite and magnetite phases through low temperature hydrothermal process C.L. Gómez, Muñoz, **U. Pal**; *LIII Congreso Nacional de Física*, 25-29 October 2010, Boca del Rio, Veracruz, Mexico. P194.
101. Microwave assisted Chemical Synthesis of ZnO Nanostructures of Varied Morphology Maria de Lourdes Ruiz Peralta Raul Sánchez Zeferino **Umapada Pal**; *LIII Congreso Nacional de Física*, 25-29 October 2010, Boca del Rio, Veracruz, Mexico. P195.
102. Characterization of Ruthenium-doped Zinc Oxide thin films deposited by the sol-gel technique. - L. Castañeda, **U. Pal**; NANOTECH- 2011, 23-25 May, 2011, Tuxla Guttierez, Chiapas, Mexico.
103. PL and TL properties of Ag-doped SnO_2 nanoparticles.- R. Sánchez-Zeferino,U. Pal, R. Melendrez, and M. Barboza-Flores; Nanotech-2011, 23-25 May, 2011, Tuxla Guttierez, Chiapas, Mexico.
104. Gold nanoparticle decorated ZnO nanorods fabricated by microwave assisted chemical synthesis. – Ma. De L. Ruiz Peralta, E. Rubio Rosas, and **U. Pal**; Nanotech-2011, 23-25 May, 2011, Tuxla Guttierez, Chiapas, Mexico.
105. Effect of Hydrothermal treatment on the Particle size, Crystallinity, and defect structure of Magnetite (Fe_3O_4) Nanoparticles. - S.I. Uribe, and **U. Pal**; NANOMEX-2011, 9-11 November, 2011, Merida, Yucatan, Mexico.
106. Multifunctional metal oxide nanostructures and application potentials.**- U. Pal**, "*XIX Reunión Universitaria de Investigación en Materiales*, Hermosillo, Sonora, Mexico, Noviembre 19-21, 2014.
107. Effect of incorporation of large plasmonic nanoparticles on the electrodynamics and photovoltaic performance of dye sensitized solar cells.- J. Villanueva-Cab, J.L. Montano Priede, **U. Pal**. Tercer Simposio Internacional sobre Energías Renovables y Sustentabilidad, Cuernavaca, Mexico, September 9-11, 2015.

Talks delivered: 63 (**36** of them are Invited talk or Plenary lectures)

1. **Scanning cathodoluminescence in Defect Characterization of Semiconductors: A few examples.** Presented in the Instituto de Fisica, Benemeríta Universidad Autónoma de Puebla, Mexico, 24th March, 1995.
2. **Cathodoluminiscencia de Semiconductores:** Invited Talk, presented at the Instituto de Investigacion en Comunicación Optica (IICO), Universidad Autónoma de San Luis Potosi, Mexico, 26th April, 1996.
3. **Preparation and Characterization of Si/ZnO Composite Films:** Presented at the "*Primer Congreso Nacional de Cristalografia*", San Luis Potosi, Mexico, 26th November, 1997.
4. **Nano-Composites and their applications**: Invited Talk, presented at the Instituto de Investigaciones en Ciencias de la Tierra, Universidad Autonoma del estado de Hidalgo, Mexico, 11th March, 1999.
5. **Preparation and Characterization of Si/ZnO nano-composites**: Presented at the Instituto de Fisica, Benemerita Universidad Autonoma de Puebla, Mexico, 19th February, 1999.
6. **Synthesis of GaAs nanoparticles embedded in SiO_2 matrix by radio frequency co-sputtering:** talk presented at "*Nano 2000"*, **C**onvention Center, Sendai, Tohoku, Japan, 24th August, 2000.
7. **Study of the optical absorption of Cu clusters in the Cu/ZnO system:** Presented at the **"***III Workshop on Optoelectronic Materials and Their Applicactions (including solar cells)*", Oaxaca, 30th August, 2000.
8. **The Nanocomposites and their Applications:** Invited Talk, presented at the Universidad Popular Autónoma de Estado de Puebla (UPAEP), Puebla, Mexico, 6th October, 2000.
9. **Preparation and Characterization of Si:ZnO Nanocomposites:** Presented at the Department of Physics, Indian Institute of Technology, Kharagpur, India, 28th January, 2000.
10. **Preparation and properties of Functional and nonfunctional nanocomposits:** Invited Talk, presented at the Centro de Investigaciones en Dispositivos Semiconductores (CIDS), Benemerita Universidad Autonoma de Puebla, Mexico, 10th November, 2000.
11. **Preparation, Electrical and Optical Characterization of Cu/ZnO Nanocomposites:** Nanoarchitectonics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), 14th November, 2001, Tsukuba, Japan.
12. **Preparation of Ge/ZnO Nanocomposites by Alternate Radio Frequency sputtering:** *Invited talk* presented at the "*Internationa Symposium on Solar-Hydrogen-Fuel Cells 5*", Cancun, Mexico, August 27, 2001.
13. **Ciencia de Materiales:** XII Semana de Investigacion Cientifica, Academia Mexicana de Ciencia, Mexico, October, 2001.
14. **Nanomaterials and their Applications:** Presented at the "*9ª Semana Nacional de Ciencia y Tecnologia*", 11th October, 2002.
15. **Metal and Semiconductor dispersed nanocomposites: Synthesis, characterization and applications:** *Invited talk* presented at the "*First International Workshop on Nano-structure materials for New Energy Systems, Conversions and Applications"*, Instituto Mexicano del Petroleo; 27th February, 2003.
16. **Bimetallic Nanostructures: Synthesis and Characterizations**.- *Invited talk*, presented at the *"International Congress of Materials Research"*, Session: Naotructured Materials; Cancun, 17-21 August, 2003.
17. **Nanostructured Materials for Fuel Cell Applications.-** Presented in the session **"***Fuel Cells, Recent Developments and Applications",* ASTATPHYS-MEX-2003, Puerto Vallarta, Jalisco, Mexico, 26th August, 2003.

18. **Optical properties of nanostructured Materails.-** Invited talk presented at the "*Taller de Opticas Modernas"*, 22nd September, 2003, INAOE, Puebla, Mexico.
19. **Past Present and Future of Nanotechnology**.- Invited talk presented at the "*XLVI Congreso Nacional de Fisica*" 27-31 October, 2003, Merida, Yucatán, Mexico.
20. **Nanomaterials**: **Present advances and future prospects**.- Invited talk presented at the *"IX Simposio en Fisica de Materiales",* Centro de Ciencias de la Materia Condensada, UNAM, Ensenada, Mexico, 28-30 January, 2004.
21. **Nanostructured Materials for Solar Cell Applications.**- Invited talk, presented at the *"International Congress of materials Research"*, session: Solar energy Materials and Solar Cells; Cancun, Mexico, 24th August, 2004.
22. **Synthesis, structure and thermodynamic behavior of bimetallic nanoparticles**.- Invited talk, imparted at the "*International Congress of materials Research*, session: Solar energy Materials and Solar Cells, Cancun, 23rd August, 2004.
23. **Chemical synthesis of shape controlled ZnO nanostructures**.- Invited talk, imparted at the *"International Symposium on Advanced Materials and Processing"*, Materials Science Centre, Indian Institute of Technology, India, 6-8 December, 2004.
24. **Structural instability and dynamic behavior of bimetallic nanoparticles**.- Invited talk, imparted at the *"International Symposium on Advanced Materials and Processing"*, Materials Science Centre, Indian Institute of Technology, India, 6-8 December, 2004.
25. **Size, structure and composition controlled growth of bimetallic Au/Pd nanoclusters by chemical reduction**.- Imparted at the "*International Conference on Electrochemical Power Systems"*, Hyderabad, India. 20-21 December, 2004.
26. **Synthesis of ZnO nanostructures with controlled morphology**.- Imparted at the *"First Topical Meeting on Nanostructured Materials and Nanotechnology"*, CIO-2004, Centro de Investigacion en Opticas, Leon, Gto. 22-24 September, 2004.
27. **Nantubes**.- Invited, Intituto Tecnologico de Cierra Norte, Puebla, Mexico. 24 de Septiembre, 2004.
28. **Bimetallic nanoclusters**: **Synthesis, structure and thermodynamic stability**.- Imparted at the "*V International Workshop on Advanced Matereials Mexico-Korea*", January 24-27, 2005. San Luis Potosi, Mexico.
29. **Sintesis quimica de Nanostructures.-** Invited talk, presented at the Department of Chemistry, Universidad Autonoma del Estado de Mexico (UAEM), Estado de Mexico, Mexico, 2005.
30. **Nanoestructuras y Nanomanipulaciones: Durante y despues del crecimiento**.- Invited talk (Magistral Conference), presented at the "*Nanotron-2005"*, Facultad de Ciencias Electronica, Universidad Autonoma de Puebla, Mexico, 10 November, 2005.
31. **Dye-sensitized solar cells: Recent progress and future prospects**. Invited talk presented at the session Solar Cells and Solar Energy Materials (symposium-4) of the *"International Congress of Materials Research 2005"*, Cancun, Mexico, Agosto 23, 2005.
32. **Optical properties of ZnO nanostructures with different morphologies**.- Presented at the "*2nd Topical Meeting on Nanostructured Materials and Nanotechnology (Nanotech-2005)*" Ensenada, Mexico, 22-24 September, 2005.
33. **Nanoestructuras de oxidos metálicos para aplicaciones en opto-electronica**.- Invited Talk, presented at the "*22 Jornadas Academicas"*, El Instituto Tecnologico de Cancún, Mexico, 7th April, 2006.
34. **Síntesis de nanoestructuras semiconductoras con morfología controlada.-** Invited talk, presented at the "*VII coloquio bienal en ciencias de materiales"*, 20th April, 2007. Universidad de Sonora, Hermosillo, Sonora, Mexico.

35. **Síntesis controlada de nanoparticulas metalicas y sus aplicaciones**.- Magistral talk, presented at the "*XXII Congreso Nacional de la Sociedad Mexicana de Electroquimica y VII Semana de Geologia, Mineria, Metalurgia y Materiales*"; Pachuca, Hidalgo, 27th May, 2007.
36. **Nanostructuras de ZnO y TiO_2 dopadas con tierras raras.** - Invited talk, presented at the "*Second Meeting of DINANO*", Mexican Physical Socity (SMF), Veracruz, 1st June, 2007.
37. **Exfoliation of ZnO Nanorods**.- Department of Chemistry and Biochemistry, University of California, Santa Cruz, USA.
38. **Art of Controlling Seimocnductor Nanostructure Morphology**.- Invited Talk, presented at the "*National Seminars on Nanscience and Nanotechnology*", University of Guadalajara, Mexico, 25th July, 2007.
39. **Morphology and doping control in metal oxide nanostructures.-** Plenary lecture, presented at the **"***XXV of Mexican Society of Science and Technology of Surfaces and Materials*", Oaxaca, 24 th September, 2007.
40. **Synthesis and thermal stability of bimetallic nanoparticles.-** talk presented at the *"Joint mexican-German topical Workshop: New opportunities for the understanding of structure-property relations of inorganic complex materials"* September 3, 2008, Puerto Escondido, Oaxaca, Mexico.
41. **Study of photoluminescence properties of In- Sb- and Ga-doped ZnO nanostructures**.- Presented in the "*9th International Conference on Nanostructured Materials (NANO2008)*", 1-6 June, Río de Janeiro, Brazil, 2008.
42. **Size and Morphology Controlled Synthesis of SnO_2 Nanocrystals in Low Temperature Hydrothermal Process**.- Presented at the "*XVII International Materials Research Congress*", 17-21 August, Cancun, Mexico, 2008.
43. **Effect of Temperature and *p*H on the Morphology, Crystallinity and Vibrational Properties of Hydrothermally Grown SnO_2 Nanostructures**.- Invited Talk, presented in the "*Fifth International Topical Meeting on Nanostructured Materials and Nanotechnology (NANOTECH 2008)*", 24-26 Noviembre, México, D.F., 2008.
44. **Thermal stability, melting mechanism, and chemical ordering in bimetallic nanoclusters**.- talk presented at the *Instituto de Física, benemerita Universidad Autonoma de Puebla, Mexico.* September 12, 2008.
45. **Controlling the morphology of metal oxide nanostructures in chemical synthesis**.- Invited Talk, presented at the "*2nd International Symposium on Advanced Materials and Polymer for Aerospace and Defence Applications (SAMPADA 2008)*" 8-12 December, 2008, YASHADA MD Center, Pune, India.
46. **Materiales Nanoestructurados para Aplicaciones en Catálisis, Medicina y Óptpelectronica**.- Plenary Lecture, II Congreso Nacional de Ciencia e Ingeniería en Materiales, Universidad Autónoma de Estado de México, 17th February, 2011.
47. **Nanoestructuras y Biotecnología: Aplicaciones Medicinales y Clínicas.-** Invited Talk, 1st Biotechnology Engineering Congress, 25th March, 2011, UPAEP, Puebla, Mexico.
48. **Nano-Diamonds: Synthesis and Applications.-** Invited Talk (Symposium 17), XX IMRC 2011, Cancun, 14-19 August, 2011.
49. **Core-shell type composite nanoparticles for bio-medical applications**.- Invited Talk, CIICAP, 10th June, Uinversity of Morelos, Cuernavaca, Mexico.
50. Metal oxide nanostructures for optoelectronic, catalytic and biomedical applications.- Invited Talk, 26th October, 2011, CINVESTAV, Queretaro, Mexico.
51. Porous and non-porous TiO_2 nanostructures for ambiental applications.- Invited talk, 13th August, at XXII International Materials Research Congress, Cancun, 2013.
52. Diseño y Síntesis de Nanoestructuras para Aplicaciónes Especificas.- Invited talk, Institute of Physics, Autonomous University of San Luis Potosi, Mexico, 4th december, 2013.

53. Nanostructured mixed oxides of titanium, silicon and aluminum as efficient dye absorbing materials.- *Invited talk*, A. Sandoval, **U. Pal**, V. Sharma, and P. Mohanty, *"EMN Summer Meeting"*, Cancun, Mexico, June 9-12, 2014 (invited talk)Talk EMN-Cancun-2014

54. Platinum-doped Tin Oxide Nanoparticles as efficient Catalyst for Methane Oxidation.- *Invited talk,* **U. Pal**, and G. Corro, *EMN Meeting on Ceramics 2015*, Orlando, FL, USA, January 26-29, 2015.

55. Fabricación y Aplicaciones Emergentes de Nanoestructuras Plasmonicas.- *Invited Seminar*, (Seminario Sotero Prieto), **U. Pal,** Department of Solid State Physics, National University of Mexico, mexico, january 21, 2015.

56. Self-assembly of plasmonic nanostructures for applications as SERS substrates.- **U. Pal**, D.N. Castillo López. Invited talk at *XXIV International Materials Research Congress*", Cancun, Mexico 15-20 August, 2015.

57. Fabrication of ZnO multipod nanostructures through seed mediated low-temperature solution growth process.- A. López Vazquez, J.L. Montaño Priede, E. De Anda, **U. Pal**. *XXIV International Materials Research Congress*", Cancun, Mexico 15-20 August, 2015.

58. Morphology evolution and defect structure of 1-D In_2O_3 nanostructures grown by VLS process.- **Umapada Pal**, Jesús Alberto Ramos Ramón, Rutilo Silva Gonzalez, Ana Cremades. NANO 2016, Québec, Canada, 7-12 August, 2016.

59. Nanocompositos metal/metal óxido como fotocatalizadores para degradación de moléculas orgánicas.- Invited talk, presented at Nanotechnology Congress, Ministry of Education, San Salvador, El Salvador, 10-11 June, 2016.

60. Diseño de nanoestructuras plasmonicas para fabricación de biosensores. Invited talk, presented at Nanotechnology Congress, Ministry of Education, San Salvador, El Salvador, 10-11 June, 2016.

61. Metal - metal oxide composites as photocatalysts for degradation of organic molecules. *Invited talk*, presented at CARIBMAT-16, Santo Domingo, 8-11 October, 2016.

62. Fabrication of Plasmon based molecular sensors. Invited talk, presented at *XXVI International Materials Research Congress*", Cancun, Mexico 20-25 August, 2017.

63. Controlling Near-electric field in Core-shell Plasmonic structures for SERS applications.- Invited talk, José Luis Montaño Priede, J. Villanueva-Cab, **U. Pal,** presented at CARIBMAT-18, Cartagena de India, Colombia, 6-9 February, 2018.

COURSES IMPERTED: 27 (several times each)

Materials Science: Bachelor (Electronic Science), FCE, BUAP, Mexico (2008, 2010).
Semiconductor Physics: Bachelor (Electronic Science), FCE, BUAP, Mexico (2007).
General Physics with Laboratory: Bachelor (Engineering), Engineering Faculty, BUAP, Mexico (2011).
Nanostructures: Master (Optative; Materials Science), IFUAP, BUAP, Mexico (1998, 1999, 2002, 2004, 2005, 2006, 2007, 2008, 2011, 2012, 2013, 2014 and 2015).
Materials research laboratory: Master (Materials science), IFUAP, BUAP, Mexico (1998, 1999, 2000, 2001, 2004, 2006, 2010, and 2011).
Methods of Materials Preparation: Master (Materials Science), IFUAP, BUAP, Mexico (1998, 2001, 2005, 2006, 2007, 2008).
Raman Spectroscopy: Doctoral (Optative; Semoconductor Devices), CIDS, BUAP, Mexico (2011).

Molecular Physics: Bachelor (Electronic Science), FCE, BUAP, Mexico (2006).
Electromagnetic theory: Bachelor (Electronic Science), FCE, BUAP, Mexico (2004).
Thermal Physics: Preparatory course for Master students (Materials Science), IFUAP, BUAP, Mexico (2000).
General Chemistry: Preparatory course for Master students (Materials Science), IFUAP, BUAP, Mexico (2010).
Surface Analysis Techniques: Maester (Optative; Materials Science), IFUAP, BUAP, Mexico (2000).
Electricity and Magnetism: Bachelor (Electronic Science), FCE. BUAP, Mexico (2001, 2003, 2005).
Kinetics and thermodynamics of Materials: Master (Materials Science), IFUAP, BUAP, Mexico (1999, 2003).
Preparation and characterization of Nanocomposites: Master (Materials Science), IFUAP, BUAP, Mexico (1999).
Physics and Chemistry of Surfaces: Doctoral (Materials Science), IFUAP, BUAP, Mexico (1998).
Optical and Magnetic characterization of Materials: Master (Materials Science), IFUAP, BUAP, Mexico (1997).
General Examination preparation seminar: Doctoral (Materials Science), IFUAP, BUAP, Mexico (2012, 2013, 2014).
Thesis Seminar I: Doctoral (Materials Science), IFUAP, BUAP, Mexico (2014, 2015).
Thesis Seminar II: Doctoral (Materials Science), IFUAP, BUAP, Mexico (2015, 2016).
Physics of Semiconductors: Bachelor (Electronic Science), FCE, BUAP, Mexico (2007).
Thin Film Phenomena I: Doctoral (Materials Science), IFUAP, BUAP, Mexico (1996).
Thin Film Phenomena II: Doctora (Materials Science), IFUAP, BUAP, Mexico (1997).
Semiconductors: Doctoral (Materials Science), IFUAP, BUAP, México (1996).
X-ray and General Physics: Master (Physics), Vidyasagar University, Midnapore, India (1991- 1992).
Solid State Physics: Special paper (Masters in Physics), Vidyasagar University, Midnapore, India (1990-1991, 1991-1992).
Nuclear Physics: Two-body and many-body Problems: Master (Physics), Vidyasagar University, Midnapore, India (1991).

Organization of scientific events:

International advisory committee member of the symposium "*Solar Energy Materials and Solar Cells*" in the "***International Materials Research Congress, 2003"***, Cancun, Mexico, August 17-21, 2003.
Organizer (Co-chairman) of the session "*Progress on Composite Materials*, in the ***International Materials Research Congress***, 2003", Cancun, Mexico, August 17-21, 2003.
Organizing committee member of the "*International Workshop on the Present Status of Hydrogen*", celebrated in Instituto Mexicano de Petroleo, Mexico D.F., Mexico. August 21-22, 2003.
International advisory committee member of the "*Solar Hydrogen Fuel cell-8*" (Symposium 2) of the "***International Materials Research Congress 2004",*** Cancun. Mexico, August 22-26, 2004.
International advisory committee member of the "*Solar Hydrogen Fuel cell-8*" (Symposium 2) of the "***International Materials Research Congress 2005",*** Cancun. Mexico, August 20-25, 2005.
Organizing Commettee member of *"ASTRA-Physics-2002"***,** Puerto Vallarta, Mexico.
Organizing Commettee member of the *"Topical Meeting on Nanostructured Materials and Nanotechnology* ***(Nanotech-2004)",*** Leon, Guanajuato, Mexico.
Organizing Committee membre of the **"***2nd Topical Meeting on Nanostructured Materials and Nanotechnology* ***(Nanotech-2005)",*** Ensenada BC., Mexico.

Organizer (Chairman) of the **"***Mexican Workshop on Nanostructured Materials"***,** 2-4 May, 2006, Institute of Physics, Autonomous University of Puebla, Mexico.
Organizing committee member of "Escuela de Microscopia y Escuela Virtual de Microscopia en el Año Internacional de la Física" IFUNAM-IFUAP, August 2005.
Organizing committee member of "Escuela de Microscopia y Escuela Virtual de Microscopia" IFUNAM-IFUAP, August 2006.
Organizer (Chairman) of the **"***3rd International Topical Meeting on Nanostructured Materials and Nanotechnology* ***(Nanotech-2006)"*****,** 24-28 September, 2006, Puebla, Mexico.
Organizer (Chairman) of the "*2nd Mexican Workshop on Nanostructured Materials"***,** 15-18 May, 2007, Puebla, Mexico.
Organizing committee member of the "*Latinamerican Microscopy School*" IFUNAM, Mexico, July 30- August 3, 2007.
Organizer (Co-chairman) of the Symposium-19, "*Advanced Semiconducting Mterials*" in the the **International Materials Research Congress-2007**, Cancun, Mexico, 28 October-1st November, 2007.
Organizing Committee member of the **"***4th International Topical Meeting on Nanostructured Materials and Nanotechnology* ***(Nanotech-2007)",*** 12-14 November, Monterry, Nuevo Leon, Mexico.
Organizing Committee member of the "*3rd Mexican Workshop on Nanostructured Materials***",** 11-13 June, Mexico D.F., Mexico, 2008.
Organizing Committee member of the **"***5th International Topical Meeting on Nanostructured Materials and Nanotechnology* ***(Nanotech-2007)",*** 24-26 November 2008, Mexico City, Mexico.
Organizer (Co-Chairman) of the "*Symposium 19 (Advances in Semiconducting Materials), XVII IMRC* 2008", Cancun, 16-20 August, 2008.
Organizing Committee member of the **"***6th International Topical Meeting on Nanostructured Materials and Nanotechnology* ***(Nanotech-2009)"*****,** 17-19 September, 2009. San Carlos, Nuevo Guaymas, Sonora, Mexico.
Organizing Committee member of the **"**7th International Topical Meeting on Nanostructured Materials and Nanotechnology **(Nanotech-2010)",** 21-23 May, 2010. Chiapas, Mexico.
Organizer (Chairman) of the *4th Mexican Workshop on Nanostructured Materials*, 19-22 March, 2013, Puebla, Mexico.
Organizer (Chairman) of the 5th Mexican Workshop on Nanostructured Materieals, 26-28 November, 2014, Instituto de Física, Benemérita Universidad Autónoma de Puebla, Mexico.
Organizer (Chairman) of the *6th Mexican Workshop on Nanostructured Materials*, 12-15 October, 2016, BUAP, Puebla, Mexico (home page: http://www.ifuap.buap.mx/eventos/MWNM16/)
Scientific Committee member of CARBMAT 2016, Santo Domingo, 08-11 November, 2016 (http://cultura.fis.ucm.es/caribmat/index.php/es/)

EDITORIAL:

- **Guest Editor** of the Mexican Journal of Physics (Revista Mexicana de Fisica, Mexican Physics Society) Vol. S 53, No. 5, 2007.
- **Guest Editor** of the Journal of Nanoscience and Nanotechnology (American Scientific Publishers) Vol. 8, No. 12, 2008.
- **Guest Editor** of the Journal of Nano Research, (Trans Tech Publication, Switzerland) Vol. 5, 2009.

- **Guest Editor** of the Journal of Nano Research, (Trans Tech Publication, Switzerland) Vol. 9, 2010.
- **Associate Editor** of the open access journal **IST transactions of Renewable and Sustainable Energy (RSE)**, IST Press, Hamilton, Ontario, Canada (since 2007).
- **Associate Editor** of the open access journal **International Scholarly Research Notices,** Hindwai (since 2012)**.**
- **Associate Editor** of **Advances in Nano Research,** Techno Press, KIST, Seoul, Republic of Korea (since 2013).
- **Associate Editor** of **Materials Science Research India,** Allahabad, India (since 2017).

Awards & Honors:

1. Catedra Patrimonial Level II (CONACYT, Mexico): 1995-1997.
2. Member of National Investigator System (SNI), Mexico: Level I (1997-2003).
3. Member of National Investigator System (SNI), Mexico: Level II (2004-2007).
4. Member of National Investigator System (SNI), Mexico: Level II (2008-2010).
5. Member of National Investigator System (SNI), Mexico: Level III (2011-2015).
6. Received **State Science and Technology Award**, State Council of Science and Technology (CECyT), Puebla, Mexico, October 2003.
7. Excellence in Computation Basic and Programming, IEEE, Kharagpur chapter, India, 1987.
8. Doctoral examination committee member, Bharathiar University, India (1998-till date).
9. Doctoral and master's examination committee member, UNAM, Mexico, (2002-till date).
10. Project evaluator of the National Science and Technology Council (CONACyT), Mexico (1998-till date).
11. Project evaluator of the National Council of Science and Technology (CONICyT), Argentina, 2007-2010.
12. Member of review committee of "State Science and Technology Award", Quintana Roo state, Mexico (2007).
13. Member of review committee of Scientific Projects, Universidad de Iberoamericana, Mexico, 2008.
14. Member of the Scientific Committee of NANOEULA (Nanotechnology Consortium between EU and Latin America).
15. **Special recognition** by the University of Sonora, for **Contribution in Nanoscience and Nanotechnology in Mexico**, at the Nanotech 2009.
16. **Brain Pool Fellow** of the Korean Ministry of Science and Technology, January2009-December 2009.

17. **Reviewer of more than 75 International and National Journals:** *Superficies y Vacio* (since 1997); Revista Mexicana de Física (since 2000); ***Solar Energy Materials and Solar Cells*** (Elsevier, since 2000); *Optical Materials* (Elsevier, since 2000); *Journal of New Materials for Electrochemical Applications* (since 2001); *Materials Science and Engineering B* (Elsevier, since 2002); *Journal of Materials Science* (Springer, since 2008); *Materials Letters* (Elsevier, since 2010); ***International Journal of Hydrogen Energy*** (Elsevier, since 2002); *Applied Physics A:Materials Science & Engineering* (Springer, since 2004); ***Journal of Physical Chemistry B*** (ACS, since 2004); ***Journal of Physical Chemistry C*** (ACS, since 2007); ***Crystal Growth and Design*** (ACS, since 2005); *Applied Surface Science* (Elsevier, since 2005); *Materials Chemistry and Physics* (Elsevier, since 2005), ***Optics Communication*** (Elsevier, since 2006); *Journal of American*

Ceramic Society (Am. Cer. Soc.; since 2006); *Journal of Crystal Growth* (Elsevier, since 2005); *Vacuum* (Elsevier, since 2005); *Journal of Physics and Chemistry* (since 2005); *J. Nanoscience and Nanotechnology* (ASP, since 2006); ***Nanotechnology*** (IOP, since 2007); *Mexican Journal of Physics* (SMF, since 2006), *Journal of Physics D* (IOP, since 2006), ***Langmuir*** (ACS, since 2007); *Physica E* (Elsevier, since 2007); ***Chemical Physics Letters*** (Elsevier, since 2007); *Semiconductor Science and Technology* (IOP, since 2007); *Current Applied Physics* (Elsevier, since 2007); *Nano Trends* (since 2008); Journal of Nano Materials (Hindwai, since 2009); Journal of Nano Research (TTP, since 2009); ***Journal of Applied Physics*** (AIP, since 2008); ***Applied Physics Letters*** (AIP, since 2009); *Applied Optics* (OSA, since 2009); *Asian Journal of Physics* (since 2009); ***ACS Nano*** (since 2009); *International Journal of Nanotechnology* (since 2009); ***J. Materials Chemistry*** (RSC, since 2008), ***Journal of Environmental Science*** (Elsevier, since 2010); ***Phys. Chem. Chem. Phys.*** (RSC, since 2010); ***Applied Catalysis A*** (since 2011); ***Applied Catalysis B*** (Elsevier, since 2013), ***Energy and Environmental Sci.*** (RSC, since 2011); ***Nanoscale*** (RSC, since 2011); ***RSC Advances*** (RSC,since 2012), ***Progress in Photovoltaics*** (Willey, since 2015) ***Optics Letters*** (since 2011), ***Optics Experess*** (since 2913), Journal of Electronic Matetials, (IEEE since 2014), ***J. Hazadrous Materials*** (Elsevier, since 2015), etc.

18. Listed in Marquis Who's Who in the World (since 2000); Member of Who´s Who Historical Society of Professionals (since 2004).
19. Member of Mexican Surface Science and Vacuum Society; Mexican Crystallography Society (founding member); Mexican Physics Society; Mexican Academy of Science; Mexican Academy of Materials; American Chemical Society; founding member of section DNANO of the Mexican Physics Society.

Signature and date:  April, 2018.