

CURRICULUM VITAE

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Centro de Estudios de Semiconductores

DEPARTAMENTO DE FÍSICA

FACULTAD DE CIENCIAS

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A) Datos Personales

1.- Nombres:	Carlos Gustavo
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4.- Dirección de Trabajo:	Dep. de Física, Fac. de Ciencias, ULA, Mérida
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B) Estudios Realizados

<u>Secundaria</u>	Liceo "Libertador" (1966 -1971)
<u>Universitaria</u>	
2.1. Institución :	Universidad de Los Andes
2.2. Años:	1972 - 1977
3 .1 Título Obtenido:	Licenciado en Física

C) Cargos Desempeñados

1. 1979 - 1981	Instructor por Concurso
2. 1981 - 1985	Profesor Asistente
3. 1983 - 1985	Miembro del Consejo del Departamento de Física
4. 1985 - 1988	Profesor Agregado
5. 1987 – 1992	Miembro de la Sub-comisión evaluadora de proyectos en el área de Física y Matemáticas del CDCHT
6. 1988 - 1993	Profesor Asociado
7. 1988 – 1991	Miembro del Consejo de la Facultad de Ciencias
8. 1993 -	Profesor Titular
9 2000	Profesor del Postgrado en Física de la Materia Condensada (Ciencias, ULA)
10. 2000-2002	Miembro del Consejo del Departamento de Física
11. 2000-2002	Representante del Consejo Universitario ante la Comisión Científica del CDCHT
12. 2002 – 2005	Miembro del Consejo de la Facultad de Ciencias
13. 2005 – 20057	Miembro del Consejo de la Facultad de Ciencias

D) Reconocimientos

- 1.- Miembro del *Sistema de Promoción al Investigador (SPI)*,
 Clasificado como:
 - a) Investigador Nivel II (1990 -1993)
 - b) Investigador Nivel III (1993-1997)
 - c) Investigador Nivel III (1997-2001)
 - d) Investigador Nivel III (2001-2002)
 - e) Investigador Nivel IV (2002-2007)

- 2.- Miembro de la Subcomisión evaluadora (1995 - 1999)
 del *Sistema de Promoción al Investigador, en*
 las áreas de Física, Química y Matemáticas

- 3.- Premio "*Francisco de Venanzi*", en el área (1995)
 de *Ciencias Físicas*, otorgado por la Cátedra
 "*Francisco de Venanzi*" Facultad de Ciencias,
 Universidad de Los Andes, Mérida.

- 4.- Premio "*Lorenzo Mendoza Fleury*" de la Fundación Polar (1997).
- 5.- Premio Conaba (Nivel III) (1998)
- 6.- Premio CONADES (1998)

- 7.- Premio Conaba (Nivel I) (2000)
- 8.- Premio Conaba (Nivel III) (2003)

7.- Árbitro de las siguientes Revistas de Física:

- i) *Physical Review B*
- ii) *Journal of Crystal Growth*
- iii) *Physica Status Solidi*
- iv) *Materials Letters*
- v) *Revista Técnica de Ingeniería (LUZ)*

E) Publicaciones en Revistas Científicas

1. **Efecto de las vacancias en la estructura de bandas de semiconductores ternarios I-III-VI₂,**
P. Negrete, J. González, C. Bellabarba, C. Rincón y A. Torres,
Acta Científica Venezolana **30**, 265 (1979).
2. **Crecimiento y características generales de cristales de la familia I-III-VI₂,**
C. Rincón, A. Torres, C. Bellabarba, J. González y P. Negrete,
Acta Científica Venezolana **30**, 271 (1979).
3. **Photodetecting properties of CuInSe₂ homojunctions,**
J. González, C. Rincón, A. Redondo and P. Negrete,
Japanese Journal of Applied Physics **19**, supp. 19-3, 29 (1980).
4. **Optical absorption of CuInSe₂ in bulk single crystal,**
C. Rincón, J. González and G. Sánchez Pérez,
Physica Status Solidi (b) **108**, K19 (1981).

5. **Influence of impurities in the optical properties of CuInSe₂ near the fundamental absorption edge,**
C. Rincón and J. González,
Physica Status Solidi (b) **110**, K171 (1982).
6. **Temperature dependence of the energy gap in CuInSe₂,**
C. Rincón, J. González and G. Sánchez Pérez,
Phys. Status Solidi (b) **117**, K123 (1983).
7. **Residual optical absorption below the band-gap in CuInSe₂,**
C. Rincón and J. González,
Physica Status Solidi (b) **118**, K21 (1983).
8. **Impurity states near the fundamental absorption edge in p-CuInS₂,**
R. Tovar, J. González and C. Rincón,
Physica Status Solidi (b) **118**, K103 (1983).
9. **Direct phonon-assisted transitions near the fundamental absorption edge in CuInSe₂,**
C. Rincón, J. González, G. Sánchez Pérez, and C. Bellabarba,
Il Nuovo Cimento D **2**, 1985 (1983).
10. **Luminescence and impurity states in CuInSe₂,**
C. Rincón, J. González and G. Sánchez Pérez,
Journal of Applied Physics **54**, 6634 (1983).
11. **Reflectance and absorption spectra near the fundamental absorption edge in CuInSe₂,**
C. Rincón, J. González and G. Sánchez Pérez,
Solid State Communications **48**, 1001 (1983).

12. **Influence of intrinsic defects on electrical properties of CuInSe₂,**
C. Rincón and G. Sánchez Pérez,
Physica Status Solidi (a) **81**, K77 (1984).
13. **Influence of the carrier concentration on the optical absorption edge of n-CuInSe₂,**
C. Rincón and G. Sánchez Pérez,
Solid State Communications **50**, 899 (1984).
14. **Optical absorption study of CuInTe₂ crystal grown from near stoichiometric compositions,**
S. M. Wasim, A. La Cruz and C. Rincón,
Solid State Communications **51**, 935 (1984).
15. **Optical properties and defect chemistry of p-CuInS₂,**
R. Tovar, C. Rincón, J. González and G. Sánchez Pérez,
Journal of Physics and Chemistry of Solids **45**, 1185 (1984).
16. **CuInSe₂ - based photoelectrochemical cells: Their use in characterization of thin CuInSe₂ films and as photovoltaic cells per se,**
D. Cahen, Y. Chen, P. Ireland, R. Noufi, J. C. Turner, C. Rincón and K. Bachmann,
Proc. 17th IEEE P. V. Spec. Conf. IEEE NY, 786 (1984).
17. **Optical absorption edge of copper annealed CuInSe₂ single crystals,**
C. Rincón and G. Sánchez Pérez,
Progress of Crystal Growth and Characterization **10**, 307 (1985).
18. **Electrical and optical properties of near-stoichiometric samples of CuInTe₂,**
A. La Cruz, C. Rincón, G. Sánchez Pérez and S. M. Wasim,
Progress of Crystal Growth and Characterization **10**, 283 (1985).

19. **n-Cu-In-Chalcogenide-Based Photoelectrochemical Cells,**
D. Cahen, G. Dagan, G. Hodes, Y. Mirowsky, Y. Chen, J. Folmer, P. Ireland, R. Noufi, J. Turner, K. Bachmann, S. Endo, C. Rincón, G. Sawatzky and M. Tomkiewicz,
Progress of Crystal Growth and Characterization. **10**, 263 (1985).
20. **On the temperature dependence of the fundamental absorption edge in CuInSe₂,**
C. Rincón, S. M. Wasim and H. Neumann,
Solid State Communications **54**, 269 (1985).
21. **Optical properties and characterization of copper indium diselenide,**
C. Rincón, C. Bellabarba, J. González and G. Sánchez Pérez,
Solar Cells **16**, 335 (1986).
22. **Temperature dependence of the band gap in CuInSe₂,**
C. Rincón and J. González,
Solar Cells **16**, 357 (1986).
23. **Degeneracy effect on the optical properties of CuInSe₂,**
C. Rincón and G. Sánchez Pérez,
Solar Cells **16**, 363 (1986).
24. **Optical properties of copper indium diselenide near the fundamental absorption edge,**
C. Rincón and C. Bellabarba,
Physical Review B **33**, 7160 (1986).
25. **Photoconductivity and valence-band structure of AgInTe₂,**
C. Bellabarba, J. González, C. Rincón and M. Quintero,
Solid State Communications **58**, 243 (1986).
26. **Defect chemistry in A^IB^{III}C^{VI}₂ chalcopyrite semiconducting compounds,**

- C. Rincón and S. M. Wasim,
Ternary and Multinary Compounds, (Edited by S. K. Deb and A. Zunger, Mater, Res. Soc. Pittsburgh, 1987) p. 443.
27. **Electrical properties of CuGaTe₂ grown from near stoichiometric composition**,
R. Valero, S. M. Wasim, C. Rincón and F. Sánchez Pérez,
Ternary and Multinary Compounds, (Edited by S. K. Deb and A. Zunger, Mater, Res. Soc. Pittsburgh, 1987) p. 115.
28. **On the order-disorder phase transition in ternary compounds**,
C. Rincón,
Solid State Communications **64**, 663 (1987).
29. **A model for the band-gap shrinkage in the chalcopyrite semiconductor CuInSe₂**
C. Rincón,
Solid State Communications **64**, 15 (1987).
30. **On the deformation potentials in CuInSe₂**,
C. Rincón,
Journal of Physics and Chemistry of Solids **49**, 391 (1988).
31. **Phase diagram in CuIn(S_xTe_{1-x})₂ alloys**,
P. Grima, M. Quintero, C. Rincón, G. Sánchez Pérez and J. C. Woolley,
Solid State Communications **67**, 81 (1988).
32. **Temperature variation of energy gaps and deformation potentials in CuGa(S_xSe_{1-x})₂ semiconductor alloys**,
M. Quintero, C. Rincón and P. Grima,
Journal of Applied Physics **65**, 2739 (1989).
33. **Optical absorption and phase transitions in CuInSe₂ and CuInS₂ single crystals**,
J. González and C. Rincón,

Journal of Applied Physics. **65**, 2031 (1989).

34. **Acoustical deformation potentials in $A^I B^{III} C^{VI}_2$ chalcopyrite semiconductors**,
C. Rincón and J. González,
Physical Review B **40**, 8552 (1989).
35. **Analysis of direct exciton transitions in $CuGa(S_x Se_{1-x})_2$ alloys**,
L. Roa, C. Rincón, J. González and M. Quintero,
Journal of Physics and Chemistry of Solids **51**, 551 (1990).
36. **Optical absorption and phase transitions in Cu-III-VI₂ compound semiconductors at high pressure**,
J. González and C. Rincón,
Journal of Physics and Chemistry of Solids **51**, 1093 (1990).
37. **Variation of the energy gap with composition in $A^I B^{III} C^{VI}_2$ chalcopyrite alloys**,
T. Tinoco, M. Quintero and C. Rincón,
Physical Review B **44**, 1613 (1991).
38. **T(z) phase diagram and optical energy gaps in $CuGa(Se_z Te_{1-z})_2$ alloys**,
M. Quintero, T. Tinoco and C. Rincón,
Journal of Electronic Materials **20**, 353 (1991).
39. **Phase diagram and optical energy gaps for $CuIn_y Ga_{1-y} Se_2$ alloys**,
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Physica Status Solidi (a) **124**, 427 (1991).
40. **Order-disorder transition in ternary chalcopyrite compounds and pseudobinary alloys**,

- C. Rincón,
Physical Review B **45**, 12716 (1992).
41. **Temperature dependence of the acoustic deformation potentials in CuInSe₂ and CuInTe₂,**
C. Rincón and B. Fernández,
Physica Status Solidi (b) **170**, 531 (1992).
42. **Optical energy gap values and deformation potentials in four Cu-III-VI₂ chalcopyrite compounds,**
M. Quintero, C. Rincón, R. Tovar and J. C. Woolley,
Journal of Physics C.:Condensed Matter **4**, 1281 (1992).
43. **Pressure dependence of the Raman A₁ mode and pressure-induced phase transitions in CuInSe₂,**
J. González, M. Quintero and C. Rincón,
Physical Review B **45**, 7022 (1992).
44. **Optical properties and band structure of the CuIn_{0.6}Ga_{0.4}Se₂ alloy,**
T. Tinoco, M. Quintero, A. Charlebois and C. Rincón,
Materials Letters **14**, 17 (1992).
45. **Lattice vibrations of CuInSe₂ and CuGaSe₂ by Raman Microspectrometry,**
C. Rincón and F. J. Ramírez,
Journal of Applied Physics **72**, 4321 (1992).
46. **Polarized Micro-Raman spectra in CuGaSe₂,**
F. J. Ramírez and C. Rincón,
Solid State Communications **81**, 551 (1992).
47. **Debye temperature and melting point in A^IB^{III}C^{VI}₂ and A^{II}B^{IV}C^V₂ chalcopyrite compounds,**

- C. Rincón,
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48. **Photoconductivity spectrum, deformation potentials, and effective masses of carriers for the chalcopyrite semiconductor alloy $\text{CuIn}_{0.6}\text{Ga}_{0.4}\text{Se}_2$,**
T. Tinoco, C. Rincón, M. Quintero and A. Charlebois,
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49. **Deformation potentials in $\text{A}^{\text{II}}\text{B}^{\text{IV}}\text{C}^{\text{V}}_2$ ternary chalcopyrite compounds,**
C. Rincón and B. Fernández,
Physica Status Solidi (b) **147**, 367 (1993).
50. **Thermal conductivity of ternary chalcopyrite compounds,**
M. L. Valeri-Gil and C. Rincón,
Materials Letters **17**, 59 (1993).
51. **Temperature dependence of the fundamental absorption edge in CuGaSe_2 ,**
C. Bellabarba and C. Rincón,
Japanese Journal of Applied Physics **32**, Suppl. 32-3, 599 (1993).
52. **Comments on "Structural properties of $\text{CuIn}_x\text{Ga}_{1-x}\text{Se}_2$ thin films prepared by R. F. sputtering",**
C. Rincón, M. Quintero and T. Tinoco,
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53. **Alloy composition and temperature dependence of the fundamental absorption edge in $\text{CuIn}_x\text{Ga}_{1-x}\text{Se}_2$,**
C. Lárez, C. Bellabarba, and C. Rincón,
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54. **Room-Temperature Thermal Conductivity and Grüneisen Parameter of the I-III-VI₂ Chalcopyrite Compounds,**
C. Rincón, M. L. Valeri-Gil and S. M. Wasim,

- Physica Status Solidi A*, **147**, 409 (1995).
55. **Shallow donors, metallic conductivity and metal-insulator transition in n- type CuInSe₂,**
C. Rincón, S. M. Wasim and J. L. Ochoa,
Physica Status Solidi A, **148**, 251 (1995).
56. **Infrared Reflectivity and Electrical Parameters of Zn-Doped Degenerate CuInSe₂,**
L. Essaleh, J. Galibert, C. Rincón, S. M. Wasim, W. Knap and J. Leotin,
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57. **On the Dielectric Constants of AIB^{III}CVI₂ Chalcopyrite Semiconductor Compounds,**
R. Márquez and C. Rincón,
Physica Status Solidi B **191**, 115 (1995).
58. **Temperature Dependence of the Fundamental Energy Gap in InSb,**
C. Lárez and C. Rincón,
Materials Letters **24**, 211 (1995).
59. **Free and bound excitons in CuInTe₂ from photoluminescence measurements,**
E. Hernández, G. Bacquet, C. Rincón, S. M. Wasim and J. P. Peyrade,
Crystal Research and Technology **31**, 749 (1996).
60. **Optical-absorption spectrum near the exciton band edge in CuGaS₂ at 5 K,**
C. Bellabarba, J. González and C. Rincón,
Physical Review B **53**, 7792 (1996).
61. **Microhardness, Debye Temperature, and Bond Ionicity of Ternary Chalcopyrite Compounds,**
C. Rincón and M. L. Valeri-Gil,
Materials Letters **28**, 297 (1996).

62. **Red shift of the band-gap of Fe doped $\text{CuIn}_y\text{Ga}_{1-y}\text{Se}_2$,**
S. M. Wasim, C. Durante and C. Rincón,
Materials Letters **28**, 231 (1996).
63. **Analysis of the donor-acceptor recombination band in the photoluminescence spectra of CuInSe_2 ,**
C. Rincón, M. A. Arsene, S. M. Wasim, F. Volillot, J. P. Peyrade P. Bocaranda, and A. Albacete,
Materials Letters **29**, 87 (1996).
64. **Temperature Dependence of the Fundamental Absorption Edge in CuInTe_2**
G. Marín, C. Rincón, S. M. Wasim, Ch. Power and G. Sánchez Pérez,
Journal of Applied Physics **81**, 7580 (1997).
65. **Alloy composition and temperature dependence of the direct energy gap in $\text{Al}_x\text{Ga}_{1-x}\text{As}$,**
C. Lárez and C. Rincón,
Journal of Physics and Chemistry of Solids **58**, 1111 (1997).
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66. **Temperature dependence of the Photoluminescence spectra of single crystals of CuInTe_2 ,**
C. Rincón, S. M. Wasim, G. Marín, G. Sánchez Pérez,
Journal of Applied Physics **82**, 4500 (1997).
67. **Photoluminescence in p-type CuInSe_2 single crystals**
C. Rincón, S. M. Wasim, E. Hernández, M. Arsene, F. Voillot, J. P. Peyrade, G. Bacquet and A. Albacete,
Journal of Physics and Chemistry of Solids **59**, 245 (1998).

68. **Temperature dependence of the fundamental absorption edge in CuIn_3Se_5 ,**
G. Marín, S. M. Wasim, C. Rincón, G. Sánchez Pérez, Ch. Power and A. E. Mora,
Journal of Applied Physics **83**, 3364 (1998).
69. **Urbach's Tails in the absorption spectra of CuInTe_2 single crystals with various deviations from stoichiometry.**
S. M. Wasim, G. Marín, C. Rincón, G. Sánchez Pérez and A. E. Mora,
Journal of Applied Physics **83**, 3318 (1998).
70. **Excitation intensity dependence of the near band-edge photoluminescence spectra of CuInTe_2 at 4.2 K**
C. Rincón, S. M. Wasim, E. Hernández and G. Bacquet.
Materials Letters **35**, 172 (1998).
71. **Electrical and Optical Properties of bulk CuIn_3Se_5 .**
S. M. Wasim, G. Marín, C. Rincón, P. Bocaranda, C. Mazón, G. Sánchez Pérez, A. E. Mora, M. Iqbal and G. Baccquet.
Institute of Physics Conference Series **152**, 55 (1998).
72. **Electrical and optical properties of CuInSe_2 at low temperatures .**
E. Hernández, C. Rincón, S. M. Wasim, G. Marín, P. Bocaranda, C. Mazón, G. Baccquet and J. P. Peyrade.
Institute of Physics Conference Series **152**, 569 (1998).
73. **Temperature dependence of the optical properties of CuInTe_2 single crystals.**
G. Marín, S. M. Wasim, C. Rincón, G. Sánchez Pérez, Ch. and G. Baccquet.
Institute of Physics Conference Series **152**, 51 (1998).
74. **X-ray powder diffraction and optical characterization of the $\text{Cu}(\text{In}_{1-x}\text{Ga}_x)\text{Se}_5$ semiconducting system.**
G. Marín, S. Tauleigne, S. M. Wasim, R. Guevara, J. M. Delgado, C. Rincón, A. E. Mora, and G. Sánchez Pérez.
Materials Research Bulletin, **33**, 1057 (1998).

75. **Effect of thermal expansion coefficient on the temperature dependence of the band gap in CuInTe_2 .**
C. Rincón, S. M. Wasim and G. Marín.
Materials Letters **36**, 245 (1998).
76. **Urbach-Martienssen's tails in the absorption spectra of the ordered vacancy compound CuIn_3Se_5**
S. M. Wasim, G. Marín, C. Rincón and G. Sánchez Pérez.
Journal of Applied Physics **84**, 5823 (1998).
77. **Temperature dependence of the fundamental absorption edge in p-type CuInSe_2**
C. Rincón, E. Hernández, S. M. Wasim, And I. Molina.
Journal of Physics and Chemistry of Solids **59**, 1015 (1998).
78. **Raman spectra of the ordered vacancy compounds CuIn_3Se_5 and CuGa_3Se_5**
C. Rincón, S. M. Wasim and G. Marín, J. M. Delgado, J. R. Hutzinger, A. Zwick and J. Galibert,
Applied Physics Letters **73**, 441 (1998).
79. **Temperature dependence of the fundamental absorption edge in CuGa_3Se_5**
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Journal of Alloys and Compounds **283**, 1 (1999).
80. **Raman spectra of the chalcopyrite compound CuInTe_2 ,**
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Journal of Applied Physics **85**, 3925 (1999).
81. **Raman spectra of the chalcopyrite compound CuGaTe_2 ,**
C. Rincón, S. M. Wasim, G. Marín, J. R. Hutzinger, J. Galibert and A. Zwick
Materials Letters **38**, 305 (1999).
82. **Microhardness-bulk modulus scaling and pressure induced phase transitions in $\text{A}^{\text{I}}\text{B}^{\text{III}}\text{C}^{\text{VI}}_2$ chalcopyrite Compounds,**

- C, Rincón I. Villareal and H. Galindo,
Journal of Applied Physics, **86**, 2355 (1999).
83. **Defect physics of the CuInSe₂ chalcopyrite semiconductor**,
C. Rincón and R. Márquez,
Journal of Physics and Chemistry of Solids **60**, 1865 (1999).
84. **Preparación y caracterización óptica a temperatura ambiente del sistema con vacancia ordenada Cu(In_{1-x}Ga_x)₃Se₅**.
G. Marín, S. M. Wasim, C. Rincón, G. Sánchez Pérez, P. Bocaranda, A. E. Mora e I. Molina.
Ciencia **7**, 146 (1999).
85. **Electrical and optical characterizations of oxygen doped CuInSe₂ crystals**
J. G. Albornoz, S. M. Wasim and C. Rincón,
Crystal Research and Technology **34**, 1191 (1999).
86. **Defect physics of ternary chalcopyrite semiconductors**,
R. Márquez and C. Rincón,
Materials Letters **40**, 66 (1999).
87. **Optical characterization of bulk CuIn₃Se₅ crystals**
C. Rincón, S. M. Wasim, G. Marín, A. Rincón, P. Bocaranda, C. Torres and G. Sánchez Pérez
Materials Letters **41** (5), 222 (1999).
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E. Hernández, C. Rincón, S. M. Wasim, G. Marín, P. Bocaranda, G. Sánchez Pérez, Andrés E. Mora e I. Molina,
Revista Técnica de Ingeniería **22**, 189 (1999).
89. **Photoluminescence, infrared reflectivity, and Raman spectra of the ordered vacancy compound CuGa₃Se₅**

- C. Rincón, S. M. Wasim, G. Marin, E. Hernández, G. Sánchez Pérez and J. Galibert.
Journal of Applied Physics **86**, 2293 (2000).
90. **Urbach's tails in the absorption spectra of the ordered vacancy compound CuGa_3Se_5**
S. M. Wasim, G. Marín, C. Rincón, P. Bocaranda and G. Sánchez Pérez.
Journal of Physics and Chemistry of Solids **61**, 669 (2000).
91. **Crystal growth and structural, electrical, and optical characterization of CuIn_3Te_5 and CuGa_3Te_5 ordered vacancy compounds**
G. Marín, J. M. Delgado, S. M. Wasim, C. Rincón, G. Sánchez Pérez, A. E. Mora, P. Bocaranda and J. A. Henao
Journal of Applied Physics, **87**, 7814 (2000).
92. **On the band gap anomaly in I-III-VI₂, I-III₃-VI₅ and I-III₅-VI₈ families of Cu-ternaries**
S. M. Wasim, C. Rincón, G. Marín and J. M. Delgado
Applied Physics Letters, **77**, 94 (2000).
93. **On the temperature dependence of the electrical and optical properties of Cu_2GeSe_3**
G. Marcano, D. R. Bracho, C. Rincón, G. Sánchez Pérez and L. Nieves
Journal of Applied Physics **88**, 822 (2000).
94. **Raman spectra of CuInTe_2 , CuIn_3Te_5 , and CuIn_5Te_8 ternary compounds**
C. Rincón, S. M. Wasim, G. Marin, E. Hernández, J. M. Delgado, and J. Galibert.
Journal of Applied Physics **88**, 3439 (2000).
95. **Crystal Growth, structural and optical characterization of the Ordered Vacancy Compounds of the I-III₃-VI₅ and I-III₅-VI₈ families**
G. Marín, R. Márquez, R. Guevara, S. M. Wasim, J. M. Delgado, C. Rincón, G. Sánchez Pérez, I. Molina and P. Bocaranda,

- Japanese Journal of Applied Physics* **39**, Supp. 39-1, 44 (2000).
96. **Donor-acceptor pair recombination in CuIn_5Te_8 ordered vacancy compound**
C. Rincón, G. Marín, E. Hernández, S. M. Wasim, J. Galibert and G. Sánchez P.
Japanese Journal of Applied Physics **39**, Supp. 39-1 330 (2000).
97. **Optical characterization of the ordered vacancy compound CuGa_3Se_5**
C. Rincón, S. M. Wasim, G. Marín, E. Hernández, J. Galibert and G. Sánchez P.
Japanese Journal of Applied Physics **39**, Supp. 39-1, 285 (2000).
98. **Effect of structural and compositional disorder on the Urbach's energy in CuInSe_2**
S. M. Wasim, C. Rincón, E. Hernández, G. Marín, P. Bocaranda and G. Sánchez
Japanese Journal of Applied Physics **39**, Supp. 39-1, 282 (2000).
99. **Raman spectra of the chalcopyrite compound CuGaTe_2**
C. Rincón, S. M. Wasim, G. Marín, E. Hernández, and J. Galibert.
Journal of Physics and Chemistry of Sólidos **62/5**, 847 (2001).
100. **Optical transitions near the band edge in bulk $\text{CuIn}_x\text{Ga}_{1-x}\text{Se}_2$**
C. A. Durante Rincón, E. Hernández, M. I. Alonso, M. Garriga, S. M. Wasim, C. Rincón, and M. León.
Materials Chemistry & Physics **70**, 300 (2001).
101. **Crystal growth and structure, electrical, and optical characterization of the semiconductor Cu_2SnSe_3**
G. Marcano, C. Rincón, L. M. de Chalbaud, D. B. Bracho, and G. Sánchez P.
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