

## Curriculum Vitae

Oscar Mario Perdomo

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**Birthdate:** October 9, 1970

**Field of Specialization:**

Differential Geometry  
Minimal submanifolds  
Spectral Theory

**Professional preparation:**

Universidad del Valle at Cali-Colombia, B.A. , Math. 03/94  
Universidad del Valle at Cali-Colombia, M.A. , Math. 07/95  
Indiana University at Bloomington IN, Ph.D., Math. 07/00  
University of California at Irvine, 09/00-07/01. Postdoctoral Institution

**Appointments:**

01/08- Present. Central Connecticut State University, Assistant Professor.  
06/07-12/07 Universidad del Valle, Professor.  
09/06- 05/07. Lehigh University, Visiting Assistant Professor.  
08/01- 08/06. Universidad del Valle, Associate Professor.  
09/00- 07/01. University of California at Irvine, Visitor Assistant Professor.  
09/95- 07/00 Indiana University at Bloomington IN, Teaching Assistant.  
01/94-07/95 Valle University at Cali- Colombia, Teaching Assistant.

**Thesis Advisor and Postgraduate-Scholar Sponsor**

Peter Li, University of California at Irvine, Postdoctoral sponsor

Bruce Solomon, Indiana University, PhD. thesis advisor

Carlos Rodriguez, Universidad del Valle, MA. thesis advisor

### Awards:

1. *Best young Mathematician of Colombia*. July 2004. Award given by the TWAS foundation (Third World Academic Science) and the Academia Colombiana de Ciencias Exactas Físicas y Naturales. Award given every 4 year to Mathematician under 40 in Colombia.
2. *William B. Wilcox Memorial Award*. April 1999: Outstanding researcher student of the year at Indiana University
3. *James P. William Memorial Award*. April 1996: Outstanding student of the first year at Indiana University.
4. *Award by Mazda Company*. Junio 1993- Junio 1995: Grant to pursue graduate studies given to the best 10 top undergraduate students of Music and Science of Colombia.

### Selected Talks:

1. *Minimal tori with low nullity*
  - American Mathematical Society Meeting held at Indiana University. April. 5 / 08
2. *A family of solutions for the sihn-Gordon equation*
  - VII Americas School in Differential Equations and Nonlinear Analysis. July. 27 / 07
3. *Minimal surfaces in  $S^3$  with Natural nullity less than 8*
  - Lehigh Math Colloquium, Lehigh University, USA. Feb. 28 / 07
4. *Stability index of CMC hypersurfaces of spheres*
  - XIV conferencia de geometria diferencial en Salvador Bahia, Brasil. Jun. 27 / 06
5. *On the existence of minimal hypersurfaces of spheres*
  - II Encuentro de geometría Diferencial in La Falda, Argentina. Jun. 27 / 05
6. *The average of the scalar curvature for minimal hypersurfaces of spheres with low index*
  - XIII conferencia de geometria diferencial en Sau Paulo, Brasil. Jun. 27 / 04
7. *Low index minimal hypersurfaces of Spheres*
  - Stanford University, Geometry Analysis Seminar. Nov. 4 / 98
  - Indiana University, Differential Geometry Seminar. Feb. 18 / 99
  - University of Illinois at Urbana, Differential Geometry Seminar. March 28 / 99
  - Universidad del Valle, Differential Geometry Seminar. June 28 / 99
8. *A stability Characterization of Clifford hypersurfaces in  $S^n$* 
  - Indiana University, Differential Geometry Seminar. Sep. 23 / 99
  - UC Irvine, Differential Geometry Seminar. Oct 17 / 00

**Students that have complete their degree under my supervision:**

Undergraduate student: Johann Suarez. Thesis's title: Análisis de superficies mínimas en  $S^3$  cuando las divide un ecuador.

Undergraduate student: Frank Suarez. Thesis's title: Toros mínimos en  $S^3$  y la conjetura de Yau.

Undergraduate student: Remigio Delgado. Thesis's title: esferas mínimas en  $S^3$ .

Undergraduate student: Fabian Ramirez. Thesis's title: Hipersuperficies espaciales compactas con curvatura media constante en los espacios de De Sitter.

Undergraduate student: Ivan Gallardo. Thesis's title: Hipersuperficies mínimas en esferas con dos curvaturas principales distintas.

Graduate student: Heber Mesa. Thesis's title: Superficies mínimas algebraicas de grado 4 en  $S^3$ .

Graduate student: Hector Guerrero. Thesis's title: Inmersiones mínimas de hipersuperficies en esferas por primeras funciones propias.

**Research projects**

1. Title: Clasificación de Variedades área minimizadoras en  $\mathbf{R}^8$ . From December 2001 to June 2003. Project financially supported by Colciencias (Colombian NSF) and Universidad del Valle

2. Title: Clasificación de hipervariedades mínimas en esferas. From March 2004 to March 2006. Project financially supported by Colciencias (Colombian NSF) and Universidad del Valle

3. Title: Algebraic minimal hypersurfaces of spheres. From February 2008 to May 2009. Project financially supported by CCSU.

4. Title: Maximal submanifold in Anti de Sitter Spaces. From February 2008 to

May 2009. Project Approved by CCSU.

**Publications:**

- [1] Perdomo, O. *New examples of maximal space like surfaces in the anti-de Sitter space*. Journal of Mathematical Analysis and Applications (2009), doi:10.1016/j.jmaa.2008.11.072
- [2] Perdomo, O. *A characterization of quadratic constant mean curvature hypersurfaces of spheres*. Journal of Geometric Analysis **18** no 3, (2008) 687–703.
- [3] Perdomo, O. *Metrics on products of surfaces with non positive sectional curvature*. Israel Journal of Mathematics **156** (2006) 65–71.
- [4] Alias, Brasil, Perdomo *Stable constant mean curvature hypersurfaces in the real projective space*. Manuscripta Math **121** (2006), no. 3, 329–338..
- [5] Alias, Brasil, Perdomo *On the stability index of hypersurfaces with constant mean curvature in spheres*. To appear in Proc. Amer. Math. Soc.
- [6] Mesa, Perdomo *Hipervariedades mínimas algebraicas en  $S^n$* . Rev. Un. Mat. Argentina **47** (2006), no. 2, 67–75.
- [7] Perdomo *Minimal Torus invariant under one reflection*. To appear in Matemáticas: Enseñanza Universitaria.
- [8] Perdomo, O. *Minimal hypersurfaces in  $\mathbf{R}^n$  as regular values of a function*. To appear in La Revista Integración.
- [9] Perdomo, O. *Non-existence of regular algebraic surfaces of spheres of degree 3*. J. Geom. **84** (2005), no. 1-2, 100–105.
- [10] Arango, J. & Perdomo, O *Morse Theory for semianalytic functions*. J. Geom. **84** (2005), no. 1-2, 13–22.
- [11] Perdomo, O. *Nonembeddability of the Klein Bottle in  $RP^3$  and Lawson's Conjecture*. Rev. Acad. Colombiana Cienc. Exact. Fís. Natur. **29** (2005), no. 110, 149–154.
- [12] Perdomo, O. *Distribution of minimal varieties in spheres in terms of the coordinate functions*. Rocky Mountain J.Math. **Vol 35**, No 1 (2005), pp 227-233.

- [13] Perdomo, O. *Another proof for the rigidity of Clifford minimal hypersurfaces of  $S^n$* . Matemáticas: Enseñanza Universitaria. **Vol. XIII**. No. 4. Junio de (2005), 91–97.
- [14] Perdomo, O. *Rigidity of minimal hypersurfaces of spheres with constant ricci curvature*. Rev. Colombiana Mat. **38** (2004), no. 2, 73–85.
- [15]. Perdomo O. *Mathematical foundations of a surface made out of triangles*. Revista Epiciclos **Vol 4** No 1 (2005), 77–87 .
- [16] Perdomo, O. *On the average of the scalar curvature for minimal hypersurfaces of spheres with low index*. Illinois Journal of Mathematics. **Vol 48**, No 2, Summer 2004. pp. 559-565.
- [17] Perdomo, O. *Rigidity of minimal hypersurfaces with two principal curvatures*. Archiv Mathematik. **82** (2004) 180-184.
- [18] Perdomo, O. *Gráficas de funciones sobre variedades*. Matemáticas: Enseñanza Universitaria. **Vol. XII**. No. 1. Junio de 2004, pp. 21-26.
- [19] Perdomo, O. *Stable minimal hypersurfaces in  $\mathbf{R}^8$  and  $\mathbf{R}^9$  with constant scalar curvature*. Revista Colombiana de Matemáticas. **Vol 36**, No 2, (2002) pp. 96-106.
- [20] Perdomo, O. *First eigenvalue characterization of Clifford hypersurfaces*. Proc. Amer. Math. Soc. **Vol 130**, No 11 (2002): pages. 3379-3384.
- [21] Perdomo, O. *Totally geodesic surfaces and the Hopfs conjecture*. Matematicas: Enseanza Universitaria, Vol. X No 1,2 Dic. (2002), pp. 29-35.
- [22] Perdomo, O. *Low index minimal hypersurfaces of spheres* Asian Journal of Mathematics, **Vol 5**, No 4 : 715-724. 2001.
- [23] Perdomo, O. *La aplicación de Gauss de una superficie mínima completa y lagrangiana no puede omitir más de 4 puntos* Memorias III Escuela de Verano, Universidad de los Andes, 20 al 30 de junio de 1995. Pages 33-40.