

# Vita and Bibliography

C. Herbert Clemens

December 8, 2001

**Position:** Professor, Mathematics Department, University of Utah, Salt Lake City, UT 84112

**Birthdate:** August 15, 1939

**Birthplace:** Dayton, Ohio

**Academic Degrees:**

A.B. 1961 Holy Cross College

M.A. 1964 University of California, Berkeley

Ph.D. 1966 University of California, Berkeley (Advisor: Phillip A. Griffiths)

**Research Area:** Complex Geometry

**Professional Experience:**

*Research and University Teaching:*

1966 Peace Corps training for Peru and Chile

1966-68 Profesor Regular de Matematicas, Universidad Tecnica del Estado, Santiago de Chile

1968-70 Member, School of Mathematics, Institute for Advanced Study, Princeton

1969 (summer) Visiting Assistant Professor, University of California, Berkeley

1970 Senior Fulbright Lecturer (Chile)

1970-72 Assistant Professor, Columbia University

1972-73 Profesor UTE, Santiago, Chile, Project Coordinator, Ford Foundation grant to UTE mathematics program

1973 (winter) Visiting Assistant Professor, Harvard University

1973-75 Associate Professor, Columbia University (tenure 1975)  
 1975-76 Associate Professor, University of Utah  
 1976- Professor, University of Utah (tenure 1976)  
 1997-98 Visiting Professor, Scuola Normale Superiore, Pisa, Italy  
*Primary and Secondary Teaching:*  
 1979-84 Parent Cooperative Teacher in Mathematics, Rosslyn Heights Elementary School, Salt Lake City, Utah  
 1985-86 Geometry Teacher, Bryant Intermediate School, Salt Lake City, Utah  
 1995- Site director, Utah site of IAS/Park City Mathematics Institute  
 1993- Mathematical Director, 'Ndahoo'aah: A geometry/computer design/Navajo culture and craft program for middle and secondary students, Monument Valley High School, Monument Valley, Utah  
*Institute Administration:*  
 1992 - 1995 Director, Institute for the Theory and Application of Mathematics, University of Utah  
 1992-1993 Organizer, MSRI Special Year in Algebraic Geometry, Berkeley, California  
 1990-1993 Director, NSF Regional Geometry Institute, Park City, Utah  
 1992-1994 Director, NSF Elementary Mathematics Through Teacher Partnerships grant, Washington Elementary School, Salt Lake City, Utah  
 1993-1997 Member, Steering Committee, Park City Mathematics Institute, Institute for Advanced Study, Princeton, NJ  
 1994-1996 Academic Director, Mathematics, National Leadership Program for Teachers, Woodrow Wilson National Fellowship Foundation  
 1999- Chair, Steering Comm., IAS Park City Mathematics Institute

**Academic Honors:**

1970 Fulbright Fellowship  
 1973-75 Sloan Fellowship  
 1974 Invited Speaker, International Congress of Mathematicians, Vancouver, Canada  
 1981 C.I.M.E. Lectures, Varena, Italy  
 1983 Distinguished Research Award, University of Utah, Salt Lake City, Utah  
 1985 Invited Lecture Series, AMS Summer Institute in Algebraic Geometry, Bowdoin College, Maine

1986 Invited Speaker, International Congress of Mathematicians, Berkeley, California

2000 Silver Medal of the Italian Mathematical Union

2001 Distinguished Professor, University of Utah, 2001

**Professional Committees:**

1984-1988 Committee for Human Rights of Mathematicians, AMS

1985-1987 Committee on Mathematics, National Research Council

1985-1987 Mathematical Sciences Education Board, National Research Council

1985-1994 Editor, Pacific Journal of Mathematics

1990-1993 Member, Council of American Mathematical Society

1995-1998 Member, Commission on Development and Exchanges of the International Mathematical Union

1999- Secretary/Treasurer, Commission on Development and Exchanges of the International Mathematical Union

1999- Committee on Education, AMS

2000-2001 National Assessment of Educational Practices 2004 Planning Committee

**Bibliography:**

*Articles - Mathematics:*

1. "Picard-Lefschetz theorem for families of algebraic varieties acquiring ordinary singularities," Trans. Amer. Math. Soc., **136**(1969), 93-108.

2. "On linear system-to-network realization," (Principal author: Carlos A. Holzmann), Proceedings of Eleventh Midwest Symposium on Circuit Theory, University of Notre Dame, May, 1968.

3. "The intermediate Jacobian of the cubic threefold," (with Phillip Griffiths), Annals of Mathematics, **95**(1972), 281-356.

4. "Some applications of Prym varieties," Proc. of International Congress of Mathematicians, Vancouver, B.C., 1974, Vol. 1, 415-422.

5. "Degeneration of Kähler manifolds," Duke Math. Journal, **44**(1977), 215-290.

6. "A result on the integral Chow ring of a generic principally polarized complex Abelian variety of dimension four," (with Charles Barton), Compositio Math., **34**(1977), 49-67.

7. "Van de Ven's Theorem," Proc. I. Coloquio de Matematicas, Agosto, 1979, Centro de Investigacion y de Estudios Avanzados, Mexico, Ed. Horacio

Tapia R.

8. “Applications of asymptotic Hodge theory to the study of threefolds,” Rend. del Sem. Mate. Univ. Torino, Italia. **39**(1981), no. 1.

9. “On extending Abel-Jacobi mappings,” Preprint, University of Utah (1981).

10. “Degeneration techniques in the study of threefolds—six lectures,” Algebraic Threefolds, Varenna, Italy, June 1981. Springer: Lecture Notes in Mathematics, No. **947** (1982), 93-154.

11. “On the one-motif associated to of a simply connected complex projective threefold,” (with J. Carlson and J. Morgan), Ann. Ecole Norm. Sup. **XIV**(1982), 323-338.

12. “Double solids,” Advances in Math., **47**(1983), no. 2, 107-230.

13. “On the surjectivity of Abel-Jacobi mappings,” Annals of Math., **117**(1983), 71-76.

14. “The Neron model for families of intermediate Jacobians acquiring algebraic singularities,” Publ. Math. I.H.E.S., **58**(1983), 217-230.

15. “Homological equivalence, modulo algebraic equivalence, is not finitely generated,” Publ. Math. I.H.E.S., **58**(1983), 231-250.

16. “Some results on Abel-Jacobi mappings,” Chapter XVI, Topics in Transcendental Algebraic Geometry, Annals of Math. Studies (1983), 289-304.

17. “A note on some formal properties of the infinitesimal Abel-Jacobi mapping,” Proc. Rome Conference on Algebraic Geometry, June, 1984.

18. “The infinitesimal Abel-Jacobi mapping for hypersurfaces,” Proc. Lefschetz Centennial Conference, Mexico City, Dec., 1984, Contemporary Mathematics, AMS **58**, Part I (1986) 81-89.

19. “The local geometry of the Abel-Jacobi mapping,” Proc. of AMS Summer Inst. on Alg. Geom., Bowdoin College, 1985. Proc. Symp. Pure Math., AMS, **46**, 223-224.

20. “Curves on generic hypersurfaces,” Ann. Ec. Norm. Sup., Paris. **XIX**(1986), 629-636.

21. “Higher dimensional complex geometry,” Lecture Notes, University of Utah, Summer, 1987 (with J. Kollár and S. Mori), Asterisque , **166**(1988).

22. “ $D$ -modules and subcanonical deformations,” (with P. Burchard), Preprint, University of Utah, 1990.

23. “The infinitesimal Abel-Jacobi mapping and moving the  $O(2)+O(-4)$  curve,” Duke Math. J., **59**(1989), 233-240.

24. "An obstruction to moving multiples of subvarieties," Proc. of Conf. on Hyperplane Sections, L'Aquila, Italy June, 1988, Springer Lecture Notes in Mathematics.
25. "The quartic double solid revisited," Proceedings, AMS Symposium on Pure Mathematics, Sundance, Utah, May, 1989.
26. "The fibre of the Prym map and the period map for double solids, as given by Ron Donagi," Preprint, Univ. of Utah, 1989.
27. "Counting curves which move with threefolds," (with H. Kley), J. Alg. Geom., **9**(2000), 175-200.
28. "Normal differential operators and deformation theory," (with P. Burchard) Recent Progress in Intersection Theory Intersection Theory, Birkhäuser (2000) 33-84.
29. "A local proof of Petri's conjecture at the general curve," AG/9810010 (1999). J. Diff. Geom. **54**(2000), no.1, 139-176
30. "Cohomology and obstructions I: On the geometry of formal Kuranishi theory," Preprint, math.AG/9901084 (2000).
31. "Cohomology and obstructions II: Curves on Calabi-Yau threefolds," Preprint, math.AG/9809127 (2000) currently under revision.
32. "A new method in Fano geometry," (principal author Z. Ran). Int'l Math. Res. Not. (Duke Univ. Press), **10**(2000), 527-549.
33. "On an example of Voisin," (with H. Kley), Michigan Math. J., **48**(2000), 93-119.
34. "On rational curves in n-space with given normal bundle," Preprint, math.AG/0011115 (2000). To appear in Advances in Algebraic Geometry Motivated by Physics. Proceedings of the 952nd AMS Meeting, Lowell, Massachusetts, April 1-2, 2000 (Special Session: Enumerative Geometry in Physics).
35. "Deformations of the trivial line bundle and vanishing theorems," (with C. Hacon), Preprint, math.AG/0011244 (2000). To appear in Amer. J. Math.
36. "Limiting the genus of subvarieties of generic hypersurfaces," (with Z. Ran) (2001) in preparation.
37. "A Petri theorem for rank-2 vector bundles with canonical determinant," (with E. Casini) (2001) in preparation.
- Articles - Mathematics Education:*
1. "Use of school mathematics study group materials in Chile," Amer. Math. Monthly, October, 1969, 895- 896.

2. "Is there a role for mathematicians in mathematics education?" Notices of the AMS, **36**(1989) 542-544.
3. "What do math teachers need to be." (Proceedings of the NCRTE Seminar for Education Policy Makers, February, 1989, Washington, D.C.), Teaching Academic Subjects to Diverse Learners, Teachers College Press (1991), 123-135.
4. "The Geometry Teacher's 'Do-It-Yourself' Kit," Mathematicians and Educational Reform, CMBS Issues in Mathematics Education, vol. 1, AMS, (1990), 181-188.
5. "The Scarlet E," UME Trends, AMS, 1, no. 6(1990).
6. "Research Mathematicians and the Education of Children—A Proposal," Notices of the AMS, **37**(1990), 412-414.
7. "The Standards: A Roadmap for Following the Math," (Book review), Educational Researcher, **22**, No. 4, May 1993, 28-30.
8. "Can university math people contribute significantly to precollege mathematics education (beyond giving a few preservice teachers a few preservice courses)?" Changing the Culture: Mathematics Education in the Research Community. CMBS series Issues in Mathematics Education 5(1995)
9. "Some random reflections on being asked to review 'Calculus from Graphical, Numerical, and Symbolic Points of View, I and II' by Arnold Ostebee and Paul Zorn of St. Olaf College" Math. Intelligencer **18**, No. 4, (1996)
10. Random reactions on browsing the "Principles and Standards for School Mathematics" Notices of the AMS (Oct. 2000).

*Books - Mathematics:*

1. Scrapbook of Complex Curve Theory. Plenum Press, 1980.
2. Introduction to Hodge Theory. Sc. Norm. Sup., Pisa, 1999.

*Books - Mathematics Education:*

1. Geometry for the Classroom (with M. Clemens). Springer-Verlag, 1991.

*Manuscripts - Mathematics Education:*

1. "Graph Paper Fractions Book" (materials on fractions for children in primary school). Preprint, University of Utah.
2. "Graph Paper Geometry Book" (materials on the concept of area for children in primary school). Preprint, University of Utah.

**Ph.D. Dissertations directed:**

*Mathematics:*

Enrico Arbarello: Degree completed 9/73. Thesis: “Weierstrass Points and Moduli of Curves.

Leon Masiewicki: Degree completed 5/74. Thesis: “Prym Varieties and the Moduli Space of Curves of Genus Five.”

Roy C. Smith: Degree completed 12/77. Thesis: “On the Degree of the Prym Mapping from Curves of Genus Six to Abelian Varieties of Dimension Five.”

Giuseppe Ceresa: Degree completed 3/82. Thesis: “ $C$  is not Algebraically Equivalent to  $(-C)$  in its Jacobian.”

Alberto Albano Degree completed 2/86. Thesis: “Infinite Generation of the Griffiths group—a local proof.”

Jesús Jiménez Degree completed 10/89. Thesis: “Contraction of Non-Singular Curves in Analytic Spaces.”

Elham Izadi Degree completed 6/91. Thesis: “On the Moduli Space of 4-dimensional Principally Polarized Abelian Varieties.”

Randall Westhoff Degree completed 8/93. Thesis: “Curves and Normal Functions on Higher Dimensional Complex Varieties.”

Yongnam Lee Degree completed 8/97. Thesis: “Degeneration of Numerical Godeaux Surfaces”

*Mathematics Education:*

Loreto Porte: Degree completed 6/75. Thesis: “Different Approaches to the Study of Plane Algebraic Curves.”

Antonia Kasper: Degree completed 6/76. Thesis: “The Non-elementary Nature of Elliptic Integrals.”