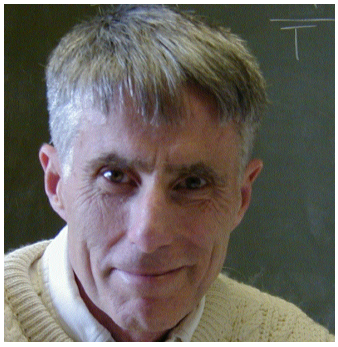
Complex Geometry

C. Herbert Clemens



Professor 1976
A. B. 1961 Holy Cross College
Ph. D. 1966 University of California, Berkeley
Assistant Professor, Columbia University, 1973-75
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Activities and Awards

Invited Speaker International Congress of Mathematicians (1974, 1986)
University of Utah Distinguished Research Award (1983)
Member of Committee on Mathematics

Research Interest

Professor Clemens career combines a strong interest in research in the mathematical area of algebraic geometry with a lifelong interest in undergraduate and precollege mathematics education and in nurturing mathematics and mathematics education in the developing world. He spent five years as a assistant professor and associate professor at Columbia University in New York City before joining the Mathematics Department of the University of Utah in 1975. Other educational activities since coming to Utah include five years as director of the Institute for the Theory and Application of Mathematics, an arm of the Mathematics Department dedicated to university-wide and community outreach, and, since 1994, math coordinator for the 'Ndahoo'aah Program, combining the teaching of traditional culture with math and computer preparation in the predominantly Navajo high schools of southeastern Utah. Professor Clemens is also currently Secretary/Treasurer of the Commission for Development and Exchanges of the International Mathematical Union and chairs the Steering Committee of the Park City Mathematics Institute, an Institute for Advance Study sponsored summer program of mathematics and mathematics teaching at the secondary, undergraduate, graduate and research level.

Professor Clemens's research contributions include solution, with Phillip Griffiths, of a long-standing conjecture as to whether any solution space to a system of polynomial equations which admits a many-to-one parametrization in fact admits a one-to-one parametrization. He later showed that it is not in general true that the equivalence group of subspaces of a solution space to a system of polynomial equations can be generated by finitely many subspaces, and some years after that he showed that solution sets to a single equation in general do not contain curves of low genus. His current research interests are centered on deformation theory, that is, the study of the obstructions to continuously deforming subspaces when one changes the coefficients in the polynomial equations defining a solution space. It has been shown by physicists that these questions are important to unified field theories.

Selected Publications

1. (joint with H. Kley) Counting curves which move with threefolds. *J. Alg. Geom*. **9** (2000), 175-200.

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

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

4. (joint with J. Kollár and S. Mori) Higher Dimensional Complex, *Geometry. Astérisque* **166**,1988.

5 *Scrapbook of Complex Curve Theory*. Plenum Press, 1980.