

CURRICULUM VITAE

ARON SIMIS

OCTOBER 11, 2021

1 Personal items

Birthdate: June 20, 1942

Place of birth: Recife, Brazil

Parents: José Simis and Betty Schver

2 Academica

2.1 Education

B.Sc. (Mathematics): Universidade Federal de Pernambuco, Recife, Brazil, 1964

M.Sc. (Mathematics): Queen's University, Kingston, Canada, 1969

Ph.D. (Mathematics): Queen's University, Kingston, Canada, 1972

2.2 Positions

Professor Emeritus: retired 2013, Federal University of Pernambuco

Professor: Federal University of Pernambuco, 1997–2012

Professor: IMPA, 1978–96

Associate Professor: Federal University of Bahia, 1989–97; Federal University of Pernambuco, 1982–88; IMPA, 1974–78

Assistant Professor: IMPA, 1973–74

Research Assistant: IMPA, 1972–73

2.3 Languages

Fluent: Portuguese, Spanish, English

Moderately fluent: Italian, Hebrew, French

Acquainted: German

2.4 Fellowships and Awards

National Research Council (Canada): 1968/69

Canada Council (Canada): 1969/72

Ford Foundation (USA): 1972/1973

J. S. Guggenheim Foundation (USA): Fellow 1976

Japan Society for Promotion of Science (Japan): Invited visitor 1990

Max-Planck-Institut für Mathematik (Germany): Invited visitor 1991

Istituto Nazionale di Alta Matematica (Italy): Invited visitor 2003

Fulbright Senior Visitor Fellowship (USA): Purdue University, 2008

CNRS Poste Rouge (France): Institut de Mathématiques de Jussieu, Paris, 2012

CAPES (Brazil): Senior Visiting Researcher, 2012–2014; renewed 2015–2016

FAPESP (Brazil): Senior Visiting Researcher, 2016–2017

Politecnico di Torino (Italy): Senior Visiting Researcher, September through November, 2018

CNPq (Brazil): Research grant 1-A, since 1982

2.5 Various items

Member of Editorial Board: *Bulletin of the Brazilian Mathematical Society*, 1984–88; *Communications in Algebra*, 1981–84; *Matemática Contemporânea* (Brazilian Mathematical Society), 1991–1997; *Annals of the Braz. Acad. of Sci.*, 2008–.

Member of Committees: Commission for Development and Exchange of the *International Mathematical Union*, 1986–90. CNPq, Mathematics Section, first term 1982–86; second term 1994–96; third term 2006–2008. Graduate Committee, Universidade Federal de Pernambuco, 1982–86 and Universidade Federal da Bahia, 1987–1993. TWAS Membership Committees, term 1995–1998; second term 1999–2000. Committee for the TWAS Prize in Mathematics, term 2001–2003; second term 2004–2006; third term 2007–2009; fourth term 2010–. CTC (Advisory Scientific Committee) of IMPA, first two terms 1997–2003; third term 2011–2013; fourth term 2014–2016; Main Committee for the French–Brazilian Cooperation in Mathematics, first term 2001–2004; second term 2005–. Co-chair: First Joint Meeting Brazil-Italy, August 2016, IMPA, Rio de Janeiro

Fellow: Academia Brasileira de Ciências (elected 1980), Third World Academy of Sciences (elected 1993)

Commend: National Medal for Scientific Merit, Ministry of Science and Technology (Brazil) 2002 (promoted in 2005 to the level of “Grã-Cruz”)

President: Sociedade Brasileira de Matemática, 1985–87

Referee: Journals (*Math. Annalen*, *J. Algebraic Geometry*, *J. reine u. angew. Math.*, *Transactions of the AMS*, *Proceedings of the AMS*, *Israel J. Math.*, *J. Algebra*, *J. Pure Applied Algebra*, *Comm. in Algebra*, *Discrete Mathematics*, *Collectanea Math.*, *J. Algebra and Applications*, *J. Commut. Algebra*), NSF grants, CNPq (Ministry of Science and Technology), CAPES (Ministry of Education), FAPESP (State of São Paulo Research Foundation), Reviewer for *Mathematical Reviews*, *Zentralblatt*

Editor: *Commutative Algebra*, Proceedings: Salvador 1988 (W. Bruns, A. Simis, Eds.), Lecture Notes in Mathematics Vol. **1430**, Springer–Verlag, Berlin Heidelberg New York London Paris Tokyo, 1990; *Commutative Algebra*, Proceedings: Trieste 1992 (A. Simis, N. V. Trung and G. Valla, Eds.), World Scientific, Singapore, 1994.

Main organizer/coordinator: (1) V Escola de Algebra, IMPA, July 1978; (2) Workshop on Commutative Algebra, Salvador, Brazil, August 8-17 1988; (3) Workshop on Computer Algebra, Salvador, Brazil, November 27-30 1989; (4) Meeting on “Álgebra, Sistemas Dinâmicos e Topologia”, Universidade Federal da Bahia, Salvador, Brazil, July 5–8, 1994; (5) Meeting on “Álgebra comutativa e geometria algébrica”, Universidade Federal da Bahia, Salvador, Brazil, August 1995; ALGA – Second Meeting of the Brazilian Excellence Group on Commutative Algebra and Algebraic Geometry, Maragogi, AL, Brazil, November 1998; ALGA – Sixth Meeting of the Brazilian Excellence Group on Commutative Algebra and Algebraic Geometry, Recife, Brazil, September 2004; PASI - Commutative Algebra and its Connections to Algebraic Geometry, Olinda, Brazil, August 2009; First Brazilian Northeastern Colloquium in Mathematics, Federal University of Aracaju, Brazil, Feb–March 2011; Co-chair: First Joint Meeting Brazil-Italy, August 2016, IMPA, Rio de Janeiro

Organizing/Scientific Committee: (1) *IX ELAM*, Santiago, Chile, July 1988; (2) Workshop on Commutative Algebra, ICTP, Miramare, Italy, September 14-25, 1992; (3) Workshop on Commutative Algebra and its Relation to Combinatorics and Computer Algebra, ICTP, Miramare, Italy, May 16–27, 1994; (4) Meeting on “Álgebra Comutativa e Geometria Algébrica”, IMPA, July 1997; (5) XV Brazilian “Escola de Álgebra”, Canela, RGS, July 1998; (6) XVI Brazilian “Escola de Álgebra”, Brasília, DF, July 2000; (7) XV Coloquio Latinoamericano de Álgebra, Cocoyoc, México, July 2003; (8) School on Commutative Algebra and Interactions with Algebraic Geometry and Combinatorics, ICTP, Miramare, Italy, May 24–June 11 2004; (9) XVIII Brazilian “Escola de Álgebra”, Campinas, SP, July 2004; (10) American Mathematical Society (AMS) Meeting at Florida International University, Miami, Florida, March 2006 (11) ALGA (Meeting of the Brazilian Excellence Group on commutative algebra and algebraic geometry), IMPA, Rio de Janeiro, July 2006; (12) XIX Brazilian “Escola de Álgebra”, Diamantina, MG, August 2006; Algebraic Geometry at Recife, Recife, Brazil, February 2007; IV Iberoamerican conference on complex geometry, Ouro Preto, Brazil, August 2007; XXVI Brazilian Mathematical Colloquium, IMPA, Rio de Janeiro, Brazil, July 29–August 3, 2007; “Commutative Algebra and its connections to Geometry”, Olinda, Brazil, August 3-14, 2009; First Brazilian Northeastern Meeting in Mathematics, João Pessoa, Brazil, Feb 3–5, 2010; Mathematical Congress of Americas, Gua-

najuato, Mexico, August 5–9, 2013 (session organizing committee); 14th ALGA meeting - Commutative Algebra and Algebraic Geometry, IMPA, Rio de Janeiro, February 6–10, 2017; XXV Brazilian “Escola de Álgebra”, IMECC-UNICAMP, Campinas, Brazil, December 2018; “Second International Meeting in Commutative Algebra and its Related Areas”, ICMC–USP, Brazil July 22–26, 2019; CIMPA School “Syzygies, from theory to applications”, J. Pessoa, Brazil, November 2019.

Chair: Graduate Studies in Mathematics, Universidade Federal de Pernambuco, 1982–84; Graduate Studies in Mathematics, Universidade Federal da Bahia, 1989–93; Graduate Studies in Mathematics, Universidade Federal de Pernambuco, 1998–2002.

Projects: Main cooperation initiatives

- *Project for bilateral scientific collaboration NSF/CNPq*; principal co-investigator: W. Vasconcelos, Rutgers U., USA, **1989–91**.
- *Project for bilateral scientific collaboration NSF/CNPq*; principal co-investigator: D. Eisenbud, Brandeis U., USA, **1991–1994**.
- *Project for bilateral scientific collaboration NSF/CNPq*; principal co-investigators: B. Ulrich, Michigan State U., USA, **1994–1997**.
- *Project for bilateral scientific collaboration NSF/CNPq*; principal co-investigators: B. Ulrich, Michigan State U., USA, and W. Vasconcelos, Rutgers U., USA, **1998–2000**.
- *Ubiquity of Blowup Algebras: a US-Brazil Visit Program*; co-investigators: A. Corso (U. Kentucky, USA) and Claudia Polini (U. Notre Dame, USA), **2006–2008**.
- *Effective Methods in Commutative Algebra and Algebraic Geometry*, Dirección General de Investigación del Ministerio de Educación y Ciencia, Spain (co-investigators: I. Bermejo (U. La Laguna, Tenerife) and P. Gimenez (U. Valladolid, Spain), **2007–2010**.
- *Effective Methods in Commutative Algebra and Algebraic Geometry*, Dirección General de Investigación del Ministerio de Ciencia e Innovación, Spain (co-investigators: I. Bermejo (U. La Laguna, Tenerife) and P. Gimenez (U. Valladolid, Spain), **2011–2013**.
- *Cooperation en Algèbre Commutative*, under the Interchange Program Brazil–France (co-investigators: M. Chardin (Paris VI) and L. Busé (Nice-INRIA)), **2001, 2003, 2008, 2010, 2012**
- *Intertwining themes between commutative algebra and algebraic geometry*, under the CAPES Senior Visiting Program, **2013–2014**.
- *The ubiquity of Rees algebras in commutative algebra and algebraic geometry - a 3 years proposal with 6 participants* (submitted **2014**); CHAMADA UNIVERSAL MCTI/CNPq N 14/2014
- *Geometry of Syzygies of Rational Maps* (SYRAM) 2015–2016 – Regional Program MATH-AmSud, Brazil–France–Argentine.

3 Research activities

3.1 Invited visits and interchange

- Brandeis University, USA (postdoctoral fellow) 1972/73
- Brandeis University, USA, 1976/77
- Queen's University, Canada, June/July 1979
- Rutgers University, USA, August 1979
- Instituto Politecnico Nacional (ESFM), Mexico, September/December 1979
- Universität Essen, West Germany, May/July 1981
- Università di Genova, Italy, October/January 1983
- Universität Essen, West Germany, May 1985
- Università di Genova, Italy, June 1985
- Rutgers University, USA, July/August 1985
- IMPA, Brazil, January/February 1986
- Unicamp, Brazil, January 1988
- Banach Institute, Warsaw, Poland, April 1988
- Universidad de Barcelona, Spain, May 1988
- Rutgers University, USA, May/June 1988 (Under the CNPq/NSF International Cooperation Program)
- Università di Genova, Italy, May 1989
- Rutgers University, USA, August 1989 (Under the CNPq/NSF International Cooperation Program)
- Michigan State University, USA, August 1989
- Universität Essen, West Germany, November 1989
- Universität Osnabrück (Standort Vechta), November 1989
- Nagoya University, Japan, August 1990
- Max-Planck-Institut für Mathematik, Germany, Feb/April 1991
- Institut Fourier (Université de Grenoble), France, May 1991
- International Centre for Theoretical Physics, Trieste, Italy, April 1991
- Rutgers University, USA, November 1991
- Michigan State University, USA, November 1991

- Brandeis University, USA, December 1991 (Under the CNPq/NSF International Cooperation Program)
- International Centre for Theoretical Physics, Trieste, Italy, April 1992
- IMPA, Rio de Janeiro, Brazil, February 1993
- UNICAMP, Campinas, SP, Brazil, March–June 1993
- Brandeis University, USA, November 1993
- Michigan State University, USA, November 1993
- Rutgers University, USA, December 1993 (Under the CNPq/NSF International Cooperation Program)
- Universität Essen, Germany, August 1994
- Brandeis University, USA, October 1994 (Under the CNPq/NSF International Cooperation Program)
- Michigan State University, USA, October 1994
- Rutgers University, USA, October 1994
- Instituto Politécnico Nacional, ESFM, Mexico, January 1995
- Universidad de Valladolid, Valladolid, Spain, June 1995
- Michigan State University, USA, December 1995 (Under the CNPq/NSF International Cooperation Program)
- Università di Genova, Italy, June–July 1996 (Under a CNR grant)
- IMPA, Rio de Janeiro, March–June 1997 (Visitor under a CNPq grant)
- Michigan State University, USA, May 1997 (Under the CNPq/NSF International Cooperation Program)
- Universidade de Lisboa, Complexo Interdisciplinar, Portugal, November–December 1997 (under a grant from the University)
- Universidad de Valladolid, Spain, June 1998
- Michigan State University, USA, September 1998 (Under the CNPq/NSF International Cooperation Program)
- Rutgers University, USA, October 1998 (Under the CNPq/NSF International Cooperation Program)
- University of Michigan at Ann Arbor, USA, October 1998
- Instituto de Matemática y Ciencias Afines (IMCA), Lima, Peru, June 1999
- Departamento de Matemática, Universidade Federal de Minas Gerais, Brazil, September 1999

- Michigan State University, USA, September 1999 (Under the CNPq/NSF International Cooperation Program)
- Rutgers University, USA, October 1999 (Under the CNPq/NSF International Cooperation Program)
- Michigan State University, USA, September 2000 (Under the CNPq/NSF International Cooperation Program)
- Rutgers University, USA, October 2000 (Under the CNPq/NSF International Cooperation Program)
- Université de Paris VII, Paris, July 2001
- Universidad de La Laguna, Tenerife (Spain), September 2002
- Università di Messina, Sicily (Italy), September-October 2003 (Through the “Istituto Nazionale di Alta Matematica”)
- Istituto Politecnico di Torino, Italy, November 2003 (Through “GNSAGA”)
- Université de Paris VII (Chevaleret-Paris) (France), December 2003
- Instituto de Matemática Pura e Aplicada (IMPA), Rio de Janeiro (Brazil), January–February 2004
- Instituto de Matemáticas y Ciencias Afines (IMCA), Lima, Peru, July 2005
- Universidad de La Laguna, Tenerife (Spain), September 2005
- Florida International University, Miami, USA, March 2006
- University of Notre Dame, USA, April 2006
- Purdue University, USA, April 2006
- Politecnico di Torino, Italy, September-October 2007 (Through “GNSAGA”)
- Universidad de Valladolid, Spain, February 2007
- Purdue University, USA, March-May 2008 (Under a Fulbright Fellowship)
- Rutgers University, USA, May 2008
- Universidad de La Laguna, Tenerife (Spain), June 2008
- Universidad de Buenos Aires (as member of juri for Professorship), September, 2008
- Université de Paris VII, Paris (France), September 2008
- Université de Nice/INRIA, Nice (France), October 2008
- CINVESTAV (through a grant from Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional), Mexico, November 2008

- (Items 2009 ?)
- Università degli Studi di Catania (Departmental funding), Sicily, Italy, June 2010
- Politecnico di Torino (Departmental funding), Turin, Italy, June 2010
- Université de Paris VI (Pierre et Marie Curie) (under the Brazil-France Cooperation Program), Paris, France, November 2010
- Universidad de Valladolid, Spain, September-October 2011
- Université de Paris VI (Pierre et Marie Curie) (under the CNRS and the Brazil-France Cooperation Program), Paris, France, September–November 2012
- Università di Genova (grant from GNSAGA), June 2013
- Università di Roma “Tor-Vergata”, June 2013
- Università di Roma “La Sapienza”, June 2013
- The CAPES National Senior Visiting Researcher Program, 2013–2014, 2015-2016, Joint Graduate Program of Universidade Federal da Paraíba and Universidade Federal de Campina Grande, Paraíba, Brazil
- Université de Paris VI (Pierre et Marie Curie) (under the Math-AmSud Project 15MATH03- SYRAM: Geometry of Syzygies of Rational Maps), Paris, France, June 2015
- Conference: “SINGULAR LANDSCAPES” (22-26 June 2015), Centre Paul Langevin, Aussois, In honor of Bernard Teissier’s 70th birthday
- Université de Paris VI (Jussieu) and Université de Nice, September 2016
- University of São Paulo at São Carlos (ICMC-USP), Senior Visiting Professor, 2017
- Politecnico di Torino, Italy, September–November 2018.

3.2 Talks and meetings

3.2.1 Invited talks:

Projective modules over certain rings, *Canadian Mathematical Congress*, Hamilton, Canada, 1971

Introdução às funções algébricas e abelianas, a series of five lectures at the X Colóquio Brasileiro de Matemática, Poços de Caldas, Brazil, July 1975

Cinco lições sobre polinômios de Hilbert, a series of five lectures at the V Escola de Algebra, IMPA, Brazil, July 1978

Some results in symmetric algebras, *Kommutative Algebra und algebraische Geometrie*, Oberwolfach, West Germany, May 1981

- Koszul homology and blowing-up rings**, *Commutative Algebra*, Trento, Italy, June 1981
- On Rees and symbolic algebras**, address at the V ELAM, Oaxtepec, Mexico, July 1982
- On symmetric algebras**, *Incontro di Algebra Comutativa*, Genova, Italy, June 1985
- Multiplicities and Betti numbers of homogeneous ideals**, address at Space Curves, Rocca di Papa, Roma, June 1985
- Divisor class group of Rees algebras**, *Commutative Algebra*, Mathematical Sciences Research Institute, Berkeley, USA, June 1987
- Some problems in Rees algebras**, *Special year in Algebra and Algebraic Geometry*, Banach Institute, Warsaw, Poland, April 1988
- Selected topics in Commutative algebra**, a series of five lectures at the IX ELAM, Santiago, Chile, July 1988
- The Jacobian dual of a module**, *Kommutative Algebra und algebraische Geometrie*, Universität Osnabrück (Vechta), West Germany, November 1989
- Jacobian dual fibrations**, *Commutative Algebra and Combinatorics* (satellite meeting for the International Congress of Mathematicians), Nagoya, August 1990
- Symmetric algebras of tangent structures**, *Seminar zur Commutative Algebra*, Mathematisches Institut der Universität Köln, Köln, Germany, February 1991
- The ideal theory of graphs**, Mathematisches Institut der Universität Erlangen, Nürnberg, Germany, February 1991
- Ideal theory of graphs**, *Oberseminar*, Mathematisches Institut der Universität Köln, Köln, Germany, April 1991
- Tangent star cones of ideals**, *Spezialseminar*, Max-Planck-Institut für Mathematik, Bonn, Germany, March 1991
- The ideal theory of graphs**, Mathematisches Institut, Universität Heidelberg, Heidelberg, Germany, April 1991
- Graphs and Commutative Algebra**, *Colloque*, Institut Fourier, Université de Grenoble, France, May 1991
- Combinatória Algébrica**, a series of five lectures delivered at the Brazilian Mathematical Colloquium, IMPA, July 1991
- Tangent star cones**, Department of Mathematics, Michigan State University, USA, November 1991
- Tangent cones**, Department of Mathematics, Rutgers University, USA, Nov 1991.
- On certain tangent cones**, Department of Mathematics, Brandeis University, USA, Dec 1991

- Tangent star cones**, *Zero-dimensional schemes*, Ravello, Italy, June 1992.
- Tangent cones**, A series of three talks delivered at the *Encuentro de Algebra y Geometria Algebraica*, Guanajuato y Morelia, Mexico, July 1992
- Algebraic aspects of tangent cones**, A series of three lectures delivered at the *XII Escola de Álgebra*, Diamantina, Brazil, August 1992
- Research topics in Comutative Algebra**, A series of six talks delivered in IMPA, Rio de Janeiro, February 1993
- Tópicos de Combinatória em Álgebra Comutativa**, *Colóquio*, Instituto de Matemática e Estatística, USP (São Paulo, Brazil), May 1993
- The module of derivations of a Stanley–Reisner ring**, *Teoria dos Anéis*, Instituto de Matemática e Estatística, USP (São Paulo, Brazil), June 1993
- Deformações de certos cones**, *Colóquio*, Departamento de Matemática, UNESP (São Paulo, Brazil), June 1993
- On derivations of Stanley–Reisner rings**, *Commutative Algebra and its Interaction with Computer Algebra and Combinatorics*, Institute for Experimental Mathematics, Universität Essen, Germany, June 1993
- On the diagonal subalgebra of a Rees algebra**, *Colóquio Brasileiro de Matemática*, IMPA, Rio de Janeiro, July 1993
- Remarkable graded algebras in Commutative Algebra**, A series of five talks at the *ELAM XI*, Guanajuato, Mexico, August 1993
- On derivations of Stanley–Reisner rings**, Department of Mathematics, Cornell University, USA, November 1993
- Diagonal subalgebras of multigraded algebras**, Department of Mathematics, Michigan State University, USA, November 1993
- Diagonal subalgebras of multigraded algebras**, Department of Mathematics, Rutgers University, USA, December 1993
- Álgebras diagonais de álgebras multigraduadas**, Departamento de Matemática, Universidade Federal de Pernambuco, Recife, Brazil, February 1994
- Sobre álgebras multigraduadas**, *Colóquio de Álgebra*, IMPA, Rio de Janeiro, March 1994
- Álgebras graduadas notáveis** *Álgebra, Sistemas Dinâmicos e Topologia*, Universidade Federal da Bahia, Salvador, July 1994
- Cohen–Macaulay Rees algebras**, *XIII Escola de Álgebra*, Unicamp, Brazil, July 1994
- The diagonal subalgebra of a multigraded k -algebra**, *Commutative Algebra*, International Conference, Vechta, Germany, August 1994

- On Rees algebras of modules**, *Oberseminar*, Universität Essen, Germany, August 1994
- On diagonal subalgebras**, Algebra Seminar, Michigan State University, USA, October 1994
- On join algebras**, Algebra Seminar, Rutgers University, October 1994
- Uniform monomial algebras**, AMS S. Francisco Meeting, Special Session on Commutative Algebra: Rees Algebras and Related Topics (presented by title) , January 1995
- The algebra of imbedded joins**, *CoCoA IV*, Università di Genova, Italy, May 1995
- Rees algebras and elimination algebras**, Series of 3 talks at the *Seminario de Algebra*, Universidad de Valladolid, Spain, June 1995
- Elimination algebras**, Algebra Session, *Colóquio Brasileiro de Matemática*, IMPA, Rio de Janeiro, July 1995
- O módulo jacobiano associado a um grafo**, Universidade Federal do Rio de Janeiro, Rio de Janeiro, October 1995
- The jacobian module of an edge-ideal**, *Workshop in Algebra*, ESFM, Instituto Politécnico Nacional, Mexico, November 1995
- Rees algebras and elimination algebras**, *II Joint Meeting AMS-SMM*, Guanajuato (México), November 1995
- The jacobian module of an edge-ideal**, University of Connecticut at Storrs, Conn., USA, December 1995
- On embedded joins and secant varieties**, *Summer School on Commutative Algebra*, Centre de Recerca Matemàtica, Barcelona, Spain, July 16-26, 1996
- Secantes e joins**, Two lectures at IMPA, Rio de Janeiro, September, 1996
- On the jacobian module associated to graph**, *Foundations of Computational Mathematics*, IMPA, Rio de Janeiro, January 1997
- The initial algebra of maximal minors of a generalized Hankel matrix**, Michigan State University, USA, April 1997
- Results on joins**, Colloque “Algèbre commutative et géométrie algébrique”, CIRM, Luminy, France, May 1997
- On the Gauss algebra associated to a rational map**, “Combinatorial Commutative Algebra”, Universität Essen, Germany, June 1997
- On the ideal of the embedded join of two varieties**, Mathematischen Kolloquium, Universität Regensburg, Germany, July 1997
- On the ideal of the embedded join of two varieties**, Universität Konstanz, Germany, July 1997

- Algebras that arise from intersection theory**, “Commutative algebra and algebraic geometry”, ALGA, IMPA, Rio de Janeiro, July 1997
- Tangential rambles**, Course at the *Encuentro de Geometria Algebraica y Algebra Conmutativa*, CIMAT, Guanajuato, Mexico, August 1997
- Métodos algébricos em teoria de interseção**, Course at the Universidade de Lisboa, Complexo Interdisciplinar, Lisboa, Portugal, November-December 1997
- Rees algebras of modules with applications**, Conferência na Universidad de Valladolid, Espanha, junho 1998
- Rees algebras of certain modules**, “Conference in honour of David Buchsbaum”, Genova, Italy, June 1998
- Rees algebras of modules**, University of Michigan at Ann Arbor, USA, October 1998
- Geometric aspects of Rees algebras of modules**, Rutgers University, USA, October 1998
- Graded Algebras incident to Correspondence Theory**, Course at the XV ESCOLA DE ÁLGEBRA, Canela, RGS, Brazil, July 1998
- Remarkable Graded Algebras in Algebraic Geometry**, Course at the XII ELAM, (IMCA), Lima, Peru, June 1999.
- On Cremona Transformations**, ALGA99 (Commutative algebra and algebraic geometry), Campinas, SP, Brazil, July 1999
- Bounds for multiplicities in an extension of homogeneous rings**, XXII Colóquio Brasileiro de Matemática, IMPA, Rio de Janeiro, Brazil, July 1999
- New insight into Cremona transformations (Portuguese)**, Departamento de Matemática, UFMG, Brazil, September 1999
- Cremona transformations and Jacobian matrices**, Department of Mathematics, Michigan State University, USA, September 1999
- An algebraic proof of the theorem on the dimension of the Gauss image**, *Representation of Algebras*, Instituto de Matemática, UFBA, December 1999
- Two invariants of modules and an inequality of F. L. Zak**, Departamento de Álgebra y Geometria y Topologia, Universidad de Valladolid, Valladolid, Spain, May 2000
- Criteira for birational maps using Jacobian matrices**, Departamento de Álgebra y Geometria y Topologia, Universidad de Valladolid, Valladolid, Spain, May 2000
- On Cremona transformations and Jacobian matrices**, Colloque “Algèbre commutative et ses interactions avec la géométrie algébrique”, CIRM, Luminy, France, June 2000

- Higher primitive ideals**, The Sixth Workshop on Real and Complex Singularities, S. Carlos, SP, Brazil, July 2000
- Two classical themes of algebra**, XVI Brazilian School of Algebra, Brasilia, DF, Brazil, July 2000
- Zak's inequality for the dimension of the Gauss image**, First Latin American Congress of Mathematicians, IMPA, Rio de Janeiro, Brazil, July/August 2000
- Polar syzygies and a question of Hesse**, Algebra Seminar, Rutgers University, US, October 2000
- Gradient ideals and polar maps**, Université de Paris 7 "Denis Diderot", Institut de Mathématiques de Jussieu, Paris, France, July 2001
- Remarks on Cremona Transformations**, Colloque "Algèbre commutative et ses interactions avec la géométrie algébrique", Institut Fourier, Grenoble, France, July 9-13, 2001
- On derivations and tangent vector fields**, "First Joint International Mathematical Meeting AMS-SMF, UMPA (École Normale Supérieure de Lyon), Lyon, France, July 17-20, 2001
- Some aspects of algebraic vector fields**, 23 Colóquio Brasileiro de Matemática, IMPA, Rio de Janeiro, Brazil, July 22-27, 2001
- Cremona Transformations (Yet another view)**, XIV Colóquio LatinoAmericano de Algebra, La Falda, Sierras de Córdoba, Argentina, July 31 through August 10, 2001
- On gradient ideals and polar maps**, ALGA 2001 - IV Meeting of the Brazilian Group in Commutative Algebra and Algebraic Geometry, Angra dos Reis, Brasil, August 5-11, 2001
- A class of birational maps**, First Joint International Mathematical Meeting AMS-UMI, Pisa, Italy, June 9-13, 2002
- Remarks on birational maps**, XVII Escola de Álgebra (Brazilian Meeting in Algebra), Cabo Frio, RJ, Brazil, July 2002
- Classes of birational transformations**, Octavo Encuentro de Algebra Computacional y Aplicaciones (EACA-2002), Peñaranda de Duero, Spain, September 11-13, 2002
- Problems and questions related to cremona transformations**, Seminario de Algebra y Geometria Algebraica (CIMAC), Universidad de la Laguna, Tenerife, September 18, 2002
- Differential themes revisited**, Seminario de Algebra y Geometria Algebraica (CIMAC), Universidad de la Laguna, Tenerife, September 20, 2002
- Ideals of linear type in Cremona maps**, First Joint International Meeting AMS-RSME, Sevilla (Spain), June 2003

- Algebraic free divisors and the Jacobian ideal**, Lisbon Conference on Commutative Algebra, Lisbon (Portugal), June 2003
- Ideal theoretic notions related to birational transformations**, XV Coloquio Latinoamericano de Algebra, Cocoyoc (Mexico), July 2003
- Topics on Modules and Algebras**, course at the Università di Messina (Italy), September–October 2003
- Module theoretic methods in birational maps**, Workshop on Commutative Algebra with applications in Geometry and Combinatorics, Piraino (Italy), September 22–25, 2003
- A criterion for birational maps**, Università di Palermo, September 2003
- The depth of the Jacobian ring of a homogeneous polynomial in three variables**, Università di Catania, September 2003
- Algebraic free divisors and differential idealizers**, Istituto Politecnico di Torino, November 2003.
- Rees algebras of modules and a problem of Aluffi**, Université de Paris VII (Chevaleret), December 2003
- Álgebras Notáveis em Álgebra Comutativa**, Lectures at Universidade do Porto, Portugal, May 2004
- Recent developments on Fitting ideals of modules**, XVIII Brazilian “Escola de Álgebra”, Campinas, Brazil, July 2004
- Structures of differential nature in commutative algebra**, VI ALGA - Meeting of the Brazilian Group in Commutative Algebra and Algebraic Geometry, Recife, Brazil, September 2004
- Description and effective computation of structures in algebraic geometry**, 2nd Latin American School and Workshop on Polynomial Systems, Angra dos Reis, Brazil, February 2005
- Algebraic-homological constructions attached to differentials**, Course at I.M.C.A. (Instituto de Matemáticas y Ciencias Afines), Lima, Peru, July 2005
- Revisiting remarkable mathematicians: D’Alembert, Lagrange, Galois (Spanish)**, Opening Plenary at the XXIII Colóquio Peruano de Matemáticas, Chiclayo-Lambayeque, Peru, July 2005
- Birational combinatorics**, Talk at the XXIII Colóquio Peruano de Matemáticas, Chiclayo-Lambayeque, Peru, July 2005
- Monomial rational maps**, XVII ALGA – The Meeting of the Brazilian Group of Commutative Algebra and Algebraic Geometry (PRONEx), Paraty, RJ, Brazil, August 2005

- The Latin American Birational Thread**, XVI Latin American Algebra Colloquium, Colonia del Sacramento, Uruguay, August 2005
- Otto Endler, a Brazilian mathematician**, Workshop on Valuation Theory (in memoriam, Otto Endler), Campinas, Brazil, March 2006
- Algebraic description and effective computation of certain structures in algebraic geometry**, Talk at Florida International University, Miami, USA, March 2006
- Algebraic description and effective computation of certain structures in algebraic geometry**, Talk at Kentucky University, Lexington, Kentucky, USA, April 2006
- Polar syzygies of unirational algebras**, AMS Spring Meeting, Notre Dame University, Special session in Commutative Algebra, April 2006
- Birational maps and syzygies**, Talk at Purdue University, W. Lafayette, Indiana, USA, April 2006
- Reducedness versus torsion-freeness**, Talk at the Conference “Théorie de l’élimination et applications” (in honor of Jean-Pierre Jouanolou), C.I.R.M. - Luminy, Marseille, France, May 15–19, 2006
- The module of Kähler differentials and its associated algebras**, Talk at the Conference “Algèbre commutative et ses interactions avec la géométrie algébrique”, C.I.R.M. - Luminy, Marseille, France, May 22–26, 2006
- The module of Kähler differentials and its associated algebras**, Eighth Meeting on Commutative Algebra and Algebraic Geometry (ALGA), IMPA, Rio de Janeiro, Brazil, July 16–22, 2006
- Algebraic-homological constructions attached to differentials**, XIX Escola de Álgebra, Diamantina, MG, Brazil, July 30–August 5, 2006
- Combinatória e álgebra comutativa**, I Workshop de Matemática UFV–UFSJ, Viçosa, MG, Brazil, August 14–17, 2006
- Polar syzygies of monomials and their graph-theoretic side**, Workshop on Graph Theory, Porto Alegre, Brazil, November 2006
- The Fitting ideal problem revisited**, Algebraic Geometry at Recife, Recife, Brazil, February 2007
- Homaloidal hypersurfaces**, Hilbert Functions and Syzygies in Commutative Algebra and Combinatorics (in honor of J. Herzog), Cortona, Italy, September 2007
- Homaloidal hypersurfaces**, Dipartimento di Matematica, Politecnico di Torino, October 2007
- The social role of mathematics: is it relevant?**, Dipartimento di Matematica, Politecnico di Torino (Salone d’Onore del Castello del Valentino), October 2007

- Tangent algebras revisited**, ALGA - IX Meeting on Commutative Algebra and Algebraic Geometry, IMPA, Rio de Janeiro, Brazil, November 2007
- Cremona maps as related to linear syzygies and ideals of linear type**, Conferencia Internacional sobre Algebra Conmutativa, Combinatoria y Computacional en Memoria de Pilar Pison Casares, Sevilla, February 2008
- El problema del ideal de Fitting**, Universidad de Valladolid (Tordesillas), February 2008
- Algebraic questions inspired on examples of Cremona maps**, AMS 2008 Spring Central Section Meeting, Bloomington, USA, March 2008
- Rational maps and Cremona transformations: a primer to their ideal theoretic side**, series of talks at Purdue University, April-May 2008
- The Fitting ideal problem**, Rutgers University (Algebra Colloquium), May 2008
- Bounds for the multiplicity of the special fiber**, “AMS-SBM First Joint Meeting”, IMPA, Rio de Janeiro, Brazil, June 2008
- Multiplicities of algebras associated to modules**, Conference “Algebraic Geometry, D-modules, Foliations and their interactions”, Buenos Aires (Argentina), July 2008
- Bounds for the multiplicity of the special fiber**, “First Indo-Brazilian Symposium in Mathematics”, IMPA (Brazil), July 2008
- The multiplicity of the special fiber**, Université de Paris VI-VII, France, September 2008
- Introduction to Aluffi algebras**, Commutative Algebra and its connections to Geometry, Pan-American Advanced Studies Institute (PASI), Olinda (Brazil), August 2009
- Elimination theory revisited**, III Congreso Latino Americano de Matemáticos (UMALCA), Santiago (Chile), August–September 2009
- Distinguished birational maps**, Encontro de Matemática Brasil-França, IMPA, Rio de Janeiro (Brazil), September 2009
- Implicitization - theory and applications**, France Year in Brazil, Brazilian Academy of Sciences, Brazil, September 2009
- The Aluffi algebra of an ideal**, Algebraic Geometry Seminar, IMPA, May 2010
- On implicitization and equations in low dimension**, School and Workshop in Local Rings and Local Study of Algebraic varieties, ICTP, Trieste (Italy), June 2010
- The Aluffi algebra**, Università degli Studi di Catania, Sicily (Italy), June 2010
- Aluffi algebras and curve singularities**, Politecnico di Torino, Turin (Italy), June 2010

- On implicitization and equations in low dimension**, XXI Escola de Álgebra, Brasília, Brazil, July 2010
- Monomial Cremona maps and their combinatorics**, Brazil-France School and Workshop on Algebraic Geometry, IMPA-UFF, October 2010
- Monomial Cremona maps and the related combinatorics**, Commutative algebra and its interactions with algebraic geometry, C.I.R.M., Luminy, France, November 2010
- Implicitação: teoria e aplicações**, I Colóquio de Matemática do Nordeste, Universidade Federal de Sergipe, S. Cristovão, Brazil, February 2011
- Linear codes based on parameterized toric subgroups**, Conference on Algebra and Applications (in honor of Said Sidki 70th birthday), Caldas Novas, Brazil, May 2011
- A quest for irreducible homogeneous free divisors**, Workshop on Free Divisors, University of Warwick, England, May–June 2011
- A quest for irreducible homogeneous free divisors**, ELGA, Córdoba, Argentina, August 2011
- The Aluffi algebra**, Resolution of Singularities and Related Topics (in honor of H. Hironaka), Casas del Tratado, Tordesillas, Spain 2011
- Plane Cremona maps**, talk at the Dept. Algebra y Geometria, U. Valladolid, Spain, October 2011
- Birational maps – An overview of ideal theoretic tools (or How syzygies help to deal with indeterminacy loci.)**, EIMAN II, Aracajú (Brazil), February 2012
- New constructions of Cremona maps**, talk at the Brazil-Italy Geometry Meeting (EGBI 2012), Salvador (Brazil), July–August 2012
- Implicitization of de Jonquières parametrizations**, talk at Univeristé de Paris VI (Jussieu), October 2012
- Implicitization of de Jonquières like parametrizations**, talk at the Universidad de Barcelona, October 2012
- Symbolic powers of general linearly presented codimension two perfect ideals**, talk at the Workshop on Algebra and Algebraic Geometry, Universidade Federal de Alagoas, Brazil, Feb 8-12, 2013.
- Homaloidal nets versus ideals of fat points**, talk at the Regional Colloquium COLGA, Oct 2014.
- Homaloidal nets and ideals of fat points**, talk at the Brazilian Colloquium of Mathematics, IMPA, Rio, July 2015.
- Birational maps having Cohen–Macaulay graphs**, talk at the First Joint Meeting Brazil-Spain in Mathematics, Fortaleza, Brazil, December 2015.

- Plane fat points of subhomaloidal type**, talk at the XXI Coloquio Latinoamericano de Álgebra, Buenos Aires, July 25-29, 2016
- Birational maps having Cohen–Macaulay graphs**, talk at the meeting Computational Algebra, Algebraic Geometry and Applications (A Conference in honor of Alicia Dickenstein), Buenos Aires, August 1-3 2016
- Plane fat points of subhomaloidal type**, talk at the First Joint Meeting Brazil-Italy in Mathematics, Rio de Janeiro, August 2016
- Plane fat points of subhomaloidal type**, talk at the Cremona Conference 2016, Basel, Switzerland, September 2016
- Au tour plane Cremona maps and fat ideals**, talk at the A. Dimca Seminar, Université de Nice, September 2016
- An analogue of the Aluffi algebra for modules**, talk at the 8th Workshop on Algebraic Singularity Theory/11th Workshop on Singularity and Geometry, UFF, Niteroi, January 2017
- Codimension two perfect ideals and related algebras**, The 4th Joint Meeting RSME–SMM, Universidad de Valladolid, Spain, 2017
- A blowup algebra for hyperplane arrangements**, XXXI Brazilian Mathematical Colloquium, IMPA, Rio de Janeiro, August 2017
- Determinantal varieties and rings**, Series of lectures delivered at ICMC-USP, São Paulo, Brazil, 2017
- Free divisors revisited**, Talk at the Université de Nice, France, September 2018
- Some degenerations of the generic square Hankel matrix**, Talk at DIMA, Università di Genova, October 2018
- Determinantal degenerations**, Talk at the Séminaire sur les singularités Mourtada–Teissier, U. Paris VII (Sophie Germain), November 2018
- Hankel like determinantal singularities**, Talk at the 12-th Mini Workshop on Singularities, Geometry and Differential Equations and 1-st Meeting on Foliations and Singularities, UFES, Vitória, Brazil, Jan–Feb 2019
- Behavior of the degree of a rational map under specialization**, Talk at the Algebra Seminar, Universidade Federal do Rio de Janeiro, April 4, 2019
- Flashback on the Zariski–Lipman Conjecture**, Mini-course at the Fifth Brazilian Northeastern Meeting on Singularities, Universidade Federal da Paraíba, Brazil, July 2019
- Hankel Determinantal Singularities**, Meeting on Commutative Algebra and Related Areas (IMCARA), ICMC-USP, Brazil, July 2019
- On the degree of a rational map under specialization**, First Joint Meeting Brazil–France in Mathematics, IMPA, Rio de Janeiro, July 2019

Perfect homogeneous ideals of codimension 2 with linear presentation, Colloquium Fest in honor of Steven Dale Cutkosky, UFSCar, Brazil, July 2019

On the degree of a rational map under specialization, First Joint Meeting Brazil–France in Mathematics, IMPA, Rio de Janeiro, July 2019

The Ubiquity of Syzygies, CIMPA Research School 2019 - Syzygies, from theory to applications, Universidade Federal da Paraíba, Brazil, November 2019

Rational maps revisited, Universidade Federal de Pernambuco, Brazil, Spring 2021

Cremonamaps: a primer, Universidade Federal da Paraíba, Brazil, Winter 2021

3.2.2 Other meetings (chronologically):

- III Escola de Algebra, Brasília, Brazil, July 1974
- Rutgers University, USA, 1976
- Colloquium in Number Theory, Queen’s University, Canada, July 1979
- Analytical Methods in Commutative Algebra, Virginia, USA, August 1979
- Kommutative Algebra und algebraische Geometrie, Oberwolfach, West Germany, May 1981.
- Symposium in Commutative Algebra, Durham, England, July 1981
- VII Escola de Algebra, Campinas, Brazil, July 1982.
- XIV Colóquio Brasileiro de Matemática, Poços de Caldas, Brazil, July 1983.
- VIII Escola de Algebra, IMPA, Brazil, September 1984.
- Kommutative Algebra und algebraische Geometrie, Mathematisches Forschungsinstitut Oberwolfach, West Germany, May 1985.
- International Congress of Mathematicians, Berkeley, USA, August 1986.
- Microprogram in Commutative Algebra, Mathematical Sciences Research Institute (MSRI), Berkeley, Ca. (USA), June–July 1987.
- IX Escola de Algebra, Vitória–ES, Brazil, February 1989.
- Various talks, in different occasions, at the Universities of Rome, Ferrara, Catania, Messina, Bologna (Italy), Barcelona (Spain), Lisbon, Oporto (Portugal), Essen, Osnabrück (at Vechta) (West Germany).
- COCOA II (*COmputational COmmutative Algebra*), Genova, Italy, June 1989.
- U. Essen Oberseminar, address on *Symbolic powers of monomial space curves*, West Germany, November 1989.
- Algebraic Geometry, *Workshop*, IMPA (Rio de Janeiro), May 1990.

- International Congress of Mathematicians, Kyoto, Japan, August 1990.
- Free resolutions in Algebraic Geometry and Representation Theory, Mathematisches Forschungsinstitut Oberwolfach, West Germany, May 1992.
- International Conference on Contemporary Mathematics, IMPA, Rio de Janeiro, Brazil, May 1992.
- Workshop on Commutative Algebra (director), International Center for Theoretical Physics, Trieste, Italy, September 1992.
- Workshop on Commutative Algebra and its Relation to Combinatorics and Computer Algebra (director), ICTP, Miramare, Italy, May 1994.
- Meeting “Álgebra, Sistemas Dinâmicos e Topologia”, Salvador, Brazil, July 1994.
- COCOA IV (*COmputational COmmutative Algebra*), Genova, Italy, June 1995.
- Meeting “Álgebra Comutativa e Geometria Algébrica”, Salvador, Brazil, August 1995.
- Workshop in Algebra (Member of Program Committee), ESFM, Instituto Politécnico Nacional, Mexico, November 1995.
- “Current Trends in Commutative Algebra”, Levico, Italy, June 16-22, 2002
- ALGA 2002 - V Meeting of the Brazilian Group in Commutative Algebra and Algebraic Geometry (in celebration of S. Kleiman and A. Simis 60th birthdays), IMPA, Rio de Janeiro, Brasil, August 12–14, 2002
- School on “Commutative Algebra and Interactions with Algebraic Geometry and Combinatorics” (Director), ICTP, Miramare, Italy, May 24–June 11, 2004
- American Mathematical Society (AMS) Meeting at Florida International University, Miami, Florida, March 2006
- Autour de la régularité de Castelnuovo-Mumford, C.I.R.M. -Luminy, Marseille, France, May 9 - 13, 2006
- TWAS 10th General Conference and 17th General Meeting, Angra dos Reis, RJ, Brazil, September 2–6, 2006
- Workshop on Integral Closure, Multiplier Ideals and Cores, AIM (American Institute of Mathematics), Palo Alto, CA, USA, December 17–21 2006
- Conferência “Ciência Brasileira e Cooperação Científica Brasil/América Latina e Caribe”, Academia Brasileira de Ciências, Rio de Janeiro, January 24–26, 2007
- Conference “Algèbre commutative et ses interactions avec la géométrie algébrique”, (CIRM, Luminy), France, September-October 2008
- Conferência “Reunião Magna”, Academia Brasileira de Ciências, Brazil, May 2009
- ALGA2012, IMPA, Rio de Janeiro, August 2012

- Primeiro Encontro de Álgebra Comutativa do Nordeste, João Pessoa, PB, Brazil, January 2013
- TWAS General Assembly, Buenos Ayres, September 2013
- World Scientific Forum, Brazilian Academy of Sciences, Rio de Janeiro, November 2013
- International Meeting in Commutative Algebra and its Related Areas - A conference to celebrate Prof. Aron Simis 75th Birthday, ICMC-USP, São Carlos (SP), Brazil, July 2017.

3.3 List of Publications

References

- [1] On \aleph_α -Noetherian modules, **Canadian Math. Bull.** **13** (1970), 245-247.
- [2] Projective modules over certain rings and the existence of cyclic basis, **J. Algebra** **18** (1971), 468-476.
- [3] Projective modules over $R[X]$, R a valuation ring (with *W. Vasconcelos*), are free, **Notices. Amer. Math. Soc.** **18** (5), (1971).
- [4] Projective moduli and maximal spectra of certain quotient rings, **Trans. Amer. Math. Soc.** **170** (1972), 125-136.
- [5] On the Krull-Schmidt theorem for orders over valuation rings, **Annals of the Braz. Acad. of Sci.** **45** (1973), 45-47.
- [6] Residual finiteness of commutative rings and schemes, **Can. J. Math.** **25** (1973), 960-972.
- [7] On the cancellation problem for projective varieties, **Comm. in Algebra** **2** (1974), 535-557.
- [8] On going-down for monoidal transforms, **Bull. Braz. Mat. Soc.** **4** (1973), 111-119.
- [9] A note on cancellation of polarized varieties, **Annals of the Braz. Acad. of Sci.** **48** (1976), 365-368.
- [10] A note on the Koszul homology of ordinary singularities, **Bull. Braz. Mat. Soc.** **8** (1977), 149-159.
- [11] Koszul homology and its syzygy-theoretic part, **J. Algebra** **55** (1978), 28-42.
- [12] Free resolutions of certain triply generated ideals, **Bull. Braz. Math. Soc.** **10** (1979), 43-56.
- [13] Projective modules over $R[X_1, \dots, X_n]$, R a Prüfer domain (with *Y. Lequain*), **J. Pure Appl. Algebra** **18** (1980), 165-171.

- [14] A complex that resolves the ideal of minors having $n - 1$ columns in common (with *J. F. Andrade*), **Proc. Amer. Math. Soc.** **81** (1981), 217-219.
- [15] The syzygies of the conormal module (with *W. Vasconcelos*), **Amer. J. Math.** **103** (1981), 203-224.
- [16] On the dimension and integrality of symmetric algebras (with *W. Vasconcelos*), **Math. Z.** **177** (1981), 341-358.
- [17] On the grade of some ideals (with *J. F. Andrade* and *W. Vasconcelos*), **Manuscripta Math.** **74** (1981), 241-254.
- [18] Approximation complexes of blowing-up rings (with *J. Herzog* and *W. Vasconcelos*), **J. Algebra** **74** (1982), 466-493.
- [19] Approximation complexes of blowing-up rings, II (with *J. Herzog* and *W. Vasconcelos*), **J. Algebra** **82** (1983), 53-83.
- [20] Koszul homology and blowing-up rings, (with *J. Herzog* and *W. Vasconcelos*), in COMMUTATIVE ALGEBRA, Proceedings of the Trento Conference (*Silvio Greco* and *Giuseppe Valla*, Eds.), **Lecture Notes in Pure and Applied Mathematics** **84**, **Marcel-Dekker**, **New York**, (1983), 79-169.
- [21] On the arithmetic and homology of algebras of linear type (with *J. Herzog* and *W. Vasconcelos*), **Trans. Amer. Math. Soc.** **283** (1984), 661-683.
- [22] The canonical module of the Rees algebra and the associated graded ring of an ideal (with *J. Herzog* and *W. Vasconcelos*), **J. Algebra** **105** (1986), 285-302.
- [23] On ideals of minors fixing a submatrix (with *J. F. Andrade*), **J. Algebra** **102** (1986), 246-259.
- [24] Symmetric algebras of modules arising from a fixed submatrix of a generic matrix (with *W. Bruns*), **J. Pure Appl. Algebra** **49** (1987), 227-245.
- [25] Multiplicities and Betti numbers of homogeneous ideals, in SPACE CURVES, Proceedings, Rocca di Papa (Roma 1985), **Lecture Notes in Mathematics**, No. **1266**, **Springer-Verlag**, **1987**, 232-250.
- [26] Normal Rees algebras (with *P. Brumatti* and *W. Vasconcelos*), **J. Algebra** **112** (1988), 26-48.
- [27] The Krull dimension and integrality of symmetric algebras (with *W. Vasconcelos*), **Manuscripta Math.** **61** (1988), 63-78.
- [28] The divisor class group of ordinary and symbolic blow-ups (with *N. V. Trung*), **Math. Z.** **198** (1988), 479-491.
- [29] Reduced normal cones are domains (with *C. Huneke* and *W. Vasconcelos*), in INVARIANT THEORY, Proceedings (Eds: *R. Fossum*, *W. Haboush*, *M. Hochster* and *V. Lakshmibai*), **Contemp. Math. Vol.** **88** (1989), 95-101.

- [30] Free resolutions of certain codimension three perfect ideals (with *J. F. Andrade*), **Arch. Math.** **52** (1989).
- [31] Topics in Rees algebras of special ideals, in COMMUTATIVE ALGEBRA, Proceedings, Salvador, Brazil, August 1988 (Eds. W. Bruns and A. Simis), **Lecture Notes in Mathematics, Springer-Verlag, No. 1430, Heidelberg New York, 1990, 98–114.**
- [32] Arithmetic of normal Rees algebras (with *J. Herzog* and *W. Vasconcelos*), **J. Algebra** **143** (1991), **269–294.**
- [33] Blow-up of straightening-closed ideals in Hodge algebras (with *W. Bruns* and *N. V. Trung*), **Trans. Amer. Math. Soc.** **326** (1991), **507–528.**
- [34] The symbolic powers of monomial curves in \mathbb{P}^3 lying on a quadric (with *M. Morales*), **Comm. in Algebra** **20** (1992), **1109–1121.**
- [35] Jacobian dual fibrations (with *B. Ulrich* and *W. Vasconcelos*), **Amer. J. Math.** **115** (1993), **47–75.**
- [36] Arithmetically Cohen-Macaulay monomial curves in \mathbb{P}^3 (with *M. Morales*), **Comm. in Algebra** **21(3)** (1993), **951–961.**
- [37] The analytic spread of the ideal of a monomial curve in 3-space, (with *Ph. Gimenez* and *M. Morales*), in COMPUTATIONAL ALGEBRAIC GEOMETRY, Nice 1992 (Editors: Frédéric Eyssette, André Galligo), **Progress in Math. 109, Birkhäuser Boston • Basel • Berlin, 1993, 77–90.**
- [38] Canonical modules and the factoriality of symmetric algebras, (with *B. Ulrich* and *W. Vasconcelos*), in RINGS EXTENSIONS AND COHOMOLOGY, Proceedings of a Conference in honour of Daniel Zelinsky (Andy R. Magid, Ed.), **Lecture Notes in Pure and Applied Mathematics 159, Marcel-Dekker, New York, 1994, 213–221.**
- [39] The ideal theory of graphs, (with *W. Vasconcelos* and *R. Villarreal*), **J. Algebra** **167(2)** (1994), **389–416.**
- [40] Specialization of Rees algebra with a view toward tangent star algebras, (with *G. Kennedy* and *B. Ulrich*), in COMMUTATIVE ALGEBRA, PROCEEDINGS, ICTP, Trieste, September 1992, **World Sc., Singapore 1994, 130–139.**
- [41] Algebraic aspects of tangent cones, in XII ESCOLA DE ÁLGEBRA, Proceedings of Diamantina D. Avritzer and M. Spira, Eds.), Brazil, July 1992, **Matemática Contemporânea, vol. 7, 1994, pp. 71–127.**
- [42] L’analytic spread de l’idéal de définition d’une variété monomiale de codimension deux est toujours inférieur ou égal à trois, (with *Ph. Gimenez* and *M. Morales*), **C. R. Acad. Sci. Paris, t. 319, Série I** (1994), **703–706.**
- [43] The module of derivations of a Stanley–Reisner ring, (with *P. Brumatti*), **Proc. Amer. Math. Soc.** **123** (1995), **1309–1318.**

- [44] Cohen–Macaulay Rees algebras and degrees of polynomial relations, (with *B. Ulrich* and *W. Vasconcelos*), **Math. Annalen** **301** (1995), 421–444.
- [45] Multiplicities of blow-ups of homogeneous quadratic sequences, (with *K. Raghavan*), **J. Algebra** **175** (1995), 537–567.
- [46] Effective computation of symbolic powers by jacobian matrices, **Comm. in Algebra**, **24** (1996), 3561–3565.
- [47] Combinatorics of a certain ideal in the Segre coordinate ring , (with *P. Brumatti* and *Ph. Gimenez*), **Proc. Amer. Math. Soc.**, **124** (1996), 3285–3292.
- [48] Tangent star cones, (with *B. Ulrich* and *W. Vasconcelos*), **J. reine angew. Math.**, **483** (1997), 23–59.
- [49] The integral closure of subrings associated to graphs, (with *W. V. Vasconcelos* and *R. Villarreal*), **J. Algebra**, **199** (1998), 281–289.
- [50] On the jacobian module associated to graph, **Proc. Amer. Math. Soc.**, **126** (1998), 989–997.
- [51] The diagonal subalgebra of a blowup algebra, (with *N. V. Trung* and *G. Valla*), **J. Pure Appl. Algebra** **125** (1998), 305–328.
- [52] On the Gauss algebra associated to a rational map $\mathbb{P}^d \rightarrow \mathbb{P}^n$, (with *P. Brumatti* and *P. Gimenez*), **J. Algebra** **207** (1998), 557–571.
- [53] The analytic spread of certain toric varieties of codimension two, (with *Ph. Gimenez* and *M. Morales*), **Results in Mathematics** **35**, (1999), 250–259.
- [54] On the ideal of an embedded join, (with *B. Ulrich*), **J. Algebra** **226** (2000), 1–14.
- [55] Higher relative primitive ideals, (with *G. Jiang*), **Proc. Amer. Math. Soc.** **129** (2001), 647–655.
- [56] Codimension, multiplicities and integral extensions, (with *B. Ulrich* and *W. Vasconcelos*), **Math. Proc. Camb. Phil. Soc.** **130**, (2001), 237–257.
- [57] On birational maps and Jacobian matrices, (with *F. Russo*), **Compositio Math.**, **126** (2001), 335–358.
- [58] A note on the Nakai conjecture (with *P. Brumatti*, *Y. Lequain* and *D. Levcovitz*), **Proc. Amer. Math. Soc.**, **130** (2002), 15–21.
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- [62] Rees algebras of modules, (with *B. Ulrich* and *W. Vasconcelos*), **Proc. London Math. Soc.**, 87 (3) (2003), 610–646.
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- [68] Homaloidal hypersurfaces and hypersurfaces with vanishing Hessian, (with *C. Ciliberto* and *F. Russo*), **Advances in Math.**, 218 (2008) 1759–1805.
- [69] Polar syzygies in characteristic zero: the monomial case (with *I. Bermejo* and *P. Gimenez*), **J. Pure Appl. Algebra**, 213 (2009) 1–21.
- [70] The Fitting ideal problem, (with *B. Ulrich*), **Bull. London Math. Soc.**, 41 (2009) 79–88.
- [71] Elimination and nonlinear equations of Rees algebras, (with *L. Busé* and *M. Chardin*), **J. Algebra**, 324 (2010) 1314–1333.
- [72] Algebraic methods for parameterized codes and invariants of vanishing ideals over finite fields, (with *C. Renteria* and *R. Villarreal*), **Finite Fields and their Applications**, 17 (2011) 81–104.
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- [74] Cremona maps defined by monomials (with *B. Costa*), **J. Pure Appl. Algebra**, 216 (2012), 212–225.
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- [76] Tangent algebras (with *B. Ulrich* and *W. Vasconcelos*), **Trans. Amer. Math. Soc.**, 364 (2012), 571–594.
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- [81] Extremal Rees algebras, (with *J. Hong* and *W. Vasconcelos*), **J. Commut. Algebra**, **5** (2013), 231–267.
- [82] New constructions of Cremona maps, (with *B. Costa*), **Math. Res. Lett.** **20** (2013), 629–645.
- [83] Homology of homogeneous divisors, (with *S. Tohăneanu*), **Israel J. Math**, **200** (2014), 449–487.
- [84] Symbolic powers of perfect ideals of codimension 2 and birational maps, (with *Z. Ramos*), **J. Algebra**, **413** (2014) 153–197.
- [85] Implicitization of de Jonquières parametrizations, (with *S. H. Hassanzadeh*), **J. Commut. Algebra**, **6** (2014) 149–172.
- [86] A theorem about Cremona maps and symbolic Rees algebras, (with *B. Costa* and *Z. Ramos*), **International J. of Algebra and Computation**, **24** (2014), 1191–1212.
- [87] On catalecticant perfect ideals of codimension 2, (with *Z. Ramos*), **J. Algebra and its Applications**, **14** (2015) 1550031-2–1550031-12.
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2. *Introdução às funções algébricas e abelianas*, X BRAZILIAN MATHEMATICAL COLLOQUIUM, Poços de Caldas, Brazil, July 1975.
3. *Introdução à Algebra*, Notas de Matemática, IMPA, Rio de Janeiro, 1975. Second edition: 1977.
4. *Tópicos de Algebra Comutativa*, (with *J. F. Andrade*), XIII BRAZILIAN MATHEMATICAL COLLOQUIUM, Poços de Caldas, Brazil, July 1981.
5. *Lectures on approximation complexes*, (with *W. Vasconcelos*), VI ESCOLA DE ALGEBRA, Recife, July 1980, Coleção Atas, Soc. Bras. Mat. Vol. 14(1981).
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10. *Graded algebras incident to Correspondence Theory*, XV ESCOLA DE ÁLGEBRA, Canela, RGS, Brazil, July 1998.
11. *Remarkable Graded Algebras in Algebraic Geometry*, XII ELAM, (IMCA) Lima, Peru, June 1999.
12. *Topics on Algebras and Modules*, Notes of a Course at the Università di Messina, Messina, Sicily, Fall 2003.
13. *Algebraic-homological constructions attached to differentials*, Notes of Talks at IMCA, Lima, July 2005.

14. Seminar notes on determinantal varieties and rings, ICMC-USP, São Carlos, Brazil, 2017 and Politecnico di Torino, Italy, Fall 2018
15. *Elementary Commutative Algebra. A detailed syllabus with an eye for effectiveness*, Novas Edições Acadêmicas, Omniscryptum Publishing Group, 2018.
16. *Commutative Algebra*, De Gruyter, 2020.
17. *Graded Algebras in Algebraic Geometry* (with Zaqueu Ramos), De Gruyter, ongoing.

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Rational maps and Cremona transformations: a primer to their ideal theoretic side, Series of talks delivered at Purdue University on Spring 2008

Flashback on the Zariski–Lipman Conjecture, Mini-course at the Fifth Brazilian Northeastern Meeting on Singularities, Universidade Federal da Paraíba, July 2019

The Ubiquity of Syzygies, Mini-course at the CIMPA Research School on Syzygiwa, Universidade Federal da Paraíba, Brazil, November 2019

4 Other academic activities

4.1 Thesis advisor

- Joaquim de Souza Neto (Brazilian), Master Degree, IMPA, 1975. Present status: retired associate at the Federal University of Pernambuco, Brazil

- Aldo Bezerra Maciel (Brazilian), Master Degree, IMPA, 1976. Present status: vice-president of the State University of Paraíba, Brasil
- Maria Lúcia Hefez (Brazilian), Master Degree, IMPA, 1980 (co-advisor: Yves Lequain). Present status: Associate Professor at the Fluminense Federal University, Brazil
- José Fernandes Andrade (Brazilian), Doctoral Degree, IMPA, 1981. Present status: Professor at the Federal University of Bahia, Brazil
- Regina Soares (Brazilian), Master Degree, UFPe, 1984.
- Antonio Carlos R. Monteiro (Brazilian), Master Degree, UFPe, 1986. Present status: D. Sc. from Oxford; Associate Professor at the Federal University of Pernambuco, Brazil
- Carlos N. Bahiano (Brazilian), Master Degree, UFBA, 1992; Doctoral Degree, UNICAMP, 1999. Present status: Associate Professor at the Federal University of Bahia, Brazil
- Paulo Antonio M. Fonseca (Brazilian), Doctoral Degree, UNICAMP, 1997. Present status: Associate Professor at the Federal University of Minas Gerais, Brazil
- José Esdras do Nascimento, Master Degree, UFPe, 1999
- Cleto Brasileiro Miranda Neto (Brazilian), Master Degree, UFPe, 2002; Doctoral Degree, UFPe, 2006. Present status: Associate Professor at the Federal University of Paraíba, Brazil
- Isis Gabriela de Arruda Quinteiro (Brazilian), Master Degree, UFPe, 2004. Present status: Associate Professor at the Federal Rural University of Pernambuco, Brazil
- André Vinicius Doria (Brazilian), Master Degree, UFPe, 2007; Doctoral Degree, UFPe, 2011. Present status: Associate Professor at the Federal University of Sergipe, Brazil
- Kalasas Vasconcelos de Araújo (Brazilian), Doctoral Degree, UFPe, 2007. Present status: Associate Professor at the Federal University of Sergipe, Brazil
- Abbas Nasrolah Nejad (Iranian), Doctoral Degree, UFPe, 2010. Present status: Institute for Advanced Study in Basic Science (IASBS) of Zanjan, Iran.
- José Naeliton Marques da Silva (Brazilian), Master Degree, 2010, UFPB (co-advisor). Present status: Associate Professor at the Federal University of Paraíba, Brazil.
- Barbara Costa (Brazilian), Doctoral Degree, UFPe, 2011. Present status: Associate Professor at the Federal Rural University of Pernambuco, Brazil
- Zaqueu Alves Ramos (Brazilian), Doctoral Degree, UFPe, 2012. Present status: Associate Professor at the Federal University of Sergipe, Brazil

- Maral Mostafazadehfard (Iranian), Doctoral Degree at the Federal University of Pernambuco, Brazil, July 2014. Present status: Post-doctoral fellow at IMPA, Rio de Janeiro
- Ricardo Burity (Brazilian), Doctoral Degree at the Federal University of Paraiba, Brazil, July 2015. Present status: Associate Professor at the Federal University of Paraiba, João Pessoa, Brazil
- Rainelly Cunha (Brazilian), Doctoral Degree at the Federal University of Paraiba, Brazil, March 2017. Present status: Associated Professor at the Technological Institute of Rio Grande do Norte, Natal, Brazil.
- Dayane Santos Lira (Brazilian), Doctoral Degree at the Federal University of Paraiba (expected: 2021). Present status: graduate student holding a Government scholarship.

4.2 Post-Doc advisor

- Seyed Hamid Hassanzadeh (Iranian) (PhD at Université de Paris VI (Jussieu); advisor: Marc Chardin), 2010–2012; under a CNPQ scholarship
- Zaqueu Alves Ramos (Brazilian) (PhD at Federal University of Pernambuco; advisor: A. Simis), 2014–2015; under a CAPES scholarship
- André Vinicius Dória (Brazilian) (PhD at Federal University of Pernambuco; advisor: A. Simis), 2015–2016; under a CAPES scholarship
- Zaqueu Alves Ramos (Brazilian), 2019–2020; under a scholarship from INCTMat (CAPES/IMPA)

4.3 Courses taught

- Undergraduate
 - A First Course in Galois Theory • Introduction to Algebra • Differential and Integral Calculus • Theory of Rings • Advanced Calculus • Linear Algebra • Algebraic Plane Curves • Graph Theory: an Introduction • Theory of Equations and of Groups • Introduction to Computer Algebra • Introduction to Algebraic Combinatorics, Part I: Graphs • Introduction to Algebraic Combinatorics, Part II: Theory of Splines and Approximation Theory • Linear Algebra: a second course
- Graduate
 - Galois Theory • Commutative Algebra • Topology • Algebraic Topology • Algebraic Geometry • Complex Variables: a Second Course • Topics in Algebra • Theory of Groups and Rings • Introduction to Algebraic Geometry (using Computer Algebra) • Modular Functions: an Introduction • A survey of Graded Algebras in Commutative Algebra and Algebraic Geometry • Topics in Toric Varieties • Algebraic and Abelian Functions: an Introduction • Algebraic Combinatorics • Topics in Commutative Algebra (with emphasis in homological methods) • Determinantal varieties and rings