Danielle GONDARD-COZETTE

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Education and Diplomas

Mathematical studies at "Ecole Normale Supérieure de Cachan" (1966-1970);
« Agrégation de Mathématiques » (1969);
« Doctorate in Mathematics », Université Paris-Sud (1973), advisor : Pierre Samuel;
« Docteur d'Etat ès Science » (1989) in Mathematics (equivalent to H.D.R.), Université Paris 7, advisor : Gabriel Sabbagh.

Academic Career

- Maître de Conférences Emeritus, IMJ-PRG - Sorbonne Université, since 2021;
- Maître de Conférences honoraire and bénévole, IMJ-PRG - UPMC, since 2009.

- Maître de Conférences hors-classe, Université Pierre et Marie Curie (1992-2009);
- Maître de Conférences Université Pierre et Marie Curie - Paris 6 (1985-1992);
- Maître-Assistant Université Pierre et Marie Curie - Paris 6 (1976-1985).

- Maître-Assistante Université de Bretagne Occidentale (1974-1976) ;
- Assistante Université de Bretagne Occidentale (1970-1974).

- Qualified University Professor in 1992, 1998 and 2003 : qualifications 9212511011,
        9812583209, and 03125083209 ;
- Contracts for researches and advisor for doctorates (PEDR) : 1994-1998, 1999-2003 and
        2004-2008;
- Contracts « collaboration bénévole » with University Pierre et Marie Curie since 2009.

Mathematical Researches

Research Interests :

- Real Algebra and Valuation Theory;
- Model Theory;
- Real Algebraic Geometry.

International Cooperations :

- Member of Executive Committee of international project (2017-2019) - International Council for Science (ICSU) : « *A Global Approach to the Gender Gap in Mathematical and Natural Sciences: How to Measure It, How to Reduce It?* ».
  https://icsugendergapinscience.org/organization/executive-committee/
- Cooperation on « *Positive Polynomials and Applications »,* University Paris 6 – Univesity of Saskatchewan, Canada, 2006-2011 ;
- European network ("Improving Human Research Potential"), MODNET, *"Model Theory and applications* " 2004-2008 ;
- European network ("Improving Human Research Potential"), RAAG, *« Real Algebraic and Analytic Geometry »* 2002-2006 ;
- Coopération on *« Théorie des Valuations et Applications »,* University Paris 6 – University of Saskatchewan, Canada, 1999-2004 ;
- Cooperation France-Germany, program PROCOPE 1989-1994, 1997-1999 ;
- European network (« Human Capital and Mobility ») *« Real Algebraic and Analytic Geometry»* 1994-1997.
- European network (« Human Capital and Mobility ») *« Model Theory and Applications »* 1993-1996 ;
- Member of Executive Committee of international project (2017-2019) - International Council for Science (ICSU) : « *A Global Approach to the Gender Gap in Mathematical and Natural Sciences: How to Measure It, How to Reduce It?* ».

Séminar, Editions :

- Editor for volume **Contemporary Mathematics 697**, *Ordered Algebraic Structures and Related Topics,* (2017).
- Co-direction of seminar *« **Structures Algébriques Ordonnées** »* with F. Delon and M. Dickmann since 1984. http://semsao.imj-prg.fr
- Edior of proceedings of our seminar *Structures Algébriques Ordonnées* since 1984.
- Editor for the proceedings of "Congrès Mathématique Junior" published in « *Quadrature* », numéro 16, (1993).
- Reviews for American Mathematical Society since 1992, and for Zentralblatt für Mathematik since 1995.
- Editor for ***The Rocky Mountain Journal of Mathematics***, fall 1984, volume 14, #4.
- Editor for volumes 32 and 33 "***Publications Mathématiques de l'Université Paris 7"*** (1990).

Meeting Organizer.

- Organizer of special day **March 20 2018, Institut Henri Poincaré**. meeting held to celebrate the 90th birthday of **Paulo Ribenboim**.
  http://modvac18.math.ens.fr/Ribenboim.html

- Member of the organizing committee of the international conference *« Ordered Algebraic Structures and Related Topics »,* conference 1155 - **CIRM (Luminy), October 12-16 2015.**
  scientific-events.weebly.com/1155.html

- Co-organizer for *Journées en l'honneur de Max Dickmann*, Institut de mathématique de Jussieu - Equipe de Logique, **june 24-25 2007.**

- Member of the organizing committee, with M. Coste and M. Dickmann, for **Special Trimester on *«Real Geometry»* Centre Emile Borel**, Institut Henri Poincaré in Paris, held **fall 2005**.

- *Congrès Mathématique Junior*, **Cité des Sciences de La Villette, July 1992**, linked to the first Congrès Mathématique Européen; editor of the special issue of "Quadrature".

- Member of the organizing committee of the **AMS meeting special session on *« Ordered Fields and Real Algebraic Geometry »,* Boulder (Colorado,U.S.A.) en 1983**.

Administration and Scientific Responsabilities

- Member of "Comité Parité", IMJ-PRG since 2017
- Delegate of UPMC in Comité de Direction of Institut Emilie du Chatelet since 2010.
- Member of *"Conseil National des Universités"*, section 25th, 2003-2009.
- Scientific responsibility for University Paris 6 in diploma *"Equal opportunities for women and men",* created in 2004 (Universities Paris III and Paris 6) supported by "Délégation Régionale aux droits des Femmes et à l'Egalité d'Ile de France" and "Fonds Social Européen".
- Vice-president of *"Commission de spécialistes"* 25th section, University Pierre et Marie Curie (Paris VI), 1992-1998.
- Member of *"Commission group V"* (sections 25, 26 et 27) University Pierre et Marie Curie, 1992-1999.
- Création and realization of the printed presentation of UFR 920, University Paris 6.
- Member of *"Commissions de spécialistes"* : University of Versailles-Saint Quentin en Yvelines (1992-1995), University of Nantes (1993-1999), University of Maine (1998-2001).

University Teaching Experience

Member of the selection board for "Ecole Normale Supérieure" (Ulm), 2018.

Courses
- *"On valuation fans in Real Fields"*, course for trimester *Real Geometry* held Emile Borel Institute Fall 2005, IHP Paris.
- *"Femmes et sciences"* in diploma *"Equal opportunities for women and men"*, since 2004, and then for *"Conseiller, conseillère referent-e egalité femmes/hommes"* since january 2009.
. - Licence SCM, courses LM 120 and LM 125, section IPCM, since 1992.
- Various courses in "Licence" and "Maîtrise" of Mathematics (1976-1992) : Topology, Complex Functions,….
- DEUG second year MP (1976-1992).
- Licence by mail, University Paris 6, Topology (1979-1981).
- Courses for high school teachers, IREM de Brest (1974-1976)
- First year courses in mathematics, University of Bretagne Occidentale (1970-1974).

Member of the selection board for "Ecole Normale Supérieure de Cachan", (1971-1986).

Scientific responsibility for University Paris 6 in diploma *"Equal opportunities for women and men",* created in 2004 (Universities Paris III and Paris 6) supported by "Délégation Régionale aux droits des Femmes et à l'Egalité d'Ile de France" and "Fonds Social Européen".

Societies and distinctions

Member of *Société Mathématique de France* since 1974.
Member of *American Mathematical Society* 1985-2010.

Member of association *Femmes et Mathématiques* since its creation 1987.
Member of *Association Française des Femmes Diplômées des Universités* since 1992.
Member of association *Femmes et Sciences* since its creation in 2000.

"Chevalière" in "Ordre National du Mérite" (attribution on October 2nd 2003 by Claudine Hermann, professor at Ecole Polytechnique).
Member of **Association Nationale des Membres de l'Ordre National du Mérite** depuis 2003.

Mathematical research publications

[32] *Nombre de composantes connexes d'une variété réelle et **R**-places,* J. of Pure and Abstract Algebra 2020, https://doi.org/10.1016/j.jpaa.2020.106611; edited by Saugata Basu, Cordian Riener, Marie-Françoise Roy ; Volume 225, Issue 7 , July 2021.

[31] *The Space of Valuation Fans and Admissible P-Structures,* in séminaire « Structures Algébriques Ordonnées », Preprints Paris 7 - Logique # 94, Février 2021.

 [30] *Note on Artin's solution for Hilbert's 17th problem* and *The Stengle Nullstellenstaz,* manuscripts in preparation for *"Sources for Real Geometry",* collective book in preparation.

[29] *On valuation fans and the real holomorphy ring,* in Séminaire Structures Algébriques Ordonnées, Preprints Paris 7- Logique # 91, Mai 2017.

[28] ***R**-places and related topic, in « **Valuation Theory in Interaction »,** Antonio Campillo (Valladolid, Spain), Franz-Viktor Kuhlmann (University of Saskatchewan, Canada) and Bernard Teissier (IMJ, Paris, France) editors, Series of Congress reports, E.M.S., 2014.

[27] *Real Holomorphy Rings and the Complete Real Spectrum,* written with Murray Marshall, **Annales de la faculté des sciences de Toulouse,** Mathématiques, tomes XIX, n° SI, p.57-74, 2010.

[26] *On some elementary fields theories*, in **"Structures Algébriques Ordonnées"**, #78, February 2006.

[25] *Real holomorphy rings and the complete real spectrum,* written with M. Marshall, in **"Structures Algébriques Ordonnées"**, #76, April 2004.

[24] ***R**-places : résultats et problèmes ouverts*, in **"Structures Algébriques Ordonnées"**, #75, Mai 2003.

[23] *Towards an abstract description of the space of real places*, written with M. Marshall, in Real Algebraic Geometry and Ordered Structures, C. Delzell et J. Madden eds., **Co. Math.**, vol. 253, AMS, 77-113, 2000.
[22] *Valuation fans and residually real-closed henselian fields*, written with avec E. Becker and R. Berr, **Journal of Algebra** 215, 574-602, 1999.

[21] *Notes on the space of real places of a formally real field*, written with E. Becker, in proceedings **"Real Analytic and Algebraic Geometry"** Trento (Sept.92) ; F. Broglia, M. Galbiati, A. Tognoli eds. ; publié par W. de Gruyter, Berlin New-York, 21-46, 1995.

[20] *Hilbert's 17th problem for sums of 2nth powers*, written with E. Becker and R. Berr (Dortmund) and F. Delon (Paris7), **Journal für die reine und angewandte Mathematik** , 450, 139-157, 1994.

[19] *Sur les ordres de niveau 2n et sur une extension du 17ème problème de Hilbert*, in "Real Algebraic Geometry" (M. Coste, L. Mahé, M.-F. Roy eds.), **Lecture Notes in Math** #1524, Springer-Verlag, 257-266, 1992.

[18] *17ème problème de Hilbert sur les corps chaîne-clos*, written with Françoise Delon, **Journal of Symbolic Logic**, vol. 56, # 3, 853-861, 1991.

[17] *Axiomatisations simples des théories des corps de Rolle*, **Manuscripta Mathematica**, 69, Springer-Verlag, 267-274, 1990.

[16] *17ème problème de Hilbert et résultats récents*, in « **Structures Algébriques Ordonnées** », Vol. II, Publications Mathématiques de l'Université Paris 7, Vol. 33, 21-49, 1990.

[15] *Théorie des ordres de niveau supérieur et corps chaîne-clos*, in « **Structures Algébriques Ordonnées** » Vol. I , Publications Mathématiques de l'Université Paris 7, Vol. 32, 37-63, 1990.

[14] *Chainable fields and real algebraic geometry*, in "**Real Algebraic and Analytic Geometry**", (Trento, 1988) Lecture Notes in Math. # 1420, Springer-Verlag, 128-148, 1990.

[13] *Théorie des modèles de corps ordonnables et sommes de puissances 2n-èmes,* **Thèse de Doctorat d'Etat**, Université Paris 7, 18-09-1989, advisor : G. Sabbagh.

[12] *On rings admitting orderings and 2-primary chains of orderings of higher level*, written with E. Becker, **Manuscripta Math**. 65, 63-82, 1989.

[11] *Foundations of chain algebra and a Nullstellensatz*, **Actes de l'Association Française d'Algèbre Ordonnée**, Le Mans, November 1987.

[10] *Théorie du premier ordre des corps chaînables et des corps chaîne-clos,* **C. R. Acad. Sc. Paris** t. 304 , # 16, 1987.

[9] T*héorie des modèles et fonctions définies positives sur les variétés algébriques réelles,* **Contemporary Mathematics (AMS)**, vol 8, 119-139, 1982.

[8] *Le 17ème problème de Hilbert pour les matrices hermitiennes*, **manuscript**, Département de Mathématiques, Université de Bretagne Occidentale, 1976.

[7] *Quelques Notions Fondamentales d'Algèbre et d'Analyse*, conferences for high school teachers, **Publication de l'IREM de Brest** , 1976.

[6] *Fonctions définies positives sur les variétés réelles*, written with P. Ribenboim, **Bull. Sc. Math**. Tome 98, 39-47, 1974.

[5] *Le 17ème problème de Hilbert pour les matrices*, written with P. Ribenboim,   **Bull. Sc. Math**., Tome 98, 49-56, 1974.

[4] *Sur le 17ème problème de Hilbert* , **Thèse de 3ème cycle**, Université de Paris-sud Orsay, 24-1-1973 ; advisor : P. Samuel ; Président : G Poitou.

[3] *Sur le 17ème problème de Hilbert dans R(V)*, **C. R. Acad. Sc. Paris**, Tome 276, 19-2-1973.

[2] *Sur le 17ème problème de Hilbert*, **C. R. Acad. Sc. Paris**, tome 278, 20-8-1973.

[1] *Etude et applications de la théorie des corps ordonnables*, mémoire D.E.A., Université Paris 6; (published in « **Arithmétique des corps** », Paulo Ribenboim, Hermann), 1971.

International Conferences and Invitations in foreign Universities

March 12-18 2023, invited to « *Real Algebraic Geometry with a View toward Koopman Operator Methods* », Mathematisches Forschungsinstitut, Oberwolfach, (Germany).

October 23-28 and October 30 - November 4 2022, *"Real Algebraic Geometry"* and *"Real Aspects of Geometry"*, CIRM - Luminy.

June 19-25 2022, invited *"Model Theory and Applications 2022",* Cetraro meeting (Italie).

June 14-25 2021, Summer school *"Symplectic, real, and tropical aspects of enumerative geometry"* and Conference *"Facets of real algebraic geometry"*, Le Croisic et Nantes.

March 1-7 2020, invited to « *Real Algebraic Geometry with a View Toward Hyperbolic* », Mathematisches Forschungsinstitut, Oberwolfach, (Germany)

November 3-9 2019, participation to the final conference *"Conference on Global Approach to the Gender Gap in Mathematical, Computing and Natural Sciences: How to Measure It, How to Reduce It?" ;* ICTP Trieste (Italy)

March 29th - April 7th 2019 : invited speaker, *On the number of connected components of smooth projective non empty real varieties.,* Arctic Applied Algebra, Artic University, Tromso, (Norway)

December 6-8 2018 : invited speaker, *A Global Approach to the Gender Gap in Mathematical, Computing, and Natural Sciences: How to Measure It, How to Reduce It?* ; KWIM-Festtage" Konstantz University (Germany)

November 23-29 2018 : invited speaker, *From Orderings to Valuation Fans and Related Topics,* Algebra : celebrating Paulo Ribenboim's ninetieth birthday.
https://www.ime.usp.br/~eventoribenboim/, University Sao Paulo, Sao Paulo, Brazil

January 7-13 2018 *:* Research School, *Model Theory, Combinatorics and Valued Fields,* CIRM, Luminy.

December 1-3 2017 : Regional meeting of ICSU project « *A Global Approach to the Gender Gap in Mathematical and Natural Sciences: How to Measure It, How to Reduce It?* », Le cap (Afrique du Sud).

September 17-22 2017 : « *Perspectives in Real Geometry », CIRM*, Luminy.

August 20-26 2017 : « *Sums of squares* » University if Innsbruck (Autriche).

March 11-19 2017 : *« Topics in Real Geometry »,* Graduate School of Mathematics, Nagoya University (Japon).

March 5-10 2017 : « Real Algebraic Geometry with a view towards moment problems and optimization », Mathematisches Forschungsinstitut, Oberwolfach, (Germany)

August 30-31 2016 : *« Marshall's problem and some further developments »,* invited speaker nineteenth colloquiumfest held in honor of Murray Marshall, University of Saskatchewan, Saskatoon, (Canada).

October 11-17 2015 : *« Ordered Algebraic Structures and related Topics »,* CIRM, Luminy.

June 17-20 2014 : *"Olga Taussky-Todd, sums of squares and Hilbert's 17th problem",* invited speaker, Konstantz University (Germany)

April 6-12 2014 : *« Real Algebraic Geometry With A View Toward Systems Control and Free Positivity »,* Mathematisches Forschungsinstitut, Oberwolfach, (Germany)

January 5-18 2014 : Invited Professor : *« R- places and related topics »,* Doctorate course in summer doctoral school. Universidad de Concepcion (Chile).

January 8-9 2014 : *« Hilbert's 17th problem : an old problem with new developments* », invited talk for the closure of mini-congreso, Universidad del Bio Bio, Concepcion (Chile)

July 17-20 2013 : *Model Theory and applications to Geometry*, CMAF Universidade de Lisboa , Lisbonne (Portugal).

July 15-20 2012 : *"On Valuation Fans and Related Topics",* Invited Speaker in the XXII Brazilian Algebra Meeting ; Salvador de Bahia (Brazil).

 June 15- 19 2012 : invited to give seminar talks (Algebraic geometry and model theory seminars) in Unviversity Konstantz (Allemagne)

August 21-28 2011 : *Algebra, Combinatorics and Model Theory,* Koc University, Istanbul, Turquie.

July 23-29 2011 : *« On R-places and related topics »,* Invited Speaker, Second international conference and workshop on Valuations (Universités de Valladolid et de Madrid), El Escorial, Espagne.

December 11-23 2010 : Conference *"On valuation fans and some elementary theories*" , special session Algebra and Model Theory, of the first joint meeting AMS/SoMaChi, Pucon (Chili)

August 15-27 2010 : participation ICWNM and ICM 2010, Hyderabad (Inde).

September 30 – October 6 2009 : *Positivity, Valuations and Quadratic Formes,* Conference in honor of Alexander Prestel, University of Konstanz, Germany.

August 9-14 2009 : ESF-EMS-ERCOM Conference on *Model Theory*, The Banach Center, Bedlewo, Poland.

February 15-21 2009 : Meeting on "Real Analytic and Nash Functions and Related Topics", *"On the number of connected components of smooth real varieties"* in memoriam Alberto Tognoli, University of Pisa, Italy.

November 7-8 2008 : Conference in honor of Eberhard Becker, University of Dortmund, Germany.

September 13-15 2008, Conference on *The Model Theory of Fields.* University of Freiburg, Germany.

August 4-18 2008 *"On the number of connected components of smooth real varieties"*, Conference in honor of J.-J. Risler : "Around Hilbert's 16th problem", and Escola de Algebra, IMPA, Rio de Janeiro, Brazil.

May 26 - June 02 2008, *"Real Holomorphy Rings and the Complete Real Spectrum"*, 5th Linear Algebra Workshop, University of Ljublijana, Kranjska Gora, Slovenia.

January 14-21 2008, *"From Orderings to Valuation Fans"* , Colloquium talk and research stay at University of Hawaii at Manoa, USA.

January 8-14 2008, *"From Artin Schreier to Valuation Fans"*, Colloquium talk, and *Real Holomorphy Rings and the Complete Real Spectrum"*, Seminar talk, University of Saskatchewan, Canada.

April 24-30 2007, *"On Real Holomorphy Rings of Rings"*, invited speaker in Conference on Oredered Rings, Louisiana State University, Baton Rouge, USA (Honoring Melvin Henriksen on his 80th birthday).

November 25-27 2006, "*On Theories of Closures of fields equipped with valuation fans"*, invited conference for the Model Theory of Fields, University of Freiburg, Germany.

October 7-14 2006, invitation to attend workshop *"Positive Polynomials"*, Pacific Institute for Mathematical Sciences, Banff, Canada.

October 5-6 2006, Invitation mini-conference *"Topics in Real Algebraic Geometry"*, University of Saskatchewan, Saskatoon, Canada.

Avril 2-8 2006, *"Reading Stengle"*, conference in worshop Sources for Real Geometry", held in Cortona, Scuola Normale Superiore di Pisa, Italy.

March 20-26 2006, "*On Valuation Fans"*, invited speaker in Workshop on "Valuation Theory and its Application", in memoriam Otto Endler, University of Campinas, Brazil ;

March 17 2006, *"Number of connected components of real algebraic varieties"*, Seminar of Algebra, Universidad de Buenos Aires, Argentina.

September 4 - 9 2005, participation to the Annual RAAG meeting, University of Passau, Germany.

March 28-April 7 2005, participation to Workshop, *"An Introduction to recent applications of Model Theory"*, Isaac Newton Institute, Cambridge, Great Britain.

 November 7-16 2004, "*Number of connected components and R-places", Seminar conference,* University of Saskatchewan, Saskatoon, Canada.

 September 11-16 2004, *"Nombre de composantes connexes d'une variété réelle"*, meeting on Real Algebraic and Analytic Geometry, Université de Kenitra, Mehdia, Marocco.

July 14-27 2004, "*Algebraic closures of a field equipped with a valuation fan",* XVIII Escola de Algebra, Campinas, Brazil.

June 21-27 2004, participation to the annual meeting RAAG "Real Algebraic and Analytic Geometry", Universidades de Madrid et Santander, Salamanca, Spain.

April 12-16 2004 : *"Number of connected components and R-places",* Mathematical Sciences Research Institute", Berkeley USA.

March 22-26 2004 : participant to the RAAG european network meeting *"Singularity theory",* in honour of Stanislaw Lojasiewcz, Cracovie, Poland.

March 11-12 2004 : participant to *"representation of semidefinite positive functions as sums of squares and related topics"*. University of Pisa, Italy.

January 8-20 2004 : invited conference *"Towards a theory of R-places in spaces of orderings",* XII° Simposio Latinoamericano de Logica matematica, Universidad de Costa Rica, San Jose, Costa Rica.

November 11-18 2003 : invited conference *" Higher level orderings and R-places"* and work in collaboration with professor Murray Marshall, University of Saskatchewan, Saskatoon, Canada.

 October 22- 26 2003 : invited conference *"From higher level orderings to R-places"* , meeting on Real Algebra, European Network RAAG, Universität Dortmund, Germany.

April 2003 : participant to the annual RAAG meeting, and stay centro di Ricerca Matematica Ennio de Giorgi, Pisa, Italy.

Décember 2002 : participant to the *"Quadratic Forms"* meeting, Talca-Pucon, University of Talca, Chile.

September 2002 : participant to the Conférence *« Real Algebraic and Analytic geometry»*, european network RAAG, Kazimierz, Poland.

August 2002 : participation *ICM 2002*, Beijing, China.

May 2002 : invitation Euro-Conférence in *«Model Theory and Applications »*, University of Napoli, Ravello, Italy.

March 2002 : invited *« Colloquiumfest on Valuation Theory »*, University of Saskatchewan, Saskatoon, Canada.

November 2000 : invited conference, "*From Hilbert's 17th problem to valuation fans",* University of Saskatchewan, Saskatoon, Canada.

July-August 1999 : invitation to the *« International Conference and Workshop on Valuation Theory »*, University of Saskatchewan, Saskatoon, Canada.

September 1998 : invitation by CIRM of Trento, *"Real Algebraic and Analytic Geometry"*, Levico, Italy.

June 1998 : invited to the Workshop on *"Model Theory, Algebra and Arithmetic"*, Mathematical Sciences Research Institute, Université de Berkeley, U.S.A..

October 1997 : invited conference University of Trento, Italy.

September 1997 : invitation to HCM-Workshop *"Spectral Spaces in Real and p-adic Geometry",* University of Dortmund, Germany.

May 1997 : invited conference, *Generalizations of Real-closed fields theory*, University of Pise, Italy.

September 1996 : *« Real Algebraic and Analytic Geometry »,* University of Genève, (Switzerland).

April 1996 : invited conference : special session of AMS meeting on *"Real Algebraic Geometry and Ordered Structures"* Baton Rouge, Louisiane, U.S.A., and research stay (part of the "special semester") .

June 1995 : invited conference in *"School on Model Theory and Real Algebraic Geometry",* and *"Real Algebraic and Analytic Geometry",* Universities of Madrid Santander, Segovia (Spain).

June 1994 : invited professor à l'Université de Dortmund, Germany, cooperation Program Procope.

May 1994 : participant to the meeting *"Real Algebraic and Analytic Geometry"* organized by University of Amsterdam in Soesterberg (Holland).

March 1993 : invited professor, University of Dortmund (Germany), cooperation Program Procope.

September 1992 : invited conference, *"Real Algebraic and Analytic Geometry"*, C.I.R.M. Trento, Italy.

May 1992 : invitation to the meeting *"Quadratische Formen"* Mathematisches Forschungsinstitut Oberwolfach, Germany.

November 1991 : invited professor, Universität Dortmund, Germany, cooperation Program Procope.

June 1989 : invited professor Universität Dortmund (R.F.A.), cooperation program Procope.

October 1988 : invited conference, *"Real Algebraic and Analytic Geometry"*, C.I.R.M. Trento (Italy).

August 1988 : participation to the *"Logic Colloqium 88"*, Padova, Italy.

July 1987 : conference in *"Logic Colloquium 87"*, Granada, Spain.

April 1987 : invited conference, meeting on *"Reelle Algebraische Geometrie",* Mathematisches Forschungsinstitut Oberwolfach, R.F.A..

August 1986 : participation ICM 1986, University of Berkeley, U.S.A..

July 1986 : invitation to *"Quadratic Forms and Real Algebraic Geometry",* Oregon State University, Corvallis, U.S.A..

July 1983 : invited and member of the organizing committee, A.M.S.- N.A.T.O. *"Ordered Fields and Real Algebraic Geometry"*, Boulder, Colorado, U.S.A..

January 1981 : invited conference, 87th A.M.Smeeting., special session on *"Ordered Fields and Real Algebraic Geometry"*, San Francisco, Californie, U.S.A..

August 1978 : participant ICM 1978, Helsinki, Finland.

Décember 1973 : invitation Bedford College de London, Great Britain.

June-July 1973 : invitation Open House, Queen's University, Kingston, Ontario, Canada