

# Curriculum vitae

Irene Maria Sabadini

- Full Professor at the Politecnico di Milano (SSD MAT/03)
- Director of the Seminario Matematico e Fisico di Milano
- Coordinator of the PhD programme Mathematical Methods and Models for Engineering, Politecnico di Milano.
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## 1 Education

- **1996** PhD in Mathematics, University of Milano, Italy
- **1990/91** Fellowship at the Politecnico of Milano
- **1989** Degree in Mathematics 110/110 *cum Laude*
- **1984** Scientific high school diploma. Final grade: 60/60

## 2 Participation to Editorial Boards

- Since January 2011: Co-editor (with M. Shapiro e D. C. Struppa) of the section *Higher Dimensional Geometric Function Theory and Hypercomplex Analysis* of the journal *Complex Analysis and Operator Theory*.
- Since July 2011: member of the Editorial Board of *Complex Variables and Elliptic Equations*.
- Since April 2015: member of the Editorial Board of *Milan Journal of Mathematics*
- Co-Editor (with F. Colombo e M. Shapiro) of "General aspects of quaternionic and Clifford analysis " and "Further developments of quaternionic and Clifford analysis" of the *SpringerReferences*.

### 3 Metrics (June 2018)

- Scopus: 177 publications; 1439 citations; h-index 20.
- ISI Web of Science: 141 publications; 1284 citations (685 without self citations); h-index 19.
- MathScinet: 160 publications; 1317 citations; h-index 18.

### 4 Books

1. **Analysis of Dirac systems and computational algebra**, (F. Colombo, I. Sabadini, F. Sommen, D. C. Struppa), *Progress in Mathematical Physics*, Vol. 39, *Birkhäuser*, Boston, 2004, ISBN 0817642552, 332+xiv pages.
2. **Noncommutative Functional Calculus. Theory and Applications of Slice Hyperholomorphic Functions**, (F. Colombo, I. Sabadini, D. C. Struppa), *Progress in Mathematics*, Vol. 289, *Birkhäuser*, 2011, VI, 222 p., ISBN 978-3-0348-0109-6.
3. **Slice hyperholomorphic Schur analysis**, ( D. Alpay, F. Colombo, I. Sabadini), *Operator Theory: Advances and Applications*, ISBN 978-3-319-42514-6, 2016.
4. **Entire slice regular functions**, (F. Colombo, I. Sabadini, D. C. Struppa), *Springer-Briefs*, Springer Cham, ISBN ISBN 978-3-319-49265-0, 2016.

#### 4.1 Edited books

5. **Harmonic analysis, Signal Processing and Complexity: Festschrift in Honor of the 60th Birthday of Carlos A. Berenstein** (I. Sabadini, D. C. Struppa e D. Walnut (eds.)), *Progress in Mathematics*, Vol. 238, *Birkhäuser*, Boston, 2005, ISBN 0817643583, 164+xi pages.
6. Editor of the Chapter **Dirac operators in analysis and related topics**, (J. Ryan e I. Sabadini (eds.)), in *More Progresses in Analysis* Proceedings of the 5th International ISAAC Congress, Catania, World Scientific, 2009, 997–1106.
7. **Hypercomplex analysis**, (I. Sabadini, M. Shapiro, F. Sommen (eds.)), *Trends in Mathematics*, *Birkhäuser*, Basel, 2009, ISBN 9783764398927, 290 pages.
8. **Hypercomplex analysis and Applications**, (I. Sabadini, F. Sommen (eds.)), *Trends in Mathematics*, *Birkhäuser*, Basel, 2011, ISBN 978-3-0346-0245-7, 282 pages.
9. **The Mathematical Legacy of Leon Ehrenpreis**, (I Sabadini, D.C. Struppa (eds.)), *Springer Proceedings in Mathematics*, Springer 2012, ISBN: 978-88-470-1946-1, 394 pagine.
10. **Advances in Hypercomplex Analysis**, (G. Gentili, I. Sabadini, M. Shapiro, F. Sommen, D.C. Struppa (eds.)), *Springer-INdAM Series*, 2013 ISBN: 978-88-470-2444-1.
11. **Hypercomplex Analysis: New Perspectives and Applications**, (S. Bernstein, U. Kähler, I. Sabadini, F. Sommen (eds.)), *Trends in Mathematics*, *Birkhäuser*, Basel, 2014, ISBN 978-3-319-08770-2.

12. **Noncommutative Analysis, Operator Theory and Applications**, (D. Alpay, F. Cipriani, F. Colombo, D. Guido, I. Sabadini, J.-L. Sauvageot (eds.)), Operator Theory: Advances and Applications. Subseries: Linear Operators and Linear Systems, 2016, ISBN 978-3-319-29116-1.
13. **Modern Trends in Hypercomplex Analysis**, (S. Bernstein, U. Kähler, I. Sabadini, F. Sommen (eds.)), Trends in Mathematics, Birkhäuser, Basel, 2016, ISBN 978-3-319-42529-0.

## 5 Visiting Positions

- 1995 February-April: George Mason University, Fairfax, Va, USA.
- 1996 August: George Mason University, Fairfax, Va, USA.
- 1997 January 20–May 15: George Mason University, Fairfax, Va, USA.
- 1999 September 1-10: State University of Gent, Belgium.
- 2001 February 22– March 10: George Mason University, Fairfax, Va, USA.
- 2002 February 18–March 5: State University of Gent, Belgium.
- 2002 June 2–10: State University of Gent, Belgium.
- 2002 November 17–24: Charles University of Prague, Czech Republic.
- 2003 March–April: George Mason University, Fairfax, Va, USA.
- 2004 February 23–27: State University of Gent, Belgium.
- 2004 May 16–27 : George Mason University, Fairfax, Va, USA.
- 2005 August 3–31 : George Mason University, Fairfax, Va, USA.
- 2006 April 3–13 : George Mason University, Fairfax, Va, USA.
- 2006 November 20–26: Charles University of Prague, Czech Republic.
- 2007 April–May: Chapman University, Orange, CA, USA.
- 2007 September 6–7: State University of Gent, Belgium.
- 2008 July 17– August 29: Chapman University, Orange, CA, USA.
- 2008 November 9–14 : State University of Gent, Belgium.
- 2009 August 02–07: State University of Gent, Belgium.
- 2009 October 08– November 28: Chapman University, Orange, CA, USA.
- 2010 April 02–08: Charles University of Prague, Czech Republic.
- 2010 October 15-22: Instituto Politecnico Nacional, Mexico City, Mexico.
- 2010 October 22–November 20: Chapman University, Orange, CA, USA.

- 2011 October 12–December 3: Chapman University, Orange, CA, USA.
- 2012 January 6-14: Tel Aviv University, Israel.
- 2012 January 15-22: Ben-Gurion University of the Negev, Israel.
- 2012 April 29 - May 6: Charles University Prague, Czech Republic.
- 2012 August 1-31: Chapman University, Orange, CA, USA.
- 2012 October 20- November 2: Chapman University, Orange, CA, USA.
- 2013 January 6-13: Tel Aviv University, Israel.
- 2013 January 14-20: Ben-Gurion University of the Negev, Israel.
- 2013 September 28 –October 8: University of Macau, Cina
- 2013 November 1 – December 15: Chapman University, Orange, CA, USA.
- 2014 February 2-9: Ben-Gurion University of the Negev, Israel.
- 2014 February 10-16: Tel Aviv University, Israel.
- 2014 April 21-26 : Charles University, Prague, Czech Republic.
- 2014 September 26 – October 31: Chapman University, Orange, CA, USA.
- 2015 January 11-18: Ben Gurion University of the Negev, Israel.
- 2015 August 9-14: University of Macau, China
- 2015 September 30 – November 7: Chapman University, Orange, CA, USA.
- 2016 August and November: Chapman University, Orange, CA, USA.
- 2017 November: Chapman University, Orange, CA, USA.

## 6 Talks at Workshops and Conferences

- 12-13 April 97, Conference AMS, Maryland, USA: “Regular functions of biquaternionic variables and applications”.
- 4-10 October 98, Conference on Dirac Operators and Applications: Cetraro, Italy: “Quaternionic linear operators: problems related to the link with regularity”.
- 30 October-3 November 2000, NATO Advanced Research Workshop “Clifford Analysis and its Applications”, Prague: “Special first order systems and their resolutions”.
- 1-5 October 2001, Scuola/Workshop “Liaison theory and related topics”, Politecnico di Torino, Italy: “On the Hilbert scheme of curves of degree  $d$  and genus  $\binom{d-3}{2} - 1$ ”.
- 15-18 August 2002, “ICM2002, satellite conference in Clifford analysis”, Macao (Cina), invitata come plenary speaker (declined).

- 23-27 September 2002, Workshop “Algebraic Space Curves”, Politecnico di Torino, overview seminars in preparations of the lessons of R. Hartshorne and M. Martin-Deschamps “Survey on the problem of the connectedness of the Hilbert scheme”.
- 17-20 May 2004, Conference “Harmonic analysis, Signal Processing and Complexity”, Fairfax, VA (USA): “Different approaches to the study of complexes of several Cauchy–Fueter and Dirac operators”.
- 19-29 May 2005, “International Conference on Clifford Algebras and their Applications”, Toulouse (France), (plenary speaker): “On the construction of quaternionic complexes”.
- 25–30 July 2005, 5<sup>th</sup> ISAAC Conference, Catania, Italy: “Generalizations of the Dolbeault complex to quaternionic and Clifford analysis”.
- 13-18 August 2007, 6<sup>th</sup> ISAAC Conference, Ankara (Turkey): “Invariant Syzygies for systems of Hermitian Dirac operators”.
- 3-5 September 2007, Workshop Clifford Analysis and Applications, Gent (Belgium): (plenary speaker) “An algebraic approach to systems of Hermitian Dirac operators”
- 28 November 2008, 7<sup>a</sup> giornata Milano-Pavia: “Calcolo funzionale per  $n$ -uple di operatori e operatori quaternionici”.
- 13-18 July 2009, 7<sup>th</sup> ISAAC Conference, London (UK): “Duality theorems for slice hyperholomorphic functions”.
- 12-16 July 2010, Workshop IWOTA, Berlin (Germany): “A functional calculus based on axially monogenic functions”.
- 13-17 August 2010, International Conference on Finite or Infinite Dimensional Complex Analysis and Applications, Macao (China): (invited speaker) “The inverse Fueter mapping theorem”.
- 13-17 September 2010, INdAM Workshop: Different Notions of Regularity for Functions of Quaternionic Variable, Rome: “The Fueter mapping theorem in integral form and its inverse”.
- 11-15 October 2010, International Workshop on Modern Aspects of Complex and Hypercomplex Analysis, Mexico City (Mexico) (invited speaker): “Algebraic and cohomological methods in hypercomplex analysis”.
- 4 December 2010, Symposium in honor of Richard Delanghe at the occasion of his 70<sup>th</sup> birthday, (invited speaker): “Some integral formulas for slice monogenic functions and applications”.
- 25-25 March 2011, Workshop Complex Analysis, its Generalizations and Applications, Aveiro, Portugal: “Computational Algebraic Analysis of the Dirac Complex”.
- 27-30 June 2011, Ben-Gurion University, Israel. Conference: Function theory and operator theory: infinite dimensional and free setting (Main speaker): “Slice monogenic functions and a functional calculus for  $n$ -tuples of operators”.

- 15-20 July 2011, The 9th International Conference on Clifford Algebras and their Applications (ICCA9), at the Bauhaus-University Weimar, Germany: "Some integral transforms for slice hyperholomorphic functions".
- 22-27 August 2011, 8th International ISAAC Congress, Moscow: "Recent developments on the algebraic analysis of the Dirac complex".
- 12-17 September 2011, XIX Congresso UMI, Bologna: "Teoremi di dualità per funzioni slice iperolomorfe".
- 19-25 September 2011, "8-th Symposium on Clifford Analysis and Applications", 9th ICNAAM 2011, Halkidiki, Greece: "On the inversion of the Fueter mapping theorem".
- 16 December 2011, Terza giornata di Analisi Ipercomplessa, Università di Trento: "Spazi di Bergman nel caso slice iperolomorfo".
- 16-20 July 2012, Session "Continuous and Discrete Clifford Analysis" Workshop IWOTA, Sydney Australia: "Bergman spaces of slice hyperholomorphic functions".
- 19-25 September 2012, "9-th Symposium on Clifford Analysis and Applications", 10th ICNAAM 2012, Kos, Greece: "Schur analysis in the slice hypercomplex setting".
- 20-26 October 2012, Workshop "Function Theories for Bicomplex and Hyperbolic numbers", Chapman University: "Algebraic Analysis Methods in the Bicomplex setting"
- 5-9 August 2013, 9th ISAAC Conference, Krakow: "Toward an extension of Schur analysis to the quaternionic setting".
- 23-25 October 2013, Incontro FIRB, Università di Firenze: "Alcuni spazi di funzioni slice regolari".
- 7-11 November 2013, Workshop on Results in Mathematics and Physics obtained by Methods of Hypercomplex Analysis: "recent advances in quaternionic Schur analysis".
- 28-29 January 2014, Genova-Torino-Milano Seminar: some topics in Commutative Algebra and Algebraic Geometry: "Recent developments on the study of the Dirac complex".
- 24-27 February 2014, Torino, Carnival Differential Geometry: "On the construction of the complex of several Dirac operators".
- 14-18 July 2014, IWOTA, VU University Amsterdam: "Krein-Langer factorization in the slice hyperholomorphic setting".
- 14-18 July 2014, Conference Group 30, Gent: "On the Bergman spaces of slice hyperholomorphic functions".
- 4-9 August 2014, Tartu, Estonia, *10th International Conference on Clifford Algebras and their Applications (ICCA10)* (plenary speaker): "Some function spaces of slice hyperholomorphic functions".
- 4-9 August 2014, Tartu, Estonia, *10th International Conference on Clifford Algebras and their Applications (ICCA10)*: "Approximation properties for functions of a quaternionic variable".

- 17-21 October 2014, Workshop *Integral transforms, boundary values and generalized functions*, Chapman University, Orange, USA: "On monogenic hyperfunctions in one and several variables".
- 23 January 2015, *Incontro di Analisi Ipercomplessa*, Firenze: "Proprietá di approssimazione di funzioni slice regolari".
- 5-7 March 2015, Workshop *Varietà reali e complesse: geometria, topologia e analisi armonica*, Pisa Scuola Normale Superiore: "Alcuni risultati per funzioni slice regolari e contrattive sulla bolla unitaria quaternionica".
- 20-21 March 2015, *17th Annual Workshop on Applications and Generalizations of Complex Analysis*, Aveiro, Portogallo: "Superoscillating functions and infinite order differential operators".
- 3-9 August 2015, 10thISAAC Conference, Macau (Cina): "On the Dirac complex of several operators".
- 1 December 2015, *Hypercomplex Analysis and Geometry*, Ferrara: "On the quaternionic Wiener algebra".
- 16-23 January 2016, 36th Winter School Geometry and Physics Czech Republic, Srni, Repubblica Ceca: "On the Radon transform between monogenic and slice monogenic functions".
- 8 February 2016, *A day of new aspects of (hyper)complex analysis and applications*, Ben Gurion University, Beer Sheva, Israel: "On the Radon transform between monogenic and slice monogenic functions".
- 29 March- 2 April 2016, *Past and Future Directions in Hypercomplex and Harmonic Analysis*, Aveiro, Portugal: "The inverse Fueter mapping theorem".
- 20-23 June 2016, MOIMA, Hannover, Germany: "Adaptive orthonormal systems for matrix valued functions".
- 12-16 September 2016, Rome, Workshop Complex function theory, its generalizations and applications **Conference:** Differential and integral maps between monogenic and slice monogenic functions
- 4-7 November 2016, Chapman University, Orange, USA, Workshop Complex Analysis and Operator Theory, **Conference:** Toward an extension of Schur analysis to the slice hyperholomorphic setting.
- 29 May - 1 June 2017, The First Joint IMU-INdAM Conference in Analysis, Tel Aviv, Israele, **Conference:** Toward an extension of Schur analysis to the slice hyperholomorphic setting.
- 7-8 September 2017, Workshop "Quaternioni sul Conero", **Conference:** "On the Segal-Bergmann and Bargmann-Radon transform in the monogenic setting".

## 7 Seminars

- 21 February 97, George Mason University, USA: “Regular functions of biquaternionic variables and Maxwell’s equations”.
- 27 June 97, Università di Trento, Italy: “Funzioni regolari di una variabile biquaternionica”.
- 15 January 98, Università di Pavia, Italy “Alcune estensioni dell’analisi complessa e applicazioni alle equazioni di Maxwell”.
- 9 September 99, State University of Ghent, Belgium: “Some algebraic methods in hypercomplex analysis”.
- 21 October 2002, Università degli Studi di Milano: “Alcuni risultati sul problema della connessione dello schema di Hilbert”.
- 21 November 2002, Charles University, Prague: “Computational Algebraic Analysis: an introduction”.
- 26 August 2005, University of Maryland at College Park, USA: “Algebraic methods in the study of Dirac-like systems”.
- 1 March 2006, Università di Trento: “Forme differenziali e complesso di Cauchy-Fueter”.
- 24 November 2006, Charles University, Prague: “Toward a theory of megaforms”.
- 28 March 2007, Università di Firenze: “Sizigie di operatori in analisi quaternionica”.
- 10 May 2007, Chapman University, USA: ”A new notion of monogenic functions”.
- 12 November 2008, State University of Gent, Belgium: “Recent results on slice hyperholomorphy”.
- 19 November 2009, Chapman University: ”Slice hyperholomorphy and its functional calculus”.
- 7 May 2010, Charles University, Prague: “Slice hyperholomorphic functions and the Fueter mapping theorem in integral form”.
- 21 May 2010, Università Milano Bicocca: ”Alcune proprietà e applicazioni delle funzioni slice-iperolomorfe”.
- 6 June 2010, Politecnico di Milano: ” Un’introduzione alle funzioni slice-iperolomorfe”.
- 9 November 2010, Chapman University, USA: ”Algebraic Analysis in Quaternionic and Clifford Analysis”.
- 16 January 2012, Ben-Gurion University of the Negev: ”An overview on slice hyperholomorphicity”.
- 4 May 2012, Charles University, Prague: “Duality in the Hermitian setting”.
- September 2013, University of Macau (Cina): “Some Schur analysis in the quaternionic setting”.



- 14 October 2014, Fullerton College (USA): “Slice hyperholomorphic Hardy and Bergman spaces”.
- 8 January 2015, Università di Parma: ”Spazi di Bergman di funzioni slice regolari”.
- 13 October 2015, Fullerton College (USA): “On some inequalities satisfied by quaternionic polynomials”.

## 8 List of publications (June 2018)

### 8.1 Scientific papers

1. **On convergence sets for Koenigs maps**, Bollettino Unione Matematica Italiana, Serie 7, **9-A** (1995), 1–9.
2. **Topologies on quaternionic hyperfunctions and duality theorems**, (with D.C. Struppa), Complex Variables Theory and Applications, **30** (1996), 19–34.
3. **Boundary values of regular functions of a quaternionic variable**, (with C.A. Berenstein, D.C. Struppa), in Complex analysis, harmonic analysis and applications (Bordeaux, 1995), Pitman Res. Notes Math. Ser., **347** (1996), 220–232.
4. **On compact singularities for regular functions of one quaternionic variable**, (with W.W. Adams, C.A. Berenstein, P. Lousaunau, D.C. Struppa), Complex Variables Theory and Applications, **31** (1996), 259–270.
5. **Analisi di Fourier in più variabili complesse**, (with D.C. Struppa), Rendiconti Istituto Matematico Università di Trieste, **28** (1996), 303–350.
6. **Some open problems on the Cauchy–Fueter system in several variables**, (with D.C. Struppa), Sūrikaiseikikenkyūsho Kōkyūroku, Kyoto University, **1001** (1997), 1–21.
7. **Regular Functions of Biquaternionic Variables and Maxwell’s Equations**, (with F. Colombo, P. Lousaunau, D. Struppa), Journal of Geometry and Physics, **26** (1998), 183–201.
8. **Regular functions of several quaternionic variables and the Cauchy–Fueter Complex**, (with W.W. Adams, C.A. Berenstein, P. Lousaunau, D.C. Struppa), Journal of Geometric Analysis, **9** (1999), 1–15.
9. **Multi valued analytic functionals on compact Riemann surfaces of genus  $g \geq 1$** , Rendiconti Istituto Matematico Università di Trieste, **31** (1999), 37–48.
10. **Variations on a theorem of Severi**, (with D. Napoletani e D.C. Struppa), in Complex analysis and related topics (Cuernavaca, 1996). Operator Theory Advances and Applications, Birkhäuser, Basel, **114** (2000), 197–205.
11. **Algebraic analysis of the Moisil–Theodorescu system**, (with M. Shapiro e D.C. Struppa), Complex Variables Theory Applications, **40** (2000), 333–357.
12. **Dirac equation in the octonionic algebra**, (with F. Colombo, D.C. Struppa), Contemporary Mathematics AMS., **251** (2000), 117–134.

13. **Computational algebra and its promises for Analysis**, (with F. Sommen e D.C. Struppa), *Homage to Gaetano Fichera*, Quad. Mat., **7** (2000), 305–323.
14. **Combinatorics and Clifford Analysis**, (with F. Sommen), *Clifford Analysis and its Applications*, (Prague, 2000) NATO Sci. Ser. II Math. Phys. Chem., Kluwer Acad. Publ., Dordrecht, **25** (2001), 267–282.
15. **On the quaternionic Weyl algebra**, (with D.C. Struppa), *Advances in Applied Clifford Algebra*, (Cetraro, 1998), **11** (2001), 147–158.
16. **On the cohomology of a space curve containing a plane curve**, (with R. Notari), *Communications in Algebra*, **29** (2001), 4795–4810.
17. **A note on the Hilbert scheme of curves of degree  $d$  and genus  $\binom{d-3}{2} - 1$** , *Rendiconti Seminario Matematico Universita' e Politecnico di Torino, Liaison and Related Topics*, **59** (2001), 141–144.
18. **Complexes of Dirac Operators in Clifford Algebras**, (with D.C. Struppa, F. Sommen, P. Van Lancker), *Mathematische Zeitschrift*, **239** (2002), 293–320.
19. **Special first order systems and resolutions**, (with F. Sommen), *Zeitschrift für Analysis und ihre Anwendungen*, **21** (2002), 27–55.
20. **Series and integral representations for the biregular exponential function**, (with F. Sommen e D.C. Struppa), *Journal of Natural Geometry*, **21** (2002), 1–16.
21. **First order differential operators in real dimension eight**, (with D.C. Struppa), *Complex Variables Theory Applications*, **47** (2002), 953–968.
22. **On the Hilbert scheme of curves of degree  $d$  and genus  $\binom{d-3}{2} - 1$** , *Le Matematiche*, **LV** (2000), 2002, 517–531.
23. **Syzygies and conservation laws**, (with F. Colombo, F. Sommen, D.C. Struppa), *Foundations of Physics Letters*, **15** (2002), 507–522.
24. **Hermitian Clifford analysis and resolutions**, (with F. Sommen), *Mathematical Methods in the Applied Science*, **25** (2002), 1395–1413.
25. **Computational Algebraic Analysis Methods in Clifford Analysis**, (with D.C. Struppa), *Mathematical Methods in the Applied Science*, **25** (2002), 1415–1427.
26. **An introduction to Computational Algebraic Analysis**, (with F. Colombo e D.C. Struppa), *Milan Journal of Mathematics*, **71** (2003), 283–318.
27. **The Dirac complex on abstract vector variables: megaforms**, (with F. Sommen e D.C. Struppa), *Experimental Mathematics*, **12** (2003), 351–364.
28. **Clifford analysis on the space of vectors, bivectors and  $\ell$ -vectors**, (with F. Sommen), *Advances in Analysis and Geometry, Trends in Mathematics*, Birkhäuser, Basel, 2004, 161–185.
29. **A Surjectivity Theorem for Differential Operators on Spaces of Regular Functions**, (with F. Colombo, A. Damiano e D.C. Struppa), *Complex Variables Theory and Applications*, **50** (2005), 389–400.

30. **New algebraic properties of biregular functions in  $2n$  quaternionic variables**, (with A. Damiano, D.C. Struppa), *Complex Variables and Elliptic Equations*, **51** (2006), 497–510.
31. **Explicit invariant resolutions for several Fueter operators**, (with J. Bures, A. Damiano), *Journal of Geometry and Physics*, **57** (2007), 765–775.
32. **Computational Methods for the Construction of a Class of Noetherian Operators**, (with A. Damiano, D.C. Struppa), *Experimental Mathematics*, **16** (2007), 41–53.
33. **Quaternionic Clifford analysis: the hermitian setting**, (with D. P. Pena e F. Sommen), *Complex Analysis and Operator Theory*, **1** (2007), 97–113.
34. **A new characterization of a class of pseudoconvex domains in  $C^2$** , (with F. Colombo, M. E. Luna-Elizarrarás, M. Shapiro e D.C. Struppa), *Comptes Rendus Math. Acad. Sci. Paris*, **344** (11) (2007), 677–680.
35. **Quaternionic hyperfunctions on 5-dimensional varieties in  $H^2$** , (with F. Colombo, A. Damiano e D.C. Struppa), *Journal of Geometric Analysis*, **17** (2007), 459–478.
36. **A functional calculus in a non commutative setting**, (with F. Colombo, G. Gentili, D.C. Struppa), *Electronic Research Announcements, Math. Soc.*, **14** (2007), 60–68.
37. **Algebraic analysis of Hermitian monogenic functions**, (with D. Eelbode e A. Damiano), *Comptes Rendus Math. Acad. Sci. Paris*, **346** (2008), 139–142.
38. **A new functional calculus for noncommuting operators**, (with F. Colombo, D.C. Struppa), *Journal of Functional Analysis*, **254** (2008), 2255–2274.
39. **Arithmetically Gorenstein Subschemes of codimension 3 in  $P^N$** , (with R. Hartshorne, E. Schlesinger), *Annales de l’institut Fourier*, **58** (2008), 2037–2073.
40. **An overview on functional calculus in different settings**, (with F. Colombo, G. Gentili, D.C. Struppa), *Hypercomplex analysis*, Trends in Mathematics, Birkhäuser, Basel, 2009, 69–99.
41. **The structure formula for the slice monogenic functions and some of its consequences**, (with F. Colombo), *Hypercomplex analysis*, Trends in Mathematics, Birkhäuser, Basel, 2009, 101–114.
42. **On some properties of the quaternionic functional calculus** (with F. Colombo), *Journal of Geometric Analysis*, **19** (2009), 601–627.
43. **Slice monogenic functions**, (with F. Colombo, D.C. Struppa), *Israel Journal of Mathematics*, **171** (2009), 385–403.
44. **A new Dolbeault complex in quaternionic and Clifford analysis** (with F. Colombo, A. Damiano, D. C. Struppa), in *More Progresses in Analysis*, Proceedings of the 5th ISAAC Conference, World Scientific, 2009, 1019–1032.
45. **A functional calculus for  $n$ -tuples of noncommuting operators**, (with F. Colombo, D.C. Struppa), *Advances in Applied Clifford Algebra*, **19** (2009), 225–236.

46. **Invariant Syzygies for the Hermitian Dirac operator**, (with D. Eelbode e A. Damiano), *Mathematische Zeitschrift*, **262** (2009), 929–945.
47. **Computational algebra techniques in electromagnetism** (with F. Colombo, D.C. Struppa, A. Vajiac, M. Avajiac), *Journal of mathematical science: advances and applications*, **3** (2009), 77–88.
48. **Extension results for slice regular functions of a quaternionic variable** (with F. Colombo, G. Gentili, D. C. Struppa), *Advances in Mathematics*, **222** (2009), 1793–1808.
49. **Non commutative functional calculus: bounded operators**, (with F. Colombo, G. Gentili, D.C. Struppa), *Complex Analysis and Operator Theory*, **4** (2010), 821–843.
50. **Non commutative functional calculus: unbounded operators**, (with F. Colombo, G. Gentili, D.C. Struppa), *Journal of Geometry and Physics*, **60** (2010), 251–259.
51. **A Cauchy kernel for slice regular functions**, (with F. Colombo, G. Gentili), *Annals of Global Analysis and Geometry*, **37** (2010), 361–378.
52. **An extension theorem for slice monogenic functions and some of its consequences**, (with F. Colombo, D.C. Struppa), *Israel Journal of Mathematics*, **177** (2010), 369–389.
53. **Duality theorems for slice monogenic functions**, (with F. Colombo, D.C. Struppa), *Journal für die Reine und Angewandte Mathematik (Crelle’s Journal)*, **645** (2010), 85–104.
54. **On the formulations of the quaternionic functional calculus**, (with F. Colombo), *Journal of Geometry and Physics*, **60** (2010), 1490–1508.
55. **The Fueter mapping theorem in integral form and the  $\mathcal{F}$ -functional calculus**, (with F. Colombo, F. Sommen), *Mathematical Methods in the Applied Sciences*, **33** (2010), 2050–2066.
56. **The Cauchy formula with  $s$ -monogenic kernel and a functional calculus for noncommuting operators**, (with F. Colombo), *Journal of Mathematical Analysis and Applications*, **373** (2011), 655–679.
57. **Elements of Metrodynamics: the general setting**, (with F. Sommen), *Complex Analysis and Operator Theory*, **5** (2011), 131–156.
58. **Bounded perturbations of the resolvent operators associated to the  $\mathcal{F}$ -spectrum**, (with F. Colombo), *Hypercomplex Analysis and Applications Trends in Mathematics*, Birkhäuser Verlag Basel, (2011), 13–28.
59. **The Runge theorems for slice hyperholomorphic functions**, (with F.Colombo, D. C. Struppa), *Proceedings American Mathematical Society*, **139** (2011), 1787–1803.
60. **Quaternionic Hermitian spinor systems and compatibility conditions**, (with D. Eelbode e A. Damiano), *Advances in Geometry*, **11** (2011), 169–189.
61. **The Pompeiu formula for slice hyperholomorphic functions**, (with F. Colombo, D.C. Struppa), *Michigan Mathematical Journal*, **60** (2011), 163–170.

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## 8.2 Survey papers, papers on open problems

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## 9 Publications for schools and PhD courses

1. **Seminario sulle classi caratteristiche** (with L. Mauri), Notes of the Prof. A. Dold course, *Quaderno di dottorato n.1*, 1993, Milano.
2. **Survey on the Hilbert scheme**, Notes for the participants to the School “Algebraic Space Curves” Torino, 2002.
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## 10 Dissertations

1. **Varietà with curve sezioni iperellittiche e fibrati vettoriali with ultima classe di Chern piccola**, Tesi di Laurea.
2. **Verso una teoria delle iperfunzioni quaternioniche**, Tesi di Dottorato.