

# CURRICULUM VITAE ET STUDIORUM Amedeo Altavilla

## Personal Data

**First Name** Amedeo

**Surname** Altavilla

**Current Position** Postdoc (Assegno di Ricerca) at Università di Roma 2 - "Tor Vergata" (From 01/2017)  
Funded by SIR2014 "New methods in holomorphic iteration"

**Date and Town of Birth** November 29, 1987 – Mesagne (BR), Italy

**Nationality** Italian

**Work Address** Dipartimento di Matematica - Università di Roma 2 "Tor Vergata" Via Della Ricerca Scientifica 1, 00133, Roma, Italy

**Webpage** <https://sites.google.com/site/amedeoaltavilla/>

## Studies

- 11/2011 - 19/12/2014, Ph.D. in Mathematics at the Department of Mathematics of the University of Trento (Italy). Title of the thesis: “**Quaternionic slice regular functions on domains without real points**”; advisor: Prof. **Alessandro Perotti**.
- 10/2009 - 10/2011, Master degree (score: 110/110 *cum laude*) in mathematics at University of Parma (Italy). Title of the thesis: “**Potenziali algebro-geometrici per l’equazione di Korteweg-deVries**”; advisor: Prof. **Lorenzo Nicolodi**.
- 09/2005 - 4/2009, Bachelor degree (score: 98/110) in Mathematics at University of Parma (Italy). Title of the thesis: “**Omologia singolare ed applicazioni**”; advisor: Prof. **Claudio Arezzo**.
- 06/2005 High School Diploma (score: 100/100) at the “Liceo Scientifico E. Fermi”, Brindisi (Italy).

## Awards and Grants

- 07/05/2018 – 18/05/2018  
**Research in Pairs at C.I.R.M. of F.B.K.** with Chiara de Fabritiis, Trento (Italy).
- Since 01/2018 **Qualification aux fonctions de Maître de Conférence**, Section 25 - Mathématiques, N. de qualification: 18225316076D, France.
- 14/07/2014 – 18/07/2014  
**GNSAGA of INdAM Financial support** for the participation to the Workshop “30th International Colloquium on Group Theoretical Methods in Physics”; Ghent University (Belgium), (650 euros).
- 05/08/2013 – 09/08/2013  
**GNSAGA of INdAM Financial support** for the participation to the Workshop “9th International ISAAC Congress” sessione “Clifford and Quaternion Analysis”; Pedagogical University Krakow (Poland), (500 euros).
- 11/2011 – 10/2014  
Ph.D. **scholarship** at the Department of Mathematics - University of Trento.
- 09/2005 – 06/2008  
University **scholarship** at the “Azienda Regionale per il Diritto agli Studi Universitari”.

## Previous Positions

- 02/2016 – 12/2016  
Postdoc (Assegno di Ricerca) at DIISM – Università Politecnica delle Marche.
- 10/2015 – 01/2016  
Teaching Assistant at DIISM – Università Politecnica delle Marche

## Research Activity

My research activity is mainly devoted to the study of slice regularity: the most recent attempt to generalize the concept of holomorphicity to quaternions in order to have that polynomials  $\sum_{n=0}^N q^n a_n$ , with  $\{a_n\} \subset \mathbb{H}$  turn out to be regular. Moreover I am interested in the field of differential geometry with particular emphasis on calibrations and their stabilizer.

### Slice regular functions defined on domains without real points

In [1; 2; 4; 5] I generalize several global results, differential properties and geometric applications for slice regular functions defined on domains that intersect the real line, to functions defined on general domains. All these results are obtained using the approach of *stem functions* introduced by R. Ghiloni and A. Perotti.

In particular, in [2] I obtain a number of global results analogous to identity principle, minimum and maximum principle and open mapping theorem for slice regular functions defined on domains without real points. The main idea is that, since the restrictions of a slice regular function to any complex line are holomorphic function, then, if the domain does not contain the real line its intersection with any of these complex line is not connected. Therefore, all these well known results in complex analysis are modified keeping in mind this particular issue on the domain.

In [4] I study the behaviour of the real differential of a slice regular function. The main result proven in this paper is the fact that any injective slice regular function is non-singular everywhere on its domain. This statement is a generalization of a theorem due to G. Gentili, S. Salamon and C. Stoppato. In order to obtain it I show firstly that an injective slice regular function has slice derivative and spherical derivative that are never-vanishing. Then, using the representation formula for slice regular functions and some new equalities between the slice derivative and the spherical derivative, I am able to prove the mentioned result. The techniques and the strategy of proof are different and more general than the original ones.

Thanks to the results obtained in [2] and [4], in [5] I generalize a geometric construction originally due to G. Gentili, S. Salamon and C. Stoppato. In this construction they prove that any slice regular function defined on a domain that intersects the real line, defines an orthogonal complex structure (OCS) on its image. This is obtained by interpreting slice regularity in the language of twistor spaces, lifting a generic slice regular function to a holomorphic map of the twistor space of  $\mathbb{H}$ . After the generalization in the more ample realm of slice regular functions defined on domains without real points, I show some qualitative properties of the OCS's that may be defined in this way and I also give some coarse classification of algebraic surfaces of degree 2 and 3 inside the twistor space of  $\mathbb{H}$  which fit into this construction.

From the study of the geometric applications of the theory of slice regularity, it is natural to consider the family of slice polynomials. In [9], together with G. Sarfatti we investigate this class of functions that naturally emerges from the study of the possible algebraic surfaces inside the twistor space of  $\mathbb{H}$  that are reached by the twistor lift of a slice regular function. These functions become polynomials if restricted to any complex line inside  $\mathbb{H}$  but are not, in general, polynomials. Given a slice polynomial we define its companion which is a dual function that strongly interacts with the original one. We prove that the union of the images of a slice polynomial and of its companion is the whole algebra  $\mathbb{H}$ . Moreover, for any point in  $\mathbb{H}$ , we are able to describe its pre-image by a slice polynomial. We find that the sum of cardinalities of the pre-images of a point in  $q \in \mathbb{H}$  via a slice polynomial  $P$  and via its companion is generically constant and equal to a suitable notion of degree of the slice polynomial.

### Global results on slice regular functions

In [7], in collaboration with C. Bisi, the bi-harmonic property of a quaternionic slice regular function and some differential relations proved by A. Perotti, we define the Riesz measure of a slice preserving function and of a PQL function. A slice preserving function is a slice regular function which preserves all the complex lines in  $\mathbb{H}$  while a PQL function is a finite product of quaternionic linear functions. Moreover, for these two classes of functions we show some Jensen type formulas and we apply it to give an upper bound to the number of zeros of a slice regular function and to compute some interesting integrals.

In [8] and [6] in collaboration with C. de Fabritiis we study some global behaviour of slice regular functions starting from a new interpretation of the  $*$ -product which is a particular product of functions that preserves regularity. In particular in [8] we study the  $*$ -exponential of a slice-regular function, which can be seen as a generalization of the complex exponential to quaternions. We give an explicit expression for  $\exp_*(f)$  also in terms of suitable sine and cosine functions. We completely classify under which conditions the  $*$ -exponential of a function is either slice-preserving or  $\mathbb{C}_J$ -preserving for some  $J \in \mathbb{S}$  and show that  $\exp_*(f)$  is never-vanishing. Then we give sharp necessary and sufficient conditions in order that  $\exp_*(f + g) = \exp_*(f) * \exp_*(g)$ . We also discuss the existence of a square root of a slice-preserving regular function.

In [6] we characterize the property of being one-slice preserving in terms of the projectivization of the vectorial part of the function. We also define a ‘‘Hermitian’’ product on slice regular functions which gives us the possibility to express the  $*$ -product of two slice regular functions in terms of the scalar product of suitable functions constructed starting from  $f$  and  $g$ . Afterwards we determine, under different assumptions, when the sum, the  $*$ -product and the  $*$ -conjugation of two slice regular functions preserve a complex slice. We also study when the  $*$ -power of a slice regular function has this property or when it preserves all complex slices. To obtain these results we prove two factorization theorems: in the first one, we are able to split a slice regular function into the product of two functions: one keeping track of the zeroes and the other which is never-vanishing; in the other one we give necessary and sufficient conditions for a slice regular function (which preserves all complex slices) to be the symmetrized of a suitable slice regular one.

### Volume properties of groups that fixes a calibration

Given a calibration in the Euclidean space  $\mathbb{R}^n$ , it is a natural question to investigate the properties of the group of linear transformations that fix it from the point of view of measure theory.

In [3], with L. Nicolodi, we prove an analogous of the Gromov non-squeezing theorem for the group  $Sp(n) \cdot Sp(1)$  of quaternionic unitary transformations. To be more precise we show the following result: let  $F : \mathbb{R}^{4n} \rightarrow \mathbb{R}^{4n}$  be an element of the quaternionic unitary group  $Sp(n) \cdot Sp(1)$ , let  $K$  be a compact subset of  $\mathbb{R}^{4n}$ , and let  $V$  be a  $4k$ -dimensional quaternionic subspace of  $\mathbb{R}^{4n} \simeq \mathbb{H}^n$ . The  $4k$ -dimensional shadow of the image under  $F$  of  $K$  is its orthogonal projection  $P(F(K))$  onto  $V$ . We show that there exists a  $4k$ -dimensional quaternionic subspace  $W$  of  $\mathbb{R}^{4n}$  such that the volume of the shadow  $P(F(K))$  is the same as the volume of the section  $K \cap W$ .

### Algebraic geometry of the twistor fibration

In [10] we study algebraic surfaces in  $\mathbb{C}\mathbb{P}^3$  containing a finite or an infinite number of twistor lines, i.e.: fibers for the standard twistor projection on the 4-sphere

$$\mathbb{C}\mathbb{P}^1 \rightarrow \mathbb{C}\mathbb{P}^3 \xrightarrow{\pi} \mathbb{S}^4.$$

A twistor line can be identified with a projective line  $\ell \in \mathbb{C}\mathbb{P}^3$  such that  $\ell = j(\ell)$ ,  $j : \mathbb{C}\mathbb{P}^3 \rightarrow \mathbb{C}\mathbb{P}^3$  being the natural fixed-point-free anti-holomorphic involution underlying the projection  $\pi$ . A projective transformation that commutes with  $j$  can be seen as a map induced, via  $\pi^{-1}$ , by a Möbius transformation (and viceversa). Therefore the natural geometry of this fibration is the one described by the conformal group of  $\mathbb{S}^4$  suitably embedded in  $PGL(4, \mathbb{C})$ .

It is easy to see that the number of twistor lines contained in a given algebraic surface is a conformal invariant of the surface itself. For this reason the analysis of such lines in particular cases is the object of several recent researches. In our paper we give, under several hypotheses, first general results on the number of twistor lines that can be contained in an algebraic surface of degree  $d$ . Moreover we also study surfaces that contains infinite twistor lines. In the first part of the paper we discuss the space of surfaces containing a finite, but fixed, number of disjoint lines (not twistor, in general). We are able to compute the dimension of this space and to give regularity properties on its general element.

Afterwards we explain what a general set of twistor lines is by means of what we call *Density Lemma*. In this lemma we prove that the set of twistor lines  $\Lambda$  is a Zariski dense of the Grassmannian of lines in the complex projective space denoted by  $Gr(2, 4)$ . The Density Lemma has a number of direct consequences and it is a fundamental tool to state (and prove) our results. In our first main theorems, for any fixed  $d \geq 4$ , we prove the existence of an algebraic surface of degree  $d$  containing a certain number  $\nu(d)$  of twistor lines. In this setting we are also able to control the singular locus and, accordingly with the additional hypotheses we assume on the surface (i.e. irreducibility, smoothness,  $j$ -invariance), we are able to suitably update the number  $\nu(d)$  of twistor lines (see *Theorems 1.3, 1.4 and 1.5*).

The last part of the paper is devoted to the study of integral surfaces containing infinitely many twistor lines. The first observation is that these are all ruled by lines but not cones and we are able to prove that, if

the surface is rational, then its degree must be even and that there is no integral surface of degree 3 containing infinitely many twistor lines. These results are linked with the theory of stability and semi-stability for rank 2 vector bundle over a smooth curve, from which we only use classical results.

For all even degrees we are able to produce examples by using both the theory of slice regularity and by giving a new construction relying on the geometry of normalization map. We close the paper with an open question involving the possibility to find an integral surface of odd degree containing infinitely many twistor lines.

## Papers and Preprints

- [1] A. Altavilla. Quaternionic Slice Regular Functions on Domains Without Real Points. Ph.D. Thesis, supervisor A. Perotti, University of Trento, 2014, <http://eprints-phd.biblio.unitn.it/1089>.
- [2] A. Altavilla. Some Properties for Quaternionic Slice-Regular Functions on Domains Without Real Points. *Complex Var. Elliptic Equ.* 60, No. 1, 59-77 (2015).
- [3] A. Altavilla, L. Nicolodi. On the volume of the  $Sp(n) \cdot Sp(1)$  shadow of a compact set. *Comptes Rendus Mathematique*, Volume 354, Issue 3, March 2016, Pages 307–311, ISSN 1631-073X.
- [4] A. Altavilla. On the real differential of a slice regular function. *Adv. Geom.* 18 (2018), no. 1, 5–26.
- [5] A. Altavilla. Twistor Interpretation of Slice Regular Functions, *Journal of Geometry and Physics* 123C (2018) pp. 184–208, <https://doi.org/10.1016/j.geomphys.2017.09.007>.
- [6] A. Altavilla, C. de Fabritiis. s-Regular Functions which Preserve a Complex Slice, *Annali di Matematica Pura e Applicata* (2018). <https://doi.org/10.1007/s10231-018-0724-1>.
- [7] A. Altavilla, C. Bisi. Log-Biharmonic and a Jensen Formula in the Space of Quaternions, eprint [arXiv:1708.04894](https://arxiv.org/abs/1708.04894) – *submitted*.
- [8] A. Altavilla, C. de Fabritiis. \*-Exponential of Slice Regular Functions – *submitted*.
- [9] A. Altavilla, G. Sarfatti. Slice-Polynomial Functions and Twistor Geometry of Ruled Surfaces in  $\mathbb{CP}^3$ , eprint [arXiv:1712.09946](https://arxiv.org/abs/1712.09946) – *submitted*.
- [10] A. Altavilla, E. Ballico. Twistor lines on algebraic surfaces in the complex projective space, eprint [arXiv:1802.06697](https://arxiv.org/abs/1802.06697) – *submitted*.
- [11] A. Altavilla, L. Arosio. Canonical models on strongly pseudoconvex domains via Pinchuk rescaling, *in preparation*.
- [12] A. Altavilla, H. De Bie, M. Wutzig. Fueter principle and zonal harmonic functions, *in preparation*.

## Abroad Experiences

1. 1/2018 – 3/2018 Hosted by *Ghent University*. Supervisor: Prof. **Hendrik De Bie**.
2. 4/2014 – 5/2014 Hosted by *King’s College London*. Supervisor: Prof. **Simon Salamon**.
3. 18/06/2012 - 6/07/2012 Institut Fourier Grenoble (France). Summer school “Foliations, Pseudoholomorphic curves, Applications”.

## Teaching Activities

1. 10/2016 - 01/2017  
“**Geometria (CA)**” (9 credits; 72 hours), Facoltà di Ingegneria, Università Politecnica delle Marche; Bachelor degree “Ingegneria Civile e Ambientale”.
2. 10/2016 - 01/2017  
Exercises for “**Geometria (MECC) (A/L)**” (9 credits; 20 hours), Facoltà di Ingegneria, Università Politecnica delle Marche; Bachelor degree “Ingegneria Meccanica”; responsible teacher prof. **Chiara de Fabritiis**.

3. 10/2015 - 01/2016  
Exercises for “**Geometria (CA)**” (9 credits; 20 hours), Facoltà di Ingegneria, Università Politecnica delle Marche; Bachelor degree “Ingegneria Civile e Ambientale”; responsible teacher dr. **Maria Chiara Brambilla**.
4. 10/2015 - 01/2016  
Exercises for “**Geometria (EL)**” (6 credits; 20 hours), Facoltà di Ingegneria, Università Politecnica delle Marche; Bachelor degree “Ingegneria Elettronica”; responsible teacher prof. **Chiara de Fabritiis**.
5. 10/2015 - 01/2016  
Exercises for “**Algebra Lineare e Geometria**” (6 credits; 20 hours), Facoltà di Ingegneria, Università Politecnica delle Marche; Bachelor degree “Ingegneria Informatica e dell’Automazione”; responsible teacher prof. **Chiara de Fabritiis**.
6. 10/2015 - 01/2016  
Exercises for “**Geometria (MECC) (A/L)**” (9 credits; 20 hours), Facoltà di Ingegneria, Università Politecnica delle Marche; Bachelor degree “Ingegneria Meccanica”; responsible teacher dr. **Agnese Telloni**.
7. 02/2015 - 09/2015  
Tutor for “**Analisi matematica 2**” (9 credits; 20 hours), Department of Mathematics, University of Trento; responsible teacher: prof. **Silvano Delladio**.
8. 10/2014 - 09/2015  
Exercises for “**Geometria 1**” (9 credits; 90 hours), Department of Physics, University of Trento; responsible teacher: prof. **Claudio Fontanari**.
9. 09/2014 - 01/2015  
Tutor for “**Analisi matematica 2**” (9 credits; 60 hours), Department of Civil, Environmental and Mechanical Engineering, University of Trento; responsible teacher: prof. **Gabriele Anzellotti**.
10. 10/2013 - 2/2014  
Tutor for “**Analisi matematica 2**” (9 credits; 50 hours), Department of Civil, Environmental and Mechanical Engineering, University of Trento; responsible teacher: prof. **Gabriele Anzellotti**.
11. 9/2012 - 12/2012  
Exercises for “**Analisi 3**” (9 credits; 18 hours), degree course in Mathematics, Faculty of Science, University of Trento; responsible teacher : prof. **Gabriele Anzellotti**.
12. 9/2012 - 12/2012  
Teaching support for “**Analisi matematica con elementi di algebra**” (9 credits; 50 hours), degree courses in Interfaces and Communication Technology and Science and Technology of Cognitive Psychology, Faculty of Cognitive Science, University of Trento; responsible teacher: prof. **Anneliese Defranceschi**.
13. 9/2010 - 6/2011  
Exercises for “**Geometry 2**” (12 credits; 30 hours), degree course in Mathematics, Faculty of Science, University of Parma; responsible teacher: dr. **Fabio Zuddas**.
14. 9/2009 - 6/2010  
Tutor for “**Laboratory of Mathematics**” (12 credits, 2 modules: analysis, algebra and geometry; 150 hours), degree course in Building Techniques, Faculty of Architecture of the University of Parma; responsible teacher: dr. **Fiorenza Morini**.

## Non-Academic Experiences

1. 11/2012 - 04/2013  
Collaborator for the project “MathEnJeans”. The collaboration consisted into a coordination of two high school classes in a mathematical research project. My role was to introduce the problem and help in the organization of the work (including a final presentation).  
<http://www.mathenjeans.it/>

2. 4/2010

Guide in the exhibition “Domus Archimedeae”, event held in Parma as part of “Parma Scienza”; employer: association “Parma Casa della Scienza” ([www.casadellascienza.it](http://www.casadellascienza.it), [www.parmascienza.it/parmascienza](http://www.parmascienza.it/parmascienza)).

## Seminars and Oral Contributions to (International) Conferences

1. 15/05/2018 “*Il problema dell’esponenziale per funzioni regolari quaternioniche*” – Università degli Studi di Trento – (Trento, Italy)
2. 26/01/2018 “*More on Slice Regularity – Around Harmonicity*” – Ghent University – (Ghent, Belgium)
3. 22/01/2018 “*New techniques in slice regularity*” – Ghent University – (Ghent, Belgium)
4. 20/12/2017 “*Analisi e geometria usando i quaternioni*” – Università di Roma 2, Tor Vergata – (Roma, Italy)
5. 05/12/2017 “*Slice polynomials and twistor geometry of ruled surfaces in  $\mathbb{C}\mathbb{P}^3$* ” – Università degli Studi di Trento – (Trento, Italy)
6. 24/10/2017 “*Un’introduzione all’angolo quaternionale*” – Università degli Studi “Gabriele d’Annunzio” – (Pescara, Italy).
7. 05/04/2017 – 07/04/2017 “*A quaternionic analogous of linear non-squeezing theorem.*” – During the conference: “Differential Geometry Days”; Dipartimento di matematica “G. Peano”, Università di Torino (Italy)
8. 08/10/2016 – 11/10/2016 “*Log-biharmonicity and a Jensen formula in the space of quaternions*” – During the conference: “Recent Progress in Real and Complex Geometry - X”; C.I.R.M. Levico Terme, Trento (Italy)
9. 01/12/2015 “*Misura dell’ombra di un insieme compatto trasformato da un’applicazione quaternionale unitaria*” – During the conference: “Hypercomplex analysis and geometry”; Dipartimento di Matematica e Informatica, Università degli Studi di Ferrara (Italy)
10. 23/01/2015 “*Strutture complesse ortogonali e funzioni slice regolari*” – During the conference: “Incontro Nazionale di Analisi Ipercomplessa”; Dipartimento di Matematica e Informatica “Ulisse Dini”, Università degli Studi di Firenze (Italy)
11. 24/04/2015 “*On the singular set of a slice regular function.*” – Dipartimento di Matematica, Politecnico di Milano (Milano, Italy).
12. 21/10/2014 – 24/10/2014 “*Funzioni quaternioniche slice-regolari che non si estendono a  $\mathbb{R}$ .*” – During the conference: “Progressi recenti in geometria reale e complessa”; C.I.R.M. Levico Terme, Trento (Italy)
13. 14/07/2014 – 18/07/2014 “*On the real differential of a slice regular function.*” – During the conference: “30th International Colloquium on Group Theoretical Methods in Physics”; Ghent University (Belgium)
14. 23/06/2014 – 27/06/2014 “*On the real differential of a slice regular function: a “contact” aspect of complex and algebraic geometry via quaternionic functions*” – During the conference: “Asymptotic aspects of complex and algebraic geometry”; Dipartimento di matematica e applicazioni, Università degli Studi di Milano Bicocca (Italy).
15. 16/06/2014 – 20/06/2014 “*The real differential of a slice regular function.*” – During the conference: “Complex Geometry and Lie Groups”; Dipartimento di matematica “G. Peano”, Università di Torino (Italy)
16. 17/12/2013 “*Una forma esplicita dei coefficienti sferici e del differenziale reale di una funzione slice regolare.*” – Dipartimento di Matematica e Informatica “Ulisse Dini”, Università degli Studi di Firenze (Firenze, Italy)
17. 05/08/2013 - 09/08/2013 “*Some properties for slice regular functions on circular domains without real points*” – During the conference: “9th International ISAAC Congress” session “CLIFFORD AND QUATERNION ANALYSIS”; Pedagogical University Krakow (Poland)

18. 02/05/2013 “*Alcune proprietà delle funzioni slice regolari su domini privi di punti reali.*” – Dipartimento di Matematica e Informatica, Università di Parma (Italy)
19. 30/04/2013 “*Alcune proprietà delle funzioni slice regolari su domini privi di punti reali.*” – Seminari dei Baby-Geometri ([http://www.dm.unipi.it/~angella/doku.php?id=seminario\\_dei\\_baby-geometri\\_2012\\_2013](http://www.dm.unipi.it/~angella/doku.php?id=seminario_dei_baby-geometri_2012_2013)) 2012/2013 - Pisa (Italy)
20. 21/03/2013 – 23/03/2013 “*Some properties for slice-regular functions on circular domains without real points*” – During the conference: “New Approaches to HyperComplex Analysis and Geometry”; I.C.T.P. Grignano, Trieste (Italy)
21. 21/09/2012 “*Spazi vettoriali quaternionali e deviazione (pseudo) - caratteristica.*” – Dipartimento di Matematica, Università di Trento (Italy)
22. 24/07/2012 “*Alcuni aspetti della teoria del differenziale di Clarke.*” – Dipartimento di Matematica, Università di Trento (Italy)
23. 31/05/2012 “*Gruppi di ologonia.*” Informal seminar for the PhD school – Dipartimento di Matematica, Università di Trento (Italy)
24. 09/01/2012 – 12/01/2012 “*KdV generalizzate e proprietà di Painlevé per potenziali algebro-geometrici*”- During the conference: “Seminario degli ex-studenti di Matematica di Parma” – Dipartimento di Matematica e informatica, Università di Parma (Italy)

## Participation in Workshops and Conferences

1. 09/05/2018 – 10/05/2018 “Introduction to Hodge structures and Grothendieck’s standard conjectures”, held by Claire Voisin; Trento (Italy)
2. 07/09/2017 – 08/09/2017 “Quaternioni sul Conero”; Ancona (Italy)
3. 07/08/2017 – 11/08/2017 “ICCA 11”; Ghent University (Belgium)
4. 11/06/2017 – 15/06/2017 “Complex Analysis and Geometry - XXIII”; C.I.R.M. Levico Terme, Trento (Italy)
5. 30/04/2017 – 06/05/2017 SMI course “Kaehler-Einstein metrics”; Palazzone della Scuola Normale Superiore, Cortona (AR, Italy)
6. 05/04/2017 – 07/04/2017 “Differential geometry days”; Dipartimento di matematica “G. Peano”, Università di Torino (Italy)
7. 26/01/2017 – 28/01/2017 “Perspectives in geometry”; Università degli Studi di Firenze (Italy)
8. 08/10/2016 – 1/10/2016 “Recent Progress in Real and Complex Geometry - X”; C.I.R.M. Levico Terme, Trento (Italy)
9. 11/07/2016 – 15/07/2016 “Differential geometry in the large”; Università degli Studi di Firenze (Italy)
10. 29/05/2016 – 17/06/2016 “Spring 2016 School - INdAM Intensive Period Hypercomplex Function Theory and Applications”; Dipartimento di Matematica e Informatica “Ulisse Dini”, Università degli Studi di Firenze (Italy)
11. 20/04/2016 – 22/04/2016 “Special Hermitian metrics on non-Kähler manifolds”; Dipartimento di Matematica e Informatica “Ulisse Dini”, Università degli Studi di Firenze (Italy)
12. 25/02/2016 – 26/02/2016 “Complex Geometry BiDay”; Dipartimento di Matematica e Informatica, Parma (Italy)
13. 21/01/2016 – 23/01/2016 “Workshop su varietà reali e complesse: geometria, topologia e analisi armonica”; Scuola Normale Superiore, Pisa (Italy)
14. 01/12/2015 “Hypercomplex analysis and geometry”; Dipartimento di Matematica e Informatica, Università degli Studi di Ferrara (Italy)

15. 16/11/2015 – 20/11/2015 “New perspective in differential geometry”; INdAM, Roma (Italy)
16. 01/06/2015 – 05/06/2015 “Complex Analysis and Geometry - XXII”; C.I.R.M. Levico Terme, Trento (Italy)
17. 23/03/2015 – 28/03/2015 “Komplex Analysis Weeklong School-KAWA 6”; Centro De Giorgi, Pisa (Italy)
18. 05/03/2015 – 07/03/2015 “Terzo workshop su varietà reali e complesse: geometria, topologia e analisi armonica”; Scuola Normale Superiore, Pisa (Italy)
19. 23/02/2015 – 26/02/2015 “A workshop in memory of our colleague and friend Sergio Console ”; Dipartimento di matematica “G. Peano”, Università di Torino (Italy)
20. 23/01/2015 “Incontro Nazionale di Analisi Ipercomplessa”; Dipartimento di Matematica e Informatica “Ulisse Dini”, Università degli Studi di Firenze (Italy)
21. 21/10/2014 – 24/10/2014 “Progressi recenti in geometria reale e complessa”; C.I.R.M. Levico Terme, Trento (Italy)
22. 14/10/2014 – 16/10/2014 “Modular forms and differential equations: an introduction”; school by Prof. Don Zagier; Università di Trento (Italy)
23. 18/09/2014 - 20/09/2014 “New trends in differential geometry”; Villasimius, Cagliari (Italy)
24. 14/07/2014 – 18/07/2014 “30th International Colloquium on Group Theoretical Methods in Physics”; Ghent University (Belgium)
25. 23/06/2014 – 27/06/2014 “Asymptotic aspects of complex and algebraic geometry”; Dipartimento di matematica e applicazioni, Università degli Studi di Milano Bicocca (Italy).
26. 16/06/2014 – 20/06/2014 “Complex Geometry and Lie Groups”; Dipartimento di matematica “G. Peano”, Università di Torino (Italy)
27. 02/06/2014 – 04/06/2014 “A conference in honor of Pierre Dolbeault”; Université Pierre et Marie Curie, Paris 6 (France)
28. 09/05/2014 “Geometry day V”; Department of Mathematics, King’s College London (England)
29. 22/04/2014 “Celebrating Michael Atiyah”; Mathematical Institute, University of Oxford (England)
30. 24/02/2014 - 27/02/2014 “Carnival differential geometry school”; Dipartimento di Matematica “G. Peano”, Università di Torino (Italy)
31. 20/02/2014 – 22/02/2014 “Secondo workshop su varietà reali e complesse: geometria, topologia e analisi armonica”; Scuola Normale Superiore, Pisa (Italy)
32. 23/10/2013 – 25/10/2013 “Incontro del progetto FIRB 2012-Geometria Differenziale e Teoria Geometrica delle Funzioni”; Dipartimento di Matematica e Informatica “Ulisse Dini”, Università degli Studi di Firenze (Italy)
33. 05/08/2013 – 09/08/2013 “9th International ISAAC Congress” session “CLIFFORD AND QUATERNION ANALYSIS”; Pedagogical University Krakow (Poland)
34. 03/06/2013 – 07/06/2013 “Complex Analysis and Geometry - XXI”; C.I.R.M. Levico Terme, Trento (Italy)
35. 27/05/2013 – 31/05/2013 “Advanced School and Workshop in Real and Complex Dynamics” I.C.T.P. Grignano, Trieste (Italy)
36. 21/03/2013 – 23/03/2013 “New Approaches to HyperComplex Analysis and Geometry”; I.C.T.P. Grignano, Trieste (Italy)
37. 28/02/2013 – 03/03/2013 “Workshop su varietà reali e complesse: geometria, topologia e analisi armonica”; Scuola Normale Superiore, Pisa (Italy)
38. 15/10/2012 – 19/10/2012 “Progressi recenti in geometria reale e complessa”; C.I.R.M. Levico Terme, Trento (Italy)



39. 18/06/2012 – 6/07/2012 “Foliations, Pseudoholomorphic curves, Applications”; Institut Fourier Grenoble (France)
40. 10/05/2012 – 11/05/2012 “Geometria in Bicocca 2012”; Dipartimento di matematica e applicazioni, Università degli Studi di Milano Bicocca (Italy).
41. 09/01/2012 – 12/01/2012 “Seminario degli ex-studenti di Matematica di Parma” - Dipartimento di Matematica e informatica, Università di Parma (Italy)
42. 12/05/2011 – 13/05/2011 “Geometria in Bicocca 2011”; Dipartimento di matematica e applicazioni, Università degli Studi di Milano Bicocca (Italy).
43. 4/04/2011 – 8/04/2011 “Ricci solitons days”; Centro di ricerca matematica Ennio De Giorgi, Pisa (Italy)

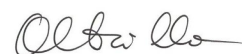
## Organization of Conferences

- Member of the organizing committee of the workshop “Seminario degli Ex-Studenti” – 3th edition, Università di Parma, Parma, Italy, 8-9 January 2018.
- Member of the organizing committee of the workshop “Quaternioni sul Conero”, Università Politecnica delle Marche, Ancona, Italy, 7-8 September 2017.

## Others

- Referee for “CittàStudiEdizioni–DeAgostini Scuola” for the book “A. Bernardi, A. Gimigliano, Algebra lineare e geometria, CittàStudiEdizioni, 2014”.
- Referee for “Complex Analysis and Operator Theory”; “Proceedings of the American Mathematical Society”; “Zentralblatt MATH (zbMATH)”.
- 11/2017 – Now  
Collaborator of SIR2014 “Analytic aspects in complex and hypercomplex geometry”, principal investigator: Prof. Daniele Angella.
- 01/2017 – Now  
Collaborator of SIR2014 “New methods in holomorphic iteration”, principal investigator: Dr. Leandro Arosio.
- 10/2013 – 12/2017  
Member of the research group FIRB 2012 “Geometria Differenziale e Teoria Geometrica delle Funzioni”, principal investigator: Dr. Caterina Stoppato.
- 01/2012 – Now  
Member of the research group GNSAGA of INdAM .
- 09/2012 – 12/2014  
Mathematics PhD student representative, University of Trento.

Roma, June 14, 2018

Amedeo Altavilla

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la pubblicazione sul sito istituzionale dell'Università Politecnica delle Marche il proprio Curriculum Vitae.

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