

CURRICULUM VITAE**DR. ALESSANDRO BERTUCCI****PERSONAL INFORMATION**

Birthplace Parma, Italy
Date of birth 26/04/1987
Nationality Italian
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Mobile +39 3491595548
Residency: Piazza Ghiaia 37, 43121, Parma



EDUCATION

Mar 2015 - Ph.D. - Co-supervised Franco-Italian Doctorate in Chemical Sciences - Mark: *Excellent*
Thesis title: "Hybrid organic-inorganic interfaces for biomedical applications"
Institut de Sciences et d'Ingénierie Supramoléculaires (ISIS), University of Strasbourg, **France**
Supervisor: Prof. Luisa De Cola
Department of Chemistry, University of Parma, **Italy**
Supervisor: Prof. Roberto Corradini

Oct 2011 - M.Sc. (Laurea Magistrale)
Analytical Chemistry – Mark: 110/110 *cum laude*
Department of Chemistry, University of Parma, Italy

Sep 2009 - B.Sc. (Laurea)
Chemical Sciences and Technologies – Mark: 110/110 *cum laude*
Department of Chemistry, University of Parma, Italy

CURRENT POSITION

Sep 2020 – present Assistant Professor ("*Ricercatore tempo determinato tipo B*")
Department of Chemistry, Life Sciences and Environmental Sustainability
University of Parma, Italy
<https://scvsa-servizi.campusnet.unipr.it/do/docenti.pl/Show? id=berale44#ricerca>

PREVIOUS POSITIONS

Feb 2020 – Aug 2020 **Fondazione Umberto Veronesi Research Fellow**
Department of Chemical Science and Technologies,
University of Rome Tor Vergata, Rome, Italy
Advisor: Prof. Francesco Ricci
Project: Design of protein-controlled synthetic DNA circuits enabling artificial biomolecular communication.

Jan 2017 – Jan 2020 **Marie Skłodowska-Curie Global Research Fellow**
Department of Chemistry and Biochemistry,
University of California San Diego, La Jolla, CA, USA
Advisor: Prof. Michael J. Sailor
Department of Chemical Sciences and Technologies,
University of Rome Tor Vergata, Rome, Italy
Advisor: Prof. Francesco Ricci
Project: Multifunctional precision medicine devices based on engineered nucleic acids (DNA nanotechnology) and nanostructured materials (porous silicon nanoparticles and polymer fibers).

May 2016 – Nov 2016 Endeavour Research Fellow

*Department of Chemical and Biomolecular Engineering,
The University of Melbourne, Australia*

Advisor: Prof. Frank Caruso

Project: DNA switches for real-time imaging of DNA-binding proteins in live cells / super resolution microscopy for investigating bio-nano interactions.

May 2015 – May 2016 Postdoctoral Associate

*Department of Chemical Science and Technologies,
University of Rome Tor Vergata, Rome, Italy*

Advisor: Prof. Francesco Ricci

Project: Antibody-controlled assembly of functional RNA structures.

VISITING**Sep 2015 – Jan 2016 Visiting Postdoc**

*Department of Chemistry and Biochemistry,
University of California San Diego, La Jolla, CA, USA*

Advisor: Prof. Michael J. Sailor

Sanford Burnham Prebys Medical Discovery Institute, La Jolla, CA, USA

Advisor: Prof. Erkki Ruoslahti

Project: Porous silicon nanoparticle delivery of synthetic antimicrobial peptides for the treatment of pulmonary infections (in collaboration with Prof. Sangeeta Bhatia, Massachusetts Institute of Technology MIT, Cambridge, MA, USA).

Jan 2015 – Mar 2015 Visiting PhD Student

Polytechnic University of Milan, Milan, Italy

Supervisor: Prof. Riccardo Bertacco

Project: Microcontact printing of DNA probes for lab-on-chip hybridization platforms.

AWARDS AND FELLOWSHIPS**2020 Fondazione Umberto Veronesi Research Fellowship**

Granting body: Umberto Veronesi Cancer Foundation

Project: *Theranostic synthetic bio-networks controlled by oncogenic transcription factors*

<https://www.fondazioneveronesi.it/ricerca/i-nostri-ricercatori/alessandro-bertucci>

2018 Finalist of the 2018 ISSNAF (“Italian Scientists and Scholars in North America Foundation”) Award for Young Investigators – Environmental Sciences, Astrophysics, and Chemistry.

<https://www.issnaf.org/celebrate>

<https://ilcorrieredelweb.blogspot.com/2018/10/computer-quantistici-neutrini-cosmici-e.html>

2017 Marie Skłodowska-Curie Global Research Fellowship

Granting body: European Commission (Grant number 704120 – “MIRNANO”)

Project: *Multifunctional miRNA-targeting nanodevices for pluripotent cancer theranostics*

<https://cordis.europa.eu/article/id/421511-an-intelligent-dna-therapy-against-cancer>

2017 French Scientific National Habilitation, II Grade - *Qualification à Maître de conférences*

Qualification n 17231303969 – Section 31, Theoretical, Physical, Analytical Chemistry

2016 Endeavour Research Fellowship

Granting body: Australian Government, Department of Education and Training (Grant # 5574)

Project: *Investigation of nano-bio interactions using super resolution optical microscopy*

2015 Best PhD Thesis in Science in France

Awarded by Naturalia and Biologia Association (NEB, Paris, France)

2014 Travel Scholarship - Summer school on Nanotechnology and innovation 2014, Tel-Aviv, Israel.

Awarded by The Marian Gertner Institute for Medical Nanosystems, Tel-Aviv University, Israel

2013 “Scientific cooperation between France and Italy” PhD Scholarship – “Doctorat en cotutelle”

Granting body: French Embassy in Italy (# 778588G)

Project: *Biofunctionalization of porous nanocontainers with artificial nucleic acids*

TEACHING

- Since 2020 Bioanalytical Methods - Master degree in Genomic, Molecular and Industrial Biotechnologies
Department of Chemistry and Life Sciences, University of Parma, Italy
- Since 2020 Analytical Chemistry and Laboratory of Analytical Chemistry – Bachelor degree in Chemistry
Department of Chemistry and Life Sciences, University of Parma, Italy
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INVITED LECTURES

1. Winter School in Advanced Technologies for Characterization and Sensing of Nanobiomaterials
University of Rome Tor Vergata, Rome, Italy - February 4th, 2020,
Programmable nucleic acid technologies for precision medicine
 2. University of Parma, Parma, Italy - June 27th, 2019 – Invited Seminar
Programmable (bio)molecular recognition across length scales
 3. 2018 ISSNAF Award for Young Investigators
Award lecture - Italian Embassy in the United States, Washington DC, USA - October 23rd, 2018
Hybrid Nucleic Acid-Porous Silicon Nanostructured Materials for microRNA-Targeted Nanomedicine
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CONFERENCE CONTRIBUTIONS

> 10 presentations at international conferences and meetings, including VI International Conference on Multifunctional, Hybrid and Nanomaterials, Sitges, Spain, March 2019; 7th European Chemistry Congress EuCheMS 2018, Liverpool, UK, August 2018; Biosensors 2018, Miami, FL, USA, June 2018; V International Conference on Multifunctional, Hybrid and Nanomaterials, Lisbon, Portugal,

LANGUAGES

Italian - Mother Tongue

English - Fluent

French - Intermediate

MEMBERSHIPS

- Since 2015 Italian Chemical Society – Division of Analytical Chemistry, **Member**
- Since 2019 **Associate Faculty Member** of *Faculty Opinions* (previously *F1000 Prime*)
(<https://facultyopinions.com/prime/thefaculty/member/1090449>)
- 2017-2019 Materials Research Society, **Member**
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OUTREACH

- 2019** Invited speaker as “*MSC Ambassador*” at the 1-day event “*MSCA day Tor Vergata*” held at the University of Rome Tor Vergata to showcase Marie Skłodowska-Curie Actions and Fellowships.
- 2018** Senior mentor in the Summer School for Silicon Nanotechnology held in the Sailor lab at UCSD.
- 2018** “*My MSCA-global fellowship scientific experience*”- Invited seminar at the University of Parma catered to M.Sc. and PhD Students: how to write a scientific proposal, to manage international mobility and to build a network of professionals.

PUBLICATION RECORD

20 papers in ISI peer-reviewed journals.

2 book chapters in international editions.

1 patent US10821082B2 / EP3154521B1

h-index: 11 (Mar 2021)

> 510 citations, Scopus, Mar 2021 (> 630 citations, Google Scholar).

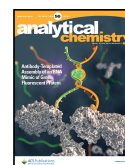
Publication record analysis:

7 papers as first author + 3 as co-first author + 2 papers as co-corresponding author

2 papers in journals with **Impact Factor (IF) > 20** (Adv. Mater; Acc. Chem. Res.)

6 papers in journals with **IF > 10** (Angew. Chem.; ACS Nano; Adv. Funct. Mater.; Small; Biosens. Bioelectron.)

7 papers in journals with **IF > 5** (Nanoscale; Anal. Chem.; Adv. Health. Mat.; ACS Appl. Mater. Int.; Org. Lett.



1. A. Bertucci,* A. Porchetta, E. Del Grosso, T. Patiño, A. Idili, F. Ricci, "Protein-Controlled Actuation of Dynamic Nucleic Acid Networks by Using Synthetic DNA Translators", *Angew. Chem. Int. Ed.* **2020**, 59, 20577-20581. * **co-corresponding author**
Featured as "VIP Paper" in Angewandte Chemie International Edition.
2. M. Rossetti,[†] A. Bertucci,[†] T. Patiño, L. Baranda Pellejero, A. Porchetta, "Programming DNA-based systems through effective molarity enforced by biomolecular confinement", *Chem. Eur. J.* **2020**, 26, 9826-9834. [†]**co-first author**
This article also appears in: Reviews Showcase (Chem. Eur. J).
Featured in the Frontispiece of Chem. Eur. J.
3. A. Glab, A. Bertucci, F. Martino, M. Wojnilowicz, A. Amodio, M. Venanzi, F. Ricci, G. Forte, F. Caruso, F. Cavalieri, "Dissecting the intracellular signalling and fate of a DNA nanosensor by super-resolution and quantitative microscopy" *Nanoscale* **2020**, 12, 15402-15143.
4. J. M. Zuidema, C. M. Dumont, J. Wang, W. M. Batchelor, Y. Lu, J. Kang, A. Bertucci, N. M. Ziebarth, L. D. Shea, M. J. Sailor, "Porous Silicon Nanoparticles Embedded in Poly(lactic-co-glycolic acid) Nanofiber Scaffolds Deliver Neurotrophic Payloads to Enhance Neuronal Growth", *Adv. Funct. Mater.* **2020**, 30, 2002560.
This article also appears in: Hot topic: RNA (Adv. Funct. Mater.)
5. J. M. Zuidema,[†] A. Bertucci,[†] J. Kang, M. J. Sailor, F. Ricci, "Hybrid polymer/porous silicon nanofibers for loading and sustained release of synthetic DNA-based responsive devices", *Nanoscale* **2020**, 12, 2333-2339. [†]**co-first author**
Included in the themed collection: 2020 Nanoscale HOT Article Collection
6. E. Piantanida, G. Alonci, A. Bertucci, L. De Cola, "Design of Nanocomposite Injectable Hydrogels for Minimally Invasive Surgery", *Acc. Chem. Res.* **2019**, 52, 2101-2112.
7. M. Rossetti, E. Del Grosso, S. Ranallo, D. Mariottini, A. Idili, A. Bertucci,* A. Porchetta, "Programmable RNA-based systems for sensing and diagnostic applications", *Anal. Bioanal. Chem.* **2019**, 411, 4293-4302. * **co-corresponding author**
8. A. Bertucci, K-H. Kim, J. Kang, J. M. Zuidema, S. H. Lee, E. J. Kwon, D. Kim, S. B. Howell, F. Ricci, E. Ruoslahti, H-J. Jang, M. J. Sailor, "Tumor-targeting, microRNA-silencing porous silicon nanoparticles for ovarian cancer therapy", *ACS Appl. Mater. Interfaces* **2019**, 11, 23926-23937.
9. M. Wojnilowicz, A. Glab, A. Bertucci, F. Caruso, F. Cavalieri, "Super-resolution imaging of proton sponge-triggered rupture of endosomes and cytosolic release of small interfering RNA", *ACS Nano* **2019**, 13, 187-202.

10. A. Bertucci, J. Guo, N. Oppmann, A. Glab, F. Ricci, F. Caruso, F. Cavalieri, “Probing transcription factor binding activity and downstream gene silencing in living cells with a DNA nanoswitch”, *Nanoscale* **2018**, *10*, 2034-2044.
11. A. Bertucci, A. Porchetta, F. Ricci, “Antibody-templated assembly of an RNA mimic of Green Fluorescent Protein”, *Anal. Chem.* **2018**, *90*, 1049-1053.
Among “most read articles” of Analytical Chemistry (December 2017)
Featured in the Front Cover of Analytical Chemistry
12. E. J. Kwon, M. Skalak, A. Bertucci, G. Braun, F. Ricci, E. Ruoslahti, M. J. Sailor, S. N. Bhatia, “Porous silicon nanoparticle delivery of tandem peptide anti-infectives for the treatment of *Pseudomonas aeruginosa* lung infections”, *Adv. Mater.* **2017**, *29*, 1701527.
Featured in the Frontispiece of Advanced Materials.
Featured in MIT News, EurekAlert, PhysOrg, Science Daily, and other media.
Featured in Science Translational Medicine as Editor’s Choice – “Resistance is Futile”, STM 9, 2017.
<https://stm.sciencemag.org/content/9/403/eaao4205>
13. A. Manicardi, [†] A. Bertucci, [†] A. Rozzi, R. Corradini, “A bifunctional monomer for on-resin synthesis of polyfunctional PNAs and tailored induced-fit switching probes”, *Org. Lett.* **2016**, *18*, 5452-5455. [†] *co-first author*
14. R. Castagna, A. Bertucci, E. A. Prasetyanto, M. Monticelli, D. V. Conca, M. Massetti, P. P. Sharma, F. Damini, M. Chiari, L. De Cola, R. Bertacco, “Reactive microcontact printing of DNA probes on (DMA-NAS-MAP) co-polymer-coated substrates for efficient hybridization platforms”, *Langmuir* **2016**, *32*, 3308-3313.
15. E. A. Prasetyanto, A. Bertucci, D. Septiadi, R. Corradini, P. Castro-Hartmann, L. De Cola, “Breakable Hybrid Organosilica Nanocapsules for Protein Delivery”, *Angew. Chem. Int. Ed.* **2016**, *55*, 3323-3327.
Featured as “Hot Paper” in Angewandte Chemie International Edition
Featured in the Inside Cover of Angewandte Chemie International Edition
16. A. Bertucci, E.A. Prasetyanto, D. Septiadi, A. Manicardi, E. Brognara, R. Gambari, R. Corradini, L. De Cola, “Combined delivery of temozolomide and anti-miR221 PNA using mesoporous silica nanoparticles induces apoptosis in resistant glioma cells”, *Small* **2015**, *11*, 5687-5695.
17. A. Bertucci, A. Candiani, S. Giannetti, A. Manicardi, A. M. Cucinotta, G. Spoto, M. Konstantaki, S. Pissadakis, S. Selleri, R. Corradini, “Detection of unamplified genomic DNA by a PNA-based microstructured optical fiber (MOF) Bragg-grating optofluidic system”, *Biosens. Bioelectron.* **2015**, *63*, 248-254.
18. A. Bertucci, H. Lülff, D. Septiadi, A. Manicardi, R. Corradini, L. De Cola, “Intracellular delivery of Peptide Nucleic Acid and organic molecules using zeolite-L nanocrystals”, *Adv. Health. Mater.* **2014**, *3*, 1812-1817.
19. H. Lülff, A. Bertucci, D. Septiadi, R. Corradini, L. De Cola, “Multifunctional inorganic nanocontainer for DNA and drug delivery into living cells”, *Chem. Eur. J.* **2014**, *20*, 10900-10904.
Featured in the Front Cover of Chemistry - A European Journal.
20. A. Candiani, A. Bertucci, S. Giannetti, M. Konstantaki, A. Manicardi, S. Pissadakis, A. Cucinotta, R. Corradini, S. Selleri, “Label- free DNA biosensor based on a peptide nucleic acid-functionalized microstructured optical fiber-Bragg grating”, *J. Biomed. Opt.* **2013**, *18*, 057004.

Book Chapters

1. A. Bertucci, S. Silvestrini, R. Corradini, L. De Cola, “Loading of PNA and other molecular payloads in inorganic nanostructures for theranostics”, in *DNA Nanotechnology*, Humana Press, New York, NY, USA, **2018**
 2. A. Bertucci, A. Manicardi, R. Corradini, “Advanced Molecular Probes for Sequence-Specific DNA Recognition”, in *Detection of non-amplified Genomic DNA*, G. Spoto, R. Corradini Eds., Springer, Dordrecht, Netherlands, **2012**
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PATENTS

1. L. De Cola, E. A. Prasetyanto, A. Bertucci, D. Septiadi
Disintegratable core/shell silica particles for encapsulating and releasing bioactive macromolecules
US10821082B2
<https://patents.google.com/patent/US10821082B2/en>