

CURRICULUM VITAE

Alessandra Maria Bossi

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Appointed academic positions

Nov 2023 ongoing **Full Professor in Analytical Chemistry** (CHIM/01), University of Verona (Italy)

2014-2023 **Associate Professor in Analytical Chemistry** (CHIM/01), University of Verona (Italy)

2000-2014 **Assistant Professor in Biochemistry** (BIO/10), University of Verona (Italy)

Invited visiting positions

- Marie Curie Fellow Cranfield University, UK 2006-2007.
- Visiting Professor for research and tuition, appointed out of selection and invitation, Université de Technologie de Compiègne (France) 2011, 5 months.
- Visiting Professor for monothematic lectures (6 hours) on the topic: nanomaterials for nanomedicine, Université de Technologie de Compiègne (France) 2017 and 2018.

National Scientific Habilitation

National scientific habilitation (ASN 2016) for the position of Full Professor in Analytical Chemistry, SSD CHIM/01, granted on the 12-4-2017.

Education

1999-2002: **Ph.D. in Polymer Chemistry**, Cranfield University (UK). Thesis: "New materials for separation and sensing." Prof. A.P.F. Turner, Prof. S.A. Piletsky.

1989-1993: **MSc Degree in Biological Sciences/Biochemistry** (5 years) from the State University of Milano, Italy. Thesis: "FT-IR and circular dichroism study on conformational changes of insulin.", Prof. P. Tortora.

Funded research projects and management experience

From 2000 AM Bossi has been awarded grants for research projects on the basis of competitive selection, both at the national and international levels, as Principal investigator (PI), project leader, project partner. Among the financing bodies: National Research Council CNR 2000, Ministry of Education and Research PRIN 2001; PRIN 2003; Ministry of Foreign Affairs 2008, British Council 2008, European Union (EU) 7FP, Horizon 2020.

AM Bossi has received fundings by private bodies for applied research and technology transfer activities, (e.g. gruppo Grandi Pastai Italiani 2006-2007; Infigo Diagnostics, Netanya, Israel).

Funded Projects 2013-2025:

1. European Union, FP7/2007-2013/ Marie Curie Intra-European Fellowship 2012-2014. Scientific Coordinator (PI) of the Marie Curie Fellow, Title: "Peptide Imprinted Polymers"; 24 months; REA grant agreement n° [327165].

2. Ministero dell'Istruzione, dell'Università e della Ricerca Scientifica. FIRB 2013, 48 months. Participant. Title: "Abuse of Smart Drugs: impacts on society, healthcare, law; damages in young athletes: epidemiology; pathology, biochemistry and toxicology."
3. European Union, H2020-MSCA-IF-2016. Marie Skłodowska Curie Actions 2017-2019. Scientific Coordinator (PI) of the Marie Curie Fellow, Title: "Gluten Epitope Molecularly imprinted polymer Sensor." 24 months; REA grant agreement n° [752438].
4. DGR.342/2020, research and industrial innovation projects Regione Emilia Romagna, partner SME Advantage s r l, Università di Pisa, CNR di Parma. Title: "Sviluppo di sistemi elettrochimici portatili per la determinazione di SARS CoV2 negli ambienti." 6 months, 1-10-2020.
5. Strategic projects Area Covid-19, Università di Trento. Partner along with Dipartimento di Ingegneria Industriale, e Dipartimento di Biologia Cellulare, Computazionale e Integrata (CIBIO). Title: "Optical Sensors for Virus SARS-CoV-2." 24 months.
6. Fundacao para a Ciencias e a Tecnologia, Portugal. Title: "MyTag –Universal environmental monitoring devices based on Intelligent scattering analysis enhanced by molecular Imprinted Tags." Partner. 36 months. Project reference PTDC/EEI-EEE/4832/2021.
7. Internationalisation Programme, University of Verona 2022. Host Coordinator (PI) of the Visiting Fellow. 5 months.
8. MUR Ricercatore a Tempo Determinato di tipo A - RTDA DM n. 1062/2021 -- PON "RICERCA E INNOVAZIONE" PI-supervisor. One position to recruit a young researcher for 2 years. Title: "Piattaforme ottiche per la rilevazione universale di inquinanti." Subject category: Green. Industrial partner: Optosensing srl (Napoli). From 1-02-2022.
9. MUR D.M. 351, Missione 4 PNRR, componente 1 "Potenziamento dell'offerta dei servizi di istruzione: dagli asili nido all'Università", Investimento 4.1 "Estensione del numero di dottorati di ricerca e dottorati innovativi per la pubblica amministrazione e il patrimonio culturale", Project "Sensori ottici per la rilevazione di inquinanti nelle acque". PI-supervisor, funds to award a 3 years PhD position starting from 1-10-2022.
10. MUR, Ministero dell'Università e della Ricerca Scientifica. PRIN 2022, 24 months. National Principal Investigator (PI). "NanoTricks" Prot. 20228AYRJE
11. MUR, Ministero dell'Università e della Ricerca Scientifica. PRIN PNRR, 24 months. Principal Investigator (PI) for Verona University. "Biomips Immunomodulating Scaffolds for tissue engineering". Prot. P2022HLS3M.

Technology transfer activity, patents:

1. US Patent 5,939,523 (August 17, 1999) Bossi, A.M., P.G. Righetti, E. Riva, L.F. Zerilli. "Purification of dalbaheptide antibiotics by isoelectric focusing."
2. US Patent App. 10/520,656. (July, 11, 2003); Inventori: Alessandra Bossi, Anthony Francis, Olena Imiriyna, Sergey Piletsky. "Method of producing a microfluidic device."
3. US Patent 7,682,836, (23-03-2010) Inventori: Piletsky, S.A., Piletska, O.V., Karim, K., Turner, A.P.F. and Bossi A "Selective Binding Materials".
4. IT202000024289A (2020-10-15): "Metodo per la produzione di nanomateriali biocompatibili con capacità di riconoscimento selettivo e relativi usi".
5. WO2022079678A1 PCT application: "Method for the production of biocompatible nanomaterials with selective recognition capabilities and uses thereof", 15/10/2021
6. WO2022238871A1: "Device and method for detecting and identifying molecularly imprinted polymers in a liquid dispersion sample" PCT/IB2022/054297, 9/5/2022
7. 102022000023883 Italian Patent Application (1-12-2022): "Metodo per aumentare la selettività di un sensore a transistor elettrochimico organico tramite opportuno inserimento di polimeri a stampo molecolare e sensore con selettività migliorata ad esso associato." Intentori: Coppedè N.; Bossi A.M.; Vurro F.

Third Mission

October 2025: participation as speaker to the Biotech Week, event of public engagement organized by Dept. Biotechnology, Verona University.

Editorial activity:

A) Editorial Board member of Sensors, Session Board 'Biosensors' dal 2018 (ISSN 1424-8220, <http://www.mdpi.com/journal/sensors/>, impact factor 3.847, Biosensors section).

B) Guest Editor of Special Issue "Novel Approaches of Nanoparticles in Biosensing"-Sensors (ISSN1424-8220) IF 3.847. https://www.mdpi.com/journal/sensors/special_issues/with_Nanoparticles

C) Guest Editor of Special Issue "Shaping and Designing Polymers for Sensor Development"-Sensors (ISSN1424-8220), IF 3.847. <http://www.mdpi.com/journal/sensors>.

D) Guest Editor of Special Issue "Advances in Molecularly Imprinted Polymer Nanomaterials"-Nanomaterials (ISSN 2079-4991), IF 5.719. This special issue belongs to the section "Synthesis, Interfaces and Nanostructures".) https://www.mdpi.com/journal/nanomaterials/special_issues/MIP_nano

E) Associate Editor di Frontiers in Bioengineering and Biotechnology, Impact Factor: 6.064, dal 2022.

Reviewer Activity:

- Reviewer for international scientific journals with peer review (e.g. ACS Nano; ACS Applied Material and Interfaces; Analytical Chemistry; Analytical and Bioanalytical Chemistry; Nanoscale; Nature Protocols; Sensors; Talanta etc).
- Reviewer of projects for the following scientific foundations: Israel Science Foundation (ISF) (Israel); Deutsche Forschungsgemeinschaft (DFG) (Germany); ERA-Chemistry consortium (Germany); Chemical Royal Society (UK); National Science Center (Poland).

Participation/Direction of PhD Courses:

2002-2012 Member of the Board of the Doctoral Course in Molecular Industrial and Environmental Biotechnology Università di Verona.

2013-2018 Member of the Board of the Doctoral Course in Nanoscience and Advanced Technologies Università di Verona.

2022-2024 Member of the Board of the Doctoral Course in Biotechnology, Università di Verona.

2024 ongoing: from 40st cycle Head of the Doctoral Course in Smart Agrifood Sciences, University of Verona.

Invited opponent member for the dissertation of the following doctoral theses:

1. Dottorato in Scienza ed Alta Tecnologia, XXV CICLO, Scienze Biochimiche, Dipartimento di Chimica, Università di Torino, 11-3-2013.
2. Linneus University, Kalmar, Sweden. Title of the thesis: QCM-based sensing using biological and biomimetic interfaces. Candidate : Elmund Louise. 31-10-2014.
3. Universite de Technologie de Compiègne, France. Candidate : Mrs. DAOUD ATTIEH Mira. Title of the thesis: Enzymatically initiated synthesis of biomimetic receptors based on molecularly imprinted polymers by free radical polymerization. 1-04-2016.
4. Universite de Technologie de Compiègne, France. Candidate: Jingjing XU. Title of the thesis: Solid phase synthesis of molecularly imprinted polymer nanoparticles for protein recognition. 21-4-2017.
5. Oslo University, School of Pharmacy, Oslo, Norway. Candidate: Mrs. Cecilia Rossetti: Title of the thesis: Molecularly Imprinted Polymers as new tool in proteomics: the case study pf SCLC diagnosis. 19-12-2017.
6. Wien University, School of Chemistry, Wien, Austria. Candidate: Agnieszka Stralhofer. Title of the thesis: Development of a novel platelets functional assay using Quartz Crystal Microbalance (QCM). 23-4-2018.
7. Linneus University, Kalmar, Sweden. Candidate: Ndizeye Natacha. Title of the thesis: New strategies for preparing polymers with hierarchical architectures. 5-10-2018.
8. Università di Pavia, DOTTORATO DI RICERCA IN SCIENZE CHIMICHE E FARMACEUTICHE. Candidate: Simone Marchetti. Title of the thesis: Optoelectronics sensors based on molecularly imprinted polymers. 23-2-2019.
9. Università di Torino, Dottorato in "SCIENZE CHIMICHE E DEI MATERIALI"., Dipartimento di Chimica, Candidate: Giulia Spano. Title of the thesis: Molecularly imprinted polymers: man-made mimics of natural receptors and their analytical applications 18-4-2019.
10. Wien University, School of Chemistry, Wien, Austria. Candidato: Wym Cuipers. Title of the thesis: Optimizing molecularly imprinted polymer thin films for sensing lysozyme and bovine serum albumin. 25-10-2019

11. Universite de Technologie de Compiègne, France. Candidate: Paulina Ximena Medina Rangel. Title of the thesis: Molecularly Imprinted Polymer Nanoparticles as Synthetic Antibody Mimics for Biotargeting and Imaging. 28-2-2020.
12. Wien University, School of Chemistry, Wien, Austria. Candidate: Monika MARJANOVIC. Title of the thesis: Optimization of Molecularly imprinted Polymers for selective sensing of Nanoparticles. 25-5-2021.
13. Universite de Technologie de Compiègne, France. Candidate: Alicia Alejandra MIER GONZALEZ. Title of the thesis: Molecularly Imprinted Polymer Nanogels as Synthetic Antibody Mimics for the Recognition of Protein Biomarkers. 23-7-2021.
14. Linneus University, Kalmar, Sweden. Candidate: Rashmi Mahajan. Title of the thesis: Strategies for developing peptide and protein selective plastic antibodies. 8-4-2022.
15. German University in Cairo, Egypt. Faculty of Pharmacy and Biotechnology. PhD in Pharmaceutical Science. Candidate: Eman Ahmed Hafez Abdel-Aal. Title of the thesis: Synthesis and Application of Molecularly Imprinted Polymers for Extraction of Ethinyl Estradiol from Water Samples. 13-9-2022.
16. Malmo University, Sweden. PhD Candidate: Thomas Janssen. Title of the thesis: Diagnostic Tools for Oral Infections Based on Artificial Receptors. 9-9-2024

Invited opponent member for the dissertation of MSc final exam:

1. German University in Cairo, Egypt. Faculty of Pharmacy and Biotechnology. Master of Science in Pharmaceutical Chemistry. Candidate: Mariam Aly Hassan Soliman. Title of the thesis: Magnetic Molecularly Imprinted Polymers for Targeted Delivery-in Rheumatoid Arthritis Model. 23-9-2021.

Lecturer activity at the University of Verona

- **2014/2015- ongoing: Omics Sciences, Proteomics** (4CFU), SSD CHIM/01, LM7, Biotechnologie Agroalimentari
- **2015/2016- ongoing: Functional Proteomics** (6CFU), SSD CHIM/01, LM9, Molecular and medical biotechnology, Tuition in English
- **2019/2020- ongoing: Sensors** (6CFU), SSD CHIM/01, LM8, Master's degree in Biotechnology for bioresources and sustainable development

Activities in Internationalization

- From 2017, Erasmus coordinator for UTC Compiègne (France). Active exchanges of Master's students (incoming and outgoing).
- From 2017, AM Bossi invites international speakers for thematic lectures within the University's internationalization project for the course Functional Proteomics within MSc LM9.
- Proponent of the Memorandum of Understanding signed in 2020 between the Department of Biotechnology of the University of Verona and the School of Chemistry at the University of Leicester (UK), involving in Italy the universities of Verona, Florence, and Turin, and internationally the universities of Kalmar (Sweden), Compiègne (France), Leicester (UK), Nanjing (China), Kobe (Japan). The goal is to build and strengthen collaborations and exchanges in teaching and research.
- Call for Visiting - Category B: inbound mobility for research and teaching, University of Verona 2022. AM Bossi is Host Coordinator for the Visiting Fellow, Dr. Pinar Cakir (Istinye University, Turkey). Duration: 2 months.
- Call for Visiting - Category B: inbound mobility for research and teaching, University of Verona 2023. AM Bossi is Host Coordinator for the Visiting Fellow, Prof. S.A. Pilersky (Leicester University, UK). Duration: 15 days.
- From 2023, Erasmus coordinator for the Istinye campus in Istanbul (Turkey), which has an active exchange of Master's students (incoming and outgoing).

Institutional roles

- 2013-2015 Representative for the School of Science and Engineering within the Directive Body of Centro Linguistico di Ateneo
- 2014-2018 member of the Departmental Commission for the allotment of the Internal Research-budget of the Dept;
- From 2016 member of the Assessment of the Quality (AQ) team for the Master course in Molecular and medical biotechnology (LM9).

From 2022 member of the Commission for the time scheduling of the lectures for the School of Science and Engineering
From 2022 responsible for the ERASUMS program for the course Medical and molecular biotechnology (LM9).

Affiliation to Scientific Societies

- From 2016 elected member of the Scientific Board of the international Molecular Imprinting Society.
- From 2013 member of the Società Chimica Italiana (SCI).
- From 2021 member of the Material Research Society MRS

Description of the scientific activity

ERC:

PE4_5 Analytical chemistry

PE5_7 Biomaterials synthesis

PE11_1 Engineering of biomaterials, biomimetic, bioinspired and bio-enabled materials

AM Bossi's research activities are in the field of analytical chemistry (SSD CHIM/01; PE4_5). She has been actively pursuing methods development for protein and peptide separations and quali-quantifications. AM Bossi conceives, designs and synthesizes bio-mimetic polymeric materials (acrylamides, methacrylates, acrylates, thiophenes, anilines), prepared by means of molecular imprinting of polymer (MIP) technology (PE5_7; PE11_1), with the aim of producing robust and stable synthetic receptors, outperforming their natural counterparts.

Among her most original and recognized contribution to the research area has been to propose strategies for the successful imprinting of proteins and peptides.

AM Bossi designs MIPs both at micro- and nano-metric scales, controls polymerization by photoactivated and iniferter-driven techniques, entails functional properties to the polymeric materials, such as responsiveness, intelligent properties, catalysis, molecular recognition, refolding (PE 5_7; PE5_15; PE11_1). AM Bossi activities include the application of MIP nanomaterials (nanoMIPs) as recognition elements in sensors (electrochemical, optical), as well as their integration as molecular baits for proteomics, for the selective enrichment of target analytes in mass spectrometry and in assays (PE4_5).

Recent breakthrough research of AM Bossi's is on pioneering the development of nanoMIPs starting from natural biomaterials, such as silk fibroin and gelatin (PE11_1), which leads to greener and biocompatible class of biomimetics, suitable for in vivo clinical applications, including in vivo sensing.

Oral and invited communications to conferences

Oral presentations to conferences:

- 1) The second world conference on "Synthetic Receptors" Salzburg (Austria), 7-9 September 2005. "Reconfigurable supports for selective adsorption and separation of biomolecules." A.M. Bossi, M. Varejka, S. Piletsky
- 2) 5th International Workshop on Molecularly Imprinted Polymers "MIP2008", Kobe (Japan), September 7-11, 2008. "Fabrication of polymer arrays for sensor technology." A.M. Bossi, I. Sanchez, O. Henry, S.Piletsky
- 3) 7th International Workshop on Molecularly Imprinted Polymers "MIP2012", Paris (France), August 27-30, 2012. "Rational selection of peptide epitope templates for protein imprinting." A.M. Bossi, R. Levi
- 4) International Biolron Society 2013 Meeting, London (England), April 14–18, 2013. "SPR biosensors and "natural hepcidin receptor" immobilization for hepcidin-25 determination in serum." AM Bossi, F Lonardoni, I Chianella, A Castagna, M Bovi, O. Olivieri, D Girelli
- 5) 11th International Conference on Nanosciences & Nanotechnologies (NN14), Thessaloniki (Greece), July 8-11 2014. "Molecularly imprinted nanoparticles for point-of-care analysis in Nanomedicine." A.M. Bossi., D. Girelli D., O. Olivieri
- 6) European Iron Club 2014; Verona (Italy), September 11-14 2014. "Hepcidin-25 assays and sensors based on molecularly imprinted nanoparticles. " Bossi A.M., Andreetto E., Cenci L., Castagna A., Girelli D., Olivieri O.
- 7) European Iron Club 2016; Innsbruck (Austria), April 7-10, 2016. "Molecularly imprinted nanoparticles targeted at the recognition of hepcidin-25: new opportunities in the hepcidin determination panorama." A.M. Bossi, L. Cenci, D. Girelli.

- 8) The 9th International Congress on Molecular Imprinting-MIP2016; Lund (Sweden), June 23-27, 2016. "Molecularly imprinted nanoparticles in MALDI-TOF mass spectrometry." A.M. Bossi, L. Cenci, G. Guella.
- 9) Analytical Proteomics - V-ICAP 2017 conference. Caparica (Portugal), July, 1 – 6, 2017. Title: Molecularly imprinted micro- and nano-materials for direct protein MALDI-TOF MS analysis. A.M. Bossi, L. Cenci, A. Anesi, G. Guella.
- 10) XXVI Congresso Nazionale della Società Chimica Italiana, 11-14 Settembre 2017, Paestum. Title: Molecularly Imprinted Materials Coupled to MALDI-TOF Mass Spectrometry for the Targeted Analysis of Peptides and Proteins. L. Cenci, G. Guella, A.M. Bossi.
- 11) 28th Anniversary World Congress on Biosensors, 12-15 June 2018, Miami (Florida, US). Title: Plasmonic platform in plastic optical fibers combined with molecularly imprinted nanogels to sense ultralow protein concentrations. N. Cennamo, M. Pesavento, L. Zeni, A.M. Bossi.
- 12) XXVII Congress of the Analytical Chemistry Division, Analitica 2018, 16-20 September 2018, Bologna. Keynote lecture. Title: Molecularly imprinted nanogel particles: tailor-made protein and peptide receptors for sensing and assays. A.M. Bossi.
- 13) The 7th International Symposium on Sensor Science 2019; Napoli (Italy), May 9-11 2019. Title: Plasmonic platform in plastic optical fibers combined with molecularly imprinted nanogels to sense ultralow protein concentrations. N. Cennamo, R. Tatti, L. Zeni, A.M. Bossi.
- 14) XXVIII Congress of the Analytical Chemistry Division, Bari 22 – 26 September 2019. Title: MOLECULARLY IMPRINTED NANOGELS COMBINED TO PLASTIC OPTICAL FIBRE FOR THE ULTRALOW DETECTION OF PROTEINS. R. Tatti, N. Cennamo. D. Maniglio, A.M. Bossi
- 15) MIPOL2020, 4th Ed. Milan Polymer Days 2020; Virtual, July 15-17, 2020. Title: Deformable molecularly imprinted nanogels. A.M. Bossi
- 16) European Biosensor Symposium, EBS2021, Online Conference (Wildau Germany), 9-12 March 2021. Title: Flexible molecularly imprinted nanoparticles in plasmonic optical sensing. N. Cennamo, D. Maniglio, A.M. Bossi
- 17) MIPOL2021, 5th Ed. Milan Polymer Days 2021; Virtual, July 6-8, 2021. Title: Soft molecularly imprinted nanogels to selectively recognize proteins. A.M. Bossi
- 18) XXVI Congresso Nazionale della Società Chimica Italiana, 14-23 September 2021; Virtual (Italy). Title: Soft molecularly imprinted nanoparticles for protein recognition in sensing and assays. A.M. Bossi
- 19) MIPOL2022, 6th Ed. Milan Polymer Days 2022; Milano, June 19-21, 2022. Title: From the natural polymer silk fibroin to the production of biocompatible molecularly imprinted nanoparticles: synthesis and properties of bioMIPs. A.M. Bossi
- 20) MRS FALL meeting 2022. International meeting of the Material Research Society; Boston (US), 26 November – 2 December 2022. Section SB08, Title: "BioMIPs Biocompatible Biomimetics—Molecular Imprinting Ties the Know with Natural Polymers. Synthesis, Properties and Future Perspectives of Silk Molecularly Imprinted Nanoparticles." A.M. Bossi & D. Maniglio. <https://www.mrs.org/meetings-events/fall-meetings-exhibits/2022-mrs-fall-meeting/symposium-sessions/presentations?page=1&categories=&symposium=SB08&sessiontype=&topicalcluster=&sessiondate=&s=>
- 21) 6th International conference on Natural Fibers, ICNF 2023, Funchal (Portugal), Title: FUNCTIONAL SILK FIBERS BY THE MOLECULAR IMPRINTING OF SILK NANOPARTICLES AND A HIERARCHICAL APPROACH. AM Bossi 19-21 June 2023. A.M. Bossi & D. Maniglio
- 22) 4th European Biosensor Conference EBS 2023, Aachen (Germany), Title: Soft molecularly imprinted nanoparticles for the optical sensing of protein biomarkers. AM Bossi 27-30 August 2023
- 23) XXVII Congresso Nazionale della Società Chimica Italiana, 17-21 September 2023; Vasto (Italy). Title: Molecularly imprinted nanogels for optical sensing. A.M. Bossi
- 24) NICE winter conference. Title: Silk fibroin molecular nanotraps as biocompatible biomimetics for selective protein recognition. A.M. Bossi 12-14 December 2023
- 25) MRS FALL meeting 2023. International meeting of the Material Research Society; Boston (US), 26 November – 2 December 2023. Title: Silk-nanotraps for selective molecular targeting. Understanding potentials and limitations of functional protein super-assemblies. A.M. Bossi & D. Maniglio
- 26) CPAC Rome Workshop 2024 Rome (Italy) 19-21-3-2024 Title: Molecularly Imprinted Polymers from sensing to targeted analyte removal. AM Bossi
- 27) SCI 2024 XXVII Congresso della Società Chimica Italiana, Milano 26-30 August 2024. Title: Sustainable biomimetics by the molecular imprinting of silk fibroin: synthesis, properties, applications. A.M. Bossi & D. Maniglio
- 28) MRS FALL meeting 2024. International meeting of the Material Research Society; Boston (US), 1-6 December 2024. Title: "Silk-based biomimetics made by the molecular imprinting technique. Exploiting protein aggregation to form target-selective nanotraps." A.M. Bossi & D. Maniglio

- 29) CPAC Rome Workshop 2025 Rome (Italy)) 24-26 March 2024 Title: Molecularly Imprinted Polymers: Tailoring Molecular Recognition from Class to Precision Extraction. AM Bossi
- 30) XXVIII Congresso Nazionale della Società Chimica Italiana, 7-9 September 2025; Pisa (Italy). Designing Biopolymer-Based Receptors through Molecular Imprinting Technology. AM Bossi
- 31) IFPAC Cotrona meeting 2025. 6-8 October 2025 Cortona (Italy) Custom design of materials and biomaterials: from precision recovery to therapeutics. A.M. Bossi

Invited lectures to conferences:

- 1) 1st Summer School on “Imprinted Polymers at the nano- and microscale”, Ile d’Oleron (France) May 16-20, 2011. Invited Lecture on ligand binding affinity, A.M. Bossi
- 2) II International Congress of the Chinese Advanced Material Society, Zhenjiang (China), May 16-19, 2013. “On the rational selection of peptide epitope templates for protein imprinting.” A.M- Bossi http://www.thecams.org/en_index.php
- 3) International School: Marie Curie ITN CHEBANA; Summer School Biarritz, France, September 1-7, 2013, Title: Epitope imprinting. On the rational selection of peptide epitopes. Author: A. Bossi
- 4) The 8th International Congress on Molecular Imprinting-MIP2014, Jiangsu University, Zhenjiang (P. R. China), 18-21 September 2014. “Molecularly Imprinted Polymers Matrixes for MALDI-MS.” Bossi A.M., Cenci L.
- 5) 22nd Meeting of the International Society for Molecular Recognition, Affinity 2017, Paris (France), Pierre and Marie Curie Campus, June 25th-29th, 2017. Title: Molecularly Imprinted Nanoparticles Targeted at Structured Peptides: an Assistance to Folding? Bossi A.M. <http://www.affinity2017.net>
- 6) The 8th International Workshop on Surface Modification for Chemical and Biochemical Sensing, SMCBS'2017. Palace Hotel in Zelechow (Poland), November 3-7, 2017. Title: Molecularly imprinted nanomaterials targeting linear and structured peptides. Bossi A.M. <http://www.smcb2017.pl>
- 7) The 10th International Congress on Molecular Imprinting-MIP2018; Jerusalem (Israel), June 24-28, 2018. Title: Imprinting Structured Peptides: a Step Toward Folding Assistance? A.M. Bossi <http://www.ortra.com/events/mip2018/Program/InvitedLecturers.aspx>
- 8) International Conference Nano-M&D 20196 in Paestum - Italy, June 4-8 2019. Title: Molecularly imprinted nanogels combined to plastic optical fibre: influence of the nanostructure to the sensor response. A.M. Bossi.
- 9) 2nd International Electronic Conference on Applied Sciences – ASEC 2021. Virtual. 15-31 October 2021. Title: Optical Sensing with Molecularly Imprinted Nanoparticles: Targeting Protein Biomarkers. Strategies and Applications. Bossi A.M., Cennamo N., Zeni L. <https://asec2021.sciforum.net>
- 10) COAST 2022 - 1st Conference of Applied Surface Technology in Wien (Austria) - 16.05.2022 & 17.05.2022 Invited Keynote. Title: A.M. Bossi
- 11) 1st Summer School ‘Advances in Biotechnology and New Horizons for Industry’ Isle d’Oleron (France), 14-17 June 2022. <https://alvarogarciaconsulti.wixsite.com/biotech22> **Invited Keynote**. Title: Advances in protein imprinting. A.M. Bossi
- 12) AOP 2022 – 5th International Conference on Application of Optics and Photonics, Guimaraes (Portugal) 18-22 July 2022. **Invited Keynote**. Title: Rational methods to prepare high fidelity protein imprinted polymers. A.M. Bossi. <https://aop2022.org/index.html>
- 13) XXIX Congress of the Analytical Chemistry Division, Milazzo 11 – 16 September 2022. **Invited Keynote** Title: Protein recognitive soft molecularly imprinted nanoparticles for plasmonic platforms. N. Cennamo. L. Zeni, A.M. Bossi <https://www.analitica2022.chim.it>
- 14) International-symposium-on-molecular-imprinting-technology-for-biomedical-applications Biomed MIT 2022, Nanjing, China (virtual), 25-28 September 2022. **Invited Keynote** Title: From protein imprinting to imprinting proteins. Different perspectives but one goal: nanoMIPs to meet the clinical needs. A.M. Bossi <https://www.rsc.org/events/detail/74384/international-symposium-on-molecular-imprinting-technology-for-biomedical-applications-biomed-mit-2022>
- 15) The 12th International Congress on Molecular Imprinting-MIP2024; Verona (Italy), June 19-21, 2024. **Invited Keynote** Title: BioMIPs biocompatible biomimetics. A.M. Bossi & D. Maniglio
- 16) Eurasia Nanotech, Istanbul 3-7 September 2024. Title: Sustainable biomimetics by the molecular imprinting of silk fibroin: synthesis, properties, applications. **Invited Keynote** AM Bossi
- 17) Beilstein Nanotechnology Symposium, Smart materials for advancing healthcare, Limburg, Germany 3-5 June 2025. Title: Engineering Biopolymer-Based Nanotraps via Molecular Imprinting for Target-Specific Sequestration. **Invited Keynote** A.M. Bossi

Organization of conferences: host of conference; scientific committee

- 1) The 10th International Congress on Molecular Imprinting-MIP2018; Jerusalem (Israel), June 24-28 2018. Scientific committee member. <http://www.ortra.com/events/mip2018/Committees.aspx>
- 2) The 7th International Symposium on Sensor Science 2019; Napoli (Italy), May 9-11 2019, Scientific committee member. <https://i3s2019napoli.sciforum.net>
- 3) The 11th International Congress on Molecular Imprinting-MIP2022; Virtual (China), September 22-25 2022. Scientific committee member
- 4) The 12th International Congress on Molecular Imprinting-MIP2024; Verona (Italy), June 24-28 2018. Host Organizer and Scientific committee
- 5) Workshop: Design of Biomimetic Nanotraps for Clinical Applications; Galzignano (PD) 27-29 August 2025 Organizer & Scientific committee
- 6) The 13th International Congress on Molecular Imprinting-MIP2026; Vienna (Austria), July 12-15 2026. Organizing committee member

Organization of conferences: chairperson

- 1) 22nd Meeting of the International Society for Molecular Recognition, Affinity 2017, Paris (France), Pierre and Marie Curie Campus, June 25th-29th, 2017.
- 2) The 8th International Workshop on Surface Modification for Chemical and Biochemical Sensing, SMCBS'2017. Palace Hotel in Zelechow (Poland), November 3-7, 2017.
- 3) The 7th International Symposium on Sensor Science 2019; Napoli (Italy), May 9-11 2019.
- 4) MIPOL2020, 4th Ed. Milan Polymer Days 2020; Virtual, July 15-17, 2020.
- 5) MIPOL2021, 5th Ed. Milan Polymer Days 2021; Virtual, July 6-8, 2021. 9th Session – Chairperson.
- 6) MIPOL2022, 6th Ed. Milan Polymer Days 2022; Milano, June 19-21, 2022. 2nd Session. Chairperson.

Organization of conferences: participation to prize committees

- 7) European Biosensor Symposium, EBS2021, Online Conference (Wildau Germany), 9-12 March 2021. Poster Award Jury Member
- 8) MIPOL2021, 5th Ed. Milan Polymer Days 2021; Virtual, July 6-8, 2021. Poster Award Jury Member.
- 9) MIPOL2022, 6th Ed. Milan Polymer Days 2022; Milano, June 19-21, 2022. Poster Award Jury Member

List of Publications (last 10 years):

- 71) Cenci, L., Anesi, A., Busato, M., Guella, G., Bossi, A.M. Molecularly imprinted polymers coupled to matrix assisted laser desorption ionization mass spectrometry for femtomoles detection of cardiac troponin I peptides. *J Mol Recognit* 29 (2016) 41-50.
- 72) Musile, G., Cenci, L., Andreetto, E., Ambrosi, E., Tagliaro, F., Bossi, A.M. Screening of the binding properties of molecularly imprinted nanoparticles via capillary electrophoresis. *Anal Bioanal Chem.* 408 (2016) 3435-3443.
- 73) Cenci, L., Guella, G., Andreetto, E., Ambrosi, E., Anesi, A., Bossi A.M. Guided Folding Takes a Start from the Molecular Imprinting of Structured Epitopes. *Nanoscale* 8 (2016) 15665-15670.
- 74) Bertolla, M., Cenci, L., Anesi, A., Ambrosi, E., Tagliaro, F., Vanzetti, L., Guella, G., Bossi, A.M. Solvent-Responsive Molecularly Imprinted Nanogels for Targeted Protein Analysis in MALDI-TOF Mass Spectrometry. *ACS Appl. Mater. Interfaces* 9 (2017) 6908-6915.
- 75) Cenci, L., Bertolla, M., Anesi, A., Ambrosi, E., Guella, G., Bossi, A.M. Micro- versus nano-sized molecularly imprinted polymers in MALDI-TOF mass spectrometry analysis of peptides. *Anal. Bioanal. Chem.* 409 (2017) 6253-6261.
- 76) Cenci, L., Piotto, C., Bettotti, P., Bossi, A.M. Study on molecularly imprinted nanoparticle modified microplates for pseudo-ELISA assays. *Talanta* 178 (2018) 772-779.
- 77) Santangelo, A., Imbrucè, P., Gardenghi, B., Belli, L., Agushi, R., Tamanini, A., Munari, S., Bossi, A.M., Scambi, I., Benati, D., Mariotti, R., Di Gennaro, G., Sbarbati, A., Eccher, A., Ricciardi, G.K., Ciceri, E.M., Sala, F., Pinna, G., Lippi, G., Cabrini, G., Dehecchi, M.C. A microRNA signature from serum exosomes of patients with glioma as complementary diagnostic biomarker. *J. Neuro-Oncol.* 136 (2018) 51-62.
- 78) Musile, G., Cenci, L., Piletska, E., Gottardo, R., Bossi, A.M., Bortolotti, F. Development of an in-house mixed-mode solid-phase extraction for the determination of 16 basic drugs in urine by High Performance Liquid Chromatography-Ion Trap Mass Spectrometry. *J Chromatogr. A*, 1560 (2018) 10-18.
- 79) Cenci, L., Tatti, R., Tognato, R., Ambrosi, E., Piotto, C., Bossi, A.M. Synthesis and characterization of peptide-imprinted nanogels of controllable size and affinity. *Eur Polym. J.* 109 (2018) 453-459.

- 80) Busato M., Distefano R., Bates F., Karim K., Bossi A.M., López Vilariño J.M., Piletsky S., Bombieri N., Giorgetti A. MIRATE: Mlps RAtional dEsign Science Gateway. *J. Integrat. Bioinformat.* (2018) Published Online: 2018-06-13; DOI:doi.org/10.1515/jib-2017-0075.
- 81) Iskierko, Z., Sharma, P.S., Noworyta, K.R., Borowicz, P., Cieplak, M., Kutner, W., Bossi, A.M. Selective PQQPFPQQ Gluten Epitope Chemical Sensor with a Molecularly Imprinted Polymer Recognition Unit and an Extended-Gate Field-Effect Transistor Transduction Unit. *Anal. Chem.* 91 (2019) 4537-4543.
- 82) Cennamo, N., Pasquardini, L., Arcadio, F., Vanzetti, L.E., Bossi, A.M., Zeni, L. D-shaped plastic optical fibre aptasensor for fast thrombin detection in nanomolar range (2019) *Scientific Reports*, 9 (1), art. no. 18740
- 83) Bossi, A.M. Plastic antibodies for cancer therapy? (2020) *Nature chemistry*, 12 (2), pp. 111-112.
- 84) Piletsky, S., Canfarotta, F., Poma, A., Bossi, A.M., Piletsky, S. Molecularly Imprinted Polymers for Cell Recognition (2020) *Trends in Biotechnology*, 38 (4), pp. 368-387.
- 85) Capriotti, A., Piovesana, S., Zenezini Chiozzi, R., Montone, C.M., Bossi, A.M., Laganà, A. Does the protein corona take over the selectivity of molecularly imprinted nanoparticles? The biological challenges to recognition (2020) *Journal of Proteomics*, 219, art. no. 103736
- 87) Cennamo, N., Maniglio, D., Tatti, R., Zeni, L., Bossi, A.M. Deformable molecularly imprinted nanogels permit sensitivity-gain in plasmonic sensing (2020) *Biosensors and Bioelectronics*, 156, art. no. 112126
- 88) Chiappini, A., Pasquardini, L., Bossi, A.M. Molecular imprinted polymers coupled to photonic structures in biosensors: The state of art (2020) *Sensors (Switzerland)*, 20 (18), art. no. 5069, pp. 1-23.
- 89) Bossi, A.M., Haupt, K. Tailoring a Dress to Single Protein Molecules: Proteins Can Do It Themselves through Localized Photo-Polymerization and Molecular Imprinting (2020) *Chemistry - A European Journal*, 26 (64), pp. 14556-14559.
- 90) Pasquardini, L., Bossi, A.M. Molecularly imprinted polymers by epitope imprinting: a journey from molecular interactions to the available bioinformatics resources to scout for epitope templates (2021) *Analytical and Bioanalytical Chemistry*, 413 (24), pp. 6101-6115.
- 91) Pasquardini, L., Cennamo, N., Malleo, G., Vanzetti, L., Zeni, L., Bonamini, D., Salvia, R., Bassi, C., Bossi, A.M. A surface plasmon resonance plastic optical fiber biosensor for the detection of pancreatic amylase in surgically-placed drain effluent (2021) *Sensors*, 21 (10), art. no. 3443.
- 92) Bossi, A.M., Bucciarelli, A., Maniglio, D. Molecularly Imprinted Silk Fibroin Nanoparticles (2021) *ACS Applied Materials and Interfaces*, 13 (27), pp. 31431-31439.
- 93) Cennamo, N., Bossi, A.M., Arcadio, F., Maniglio, D., Zeni, L. On the Effect of Soft Molecularly Imprinted Nanoparticles Receptors Combined to Nanoplasmonic Probes for Biomedical Applications (2021) *Frontiers in Bioengineering and Biotechnology*, 9, art. no. 801489.
- 94) Bossi, A.M., Maniglio, D. BioMIPs: molecularly imprinted silk fibroin nanoparticles to recognize the iron regulating hormone hepcidin (2022) *Microchimica Acta*, 189 (2), art. no. 66.
- 95) Arcadio, F., Seggio, M., Del Prete, D., Buonanno, G., Mendes, J., Coelho, L.C.C., Jorge, P.A.S., Zeni, L., Bossi, A.M., Cennamo, N. A Plasmonic Biosensor Based on Light-Diffusing Fibers Functionalized with Molecularly Imprinted Nanoparticles for Ultralow Sensing of Proteins (2022) *Nanomaterials*, 12 (9), art. no. 1400.
- 96) Cennamo, N., Arcadio, F., Seggio, M., Maniglio, D., Zeni, L., Bossi, A.M. Spoon-shaped polymer waveguides to excite multiple plasmonic phenomena: A multisensor based on antibody and molecularly imprinted nanoparticles to detect albumin concentrations over eight orders of magnitude (2022) *Biosensors and Bioelectronics*, 217, art. no. 114707
- 97) Cennamo, N., Arcadio, F., Capasso, F., Maniglio, D., Zeni, L., Bossi, A.M. Non-Specific Responsive Nanogels and Plasmonics to Design MathMaterial Sensing Interfaces: The Case of a Solvent Sensor (2022) *Sensors*, 22 (24), art. no. 10006.
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- 102) Maniglio, D., Agostinacchio, F., Bossi, A.M. Silk fibroin molecularly imprinted nanoparticles as biocompatible molecular nanotraps: Molecular recognition ties the knot with biomaterials. The bioMIP's labeling and degradation (2023) *MRS Advances*, 8 (8), pp. 429 – 434

- 103) Bossi, A.M., Marinangeli, A., Quaranta, A., Pancheri, L., Maniglio, D. Time-Resolved Fluorescence Spectroscopy of Molecularly Imprinted Nanoprobes as an Ultralow Detection Nanosensing Tool for Protein Contaminants (2023) *Biosensors*, 13 (7), art. no. 745
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- 108) Arcadio, F., Seggio, M., Pitruzzella, R., Zeni, L., Bossi, A.M., Cennamo, N. An Efficient Bio-Receptor Layer Combined with a Plasmonic Plastic Optical Fiber Probe for Cortisol Detection in Saliva (2024) *Biosensors*, 14 (7), art. no. 351
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Faithfully,
Alessandra Maria Bossi

3rd March 2026

According to law 679/2016 of the Regulation of the European Parliament of 27th April 2016, I hereby express my consent to process and use my data provided in this CV.