ALBERTO CECCON, Ph.D.

PERSONAL DATA

- **Lab Address:** NOI Techpark, A2 Building, Via Alessandro Volta, 13A, 39100 Bolzano BZ
- **Affiliation:** Laimburg Research Centre, Laimburg 6, Pfatten / Vadena, 39040 Auer / Ora
- **E-mail:** alberto.ceccon@laimburg.it, alberto.ceccon@eurac.edu, aceccon@unibz.it
- **ORCID**: https://orcid.org/0000-0002-2808-7262

POSITIONS

- **08/06/2026 – current:** Senior Researcher, Institute of Biomedicine, EURAC, NOI Techpark, Bolzano (BZ)
- **15/05/2022 – current:** Head of the Laboratory of NMR Spectroscopy, Laimburg Research Centre, NOI Techpark, Bolzano (BZ)
- **01/01/2020 – 15/05/2022:** Research Fellow, National Institutes of Health (NIH), Bethesda, MD (USA) – Supervisor: G. Marius Clore, M.D., Ph.D.
- **08/01/2015 – 31/12/2019:** Visiting Fellow, National Institutes of Health (NIH), Bethesda, MD (USA) – Supervisor: G. Marius Clore, M.D., Ph.D.
- **02/06/2014 – 25/07/2014:** Visiting Fellow (through Bio-NMR), École Normale Supérieure de Lyon (FR)
- **01/07/2013 – 31/12/2014:** Post-Doctoral Research Fellow, University of Verona, Italy
- **01/01/2013 – 30/06/2013:** Research Fellow - Annalaura Segre Fellowship, University of Verona, Italy

EDUCATION

- **01/01/2010 – 09/04/2013**: Ph.D. in Molecular, Industrial, and Environmental Biotechnologies, University of Verona, Italy – Supervisor: Prof. Michael Assfalg
- **01/10/2007 – 18/12/2009:** M.Sc. in Molecular Biotechnology (110/110 cum laude), University of Verona, Italy – Supervisor: Prof. Henriette Molinari
- **04/10/2004 – 17/07/2007**: B.Sc. in Biotechnology (110/110 cum laude), University of Verona, Italy – Supervisor: Vladia Monsurrò, Ph.D.

RESEARCH INTEREST AS HEAD OF THE NMR LAB (2022 – ongoing)

Our laboratory applies and develops solution-state NMR methods, alongside complementary analytical techniques, to characterize natural compounds and elucidate the molecular mechanisms underlying their chemical and biological activities across a broad range of applications. Our research focuses on antioxidant reactivity, radical-mediated oxidation, and anti-amyloidogenic activity, with potential applications in nutraceuticals, food chemistry, and biomedicine. We are particularly interested in developing NMR-based approaches to investigate transient molecular species, self-association processes, and interactions with biomolecular targets. A central research theme concerns the role of natural compounds as modulators of protein misfolding, oligomerization, and amyloid fibril formation, processes associated with human neurodegenerative disorders. In this context, natural polyphenols and complex bioactive mixtures are investigated for their ability to influence amyloidogenic pathways, taking into account their structural diversity, antioxidant properties, and interactions with aggregation-prone proteins. We also focus on the characterization of bioactive compounds obtained from agri-food by-products. In particular, the valorization of grape pomace and other locally available residues supports circular-economy strategies by transforming food-processing waste into valuable resources with potential applications in food, health, and biotechnology.

RELATED GRANTS as LEAD PARTNER

1. **Research Sud Tirol Call 24** – *Exploring Bioactivity of Natural Compounds: From Encapsulation Strategies to Drug Discovery for Biomedical Targets Acronym: BRIDGE*

   Lead Partner: Dr. Alberto Ceccon (Laimburg Research Centre, NMR Lab)

   Partner: University of Trento, Free University of Bozen-Bolzano

   Duration: Sept 2026 – Sept 2029

   Budget: €499,600.00

2. **Fondazione CARITRO, Bando Ricerca e Sviluppo** – *SUSTAIN: System for the SUSTAINable Use of Pomaces for Circular Economy and Innovative Products*

   Coordinator: Dr. Alberto Ceccon (Laimburg Research Centre, NMR Lab)

   Partners: Free University of Bozen-Bolzano (Prof. Emanuele Boselli), Marche Polytechnic University (Dr. Patrick Orlando)

   Duration: Nov 2024 – Nov 2026

   Budget: €129,187.52

3. **FESR–EFRE Cohesion Italy 21–27** – *MOC: MultiOmics Centre for Food and Health*

   Lead Partner: Laimburg Research Centre (Janik K., Letschka T., Ceccon A., Robatscher P.)

   Co-Partner: EURAC

Duration: Jan 2025 – Dec 2027

Budget: €1,385,511.02

RELATED GRANTS as CO-PARTNER

1. **Research Sud Tirol Call 24** – *Fermented Foods Extracts for Researching Microbiota and Gut Brain Axis Transmission. Acronym: FERM-GUT*

   Lead Partner: Dr. Olga Nikoloudaki

   Co-Partner: Dr. Alberto Ceccon (Laimburg Research Centre, NMR Lab), Dr. Mattia Volta (EURAC)

   Duration: Sept 2026 – Sept 2029

   Budget: €488,900.00

2. **FESR–EFRE Cohesion Italy 21–27** – *Zero Residue: Infrastructure for the complete valorization of waste from the agricultural and food industry*

   Lead Partner: Free University of Bozen-Bolzano (coordinator Prof. Emanuele Boselli)

   Co-Partner: Dr. Alberto Ceccon (Laimburg Research Centre, NMR Lab)

   Duration: Jan 2026 – Dec 2028

   Budget: €2,909,839.24

3. **FESR-EFRE Cohesion Italy 21-27:** *PROSEED – Research on drying and fermentation technologies for the valorization of innovative protein isolates for food and agricultural applications*

   Lead Partner: Hiweiss Srl,

   Co-Partner: Laimburg Research Centre (Ceccon A., Robatscher P.).

   Duration: Jan 2025 – Dec 2027

   Budget: 245,983.00

ABILITATIONS AND TEACHING ACTIVITIES/INTEREST:

1. National Scientific Qualification for the position of **Associate Professor** in the Competitive Sector 03/C1 – Organic Chemistry.
2. National Scientific Qualification for the position of **Associate Professor** in the Competitive Sector 05/E1 – General Biochemistry

MOST RECENT NATIONAL/INTERNATIONAL CONFERENCES (INVITED SPEAKER)

1. "Reactive Adduct Intermediates and Solvent-Cage Effects in Azo-Initiated Oxidation of Cinnamic Acid Derivatives Revealed by Solution NMR Spectroscopy" (**53rd National Conference on Magnetic Resonance**, ***GiDRM,*** *Verona, September 9-11, 2026)*
2. "Reactive Adduct Intermediates and Solvent-Cage Effects in Azo-Initiated Oxidation of Cinnamic Acid Derivatives Revealed by Solution NMR Spectroscopy" (**13th ChemistryTowardsBiology (CTF) Meeting**, *Siena, July 6-9, 2026)*
3. "Probing Self-Association of (+)-Catechin Coupled with Hydrogen-Deuterium Exchange by Solution NMR Spectroscopy (**52nd National Conference on Magnetic Resonance**, ***GiDRM,*** *Verona, September 10-12, 2025)*
4. "An innovative strategy for improving detection of molecular markers using NMR spectroscopy" (**Magnethon + 7th qNMR summit,** *Bari, November 19 - 20, 2025)*
5. "Probing Self-Association of (+)-Catechin Coupled with Hydrogen-Deuterium Exchange by Solution NMR Spectroscopy (**52ND National Conference on Magnetic Resonance**, ***GiDRM,*** *Verona, September 12, 2025)*
6. "Dissecting the Self-Association of (+)-Catechin via Solution NMR: The Story Behind the Study" (JEOL Satellite Meeting, **52ND National Conference on Magnetic Resonance, *GiDRM,*** *Verona, September 10, 2025)*
7. "Unveiling the Secrets of Catechin: Insights from NMR Spectroscopy" (***Macrowine,*** *NOI Techpark, Bozen, June 30, 2025)*
8. "Food Ecosystem between Health and Waste Prevention" *(**European Region Tyrol-South Tyrol-Trentino**. Brussel, June 11, 2025)*
9. "SUSTAIN: System for the Sustainable Use of Grape Pomace for a Circular Economy and Innovative Products" (***11th ERIAFF Annual Conference**. VIC, Catalunia, Spain, April 8, 2025).*
10. "Unveiling the Secrets of Catechin: Insights from NMR Spectroscopy" (***VII Workshop on NMR applied to Food Chemistry,*** *Roma, June 20-21, 2024*)
11. "Improved detection and quantification of cyclopropane fatty acids (CPFAs) by ^{1}H NMR spectroscopy using a combination of homonuclear decoupling with double irradiation methods" (**50th National Conference on Magnetic Resonance, *GiDRM***, *Roma, September 6-8, 2023*)

MISCELLANOUS

1. Member of the Scientific Committee, PhD in Food Engineering and Biotechnology, starting from 40th cycle (Free University of Bozen-Bolzano).
2. Main organizer of the "*NMR Opening and Symposium*", guest Prof. Kurt Wutrich (Nobel Prize Winner Chemistry 2002), (NOI Techpark, *May 15-16, 2023*)

3. Fellows Awards for Research Excellence (FARE) 2019 and 2020 competition. (National Institutes of Health, Bethesda)
4. Special mention for the paper "*Dynamics of a Globular Protein Adsorbed to Liposomal Nanoparticles*" (Ceccon A. *JACS 2014*) from the Italian Chemical Society within the framework of the "Levi Prize 2014", (Rome, January 2016)

LIST OF PUBLICATIONS:

H-index: 17 (Google Scholar), 16 (Scopus)

Citations: 845 (Google Scholar), 780 (Scopus)

Number of articles in Q1 (Chemistry): 28/33 publications

1. Zuccon G., Eltemur D, D'Aronco S., Longo E., Suhag. R., Tenuta M.C., Boselli E, Ferrentino G., Robastcher P., **Ceccon A.** *Solvent-Cage-Controlled Radical Flux and Reactive Adduct Intermediates Govern AAPH-Induced Oxidation of Cinnamic Acid Derivatives (***ACS Organic&Inorganic** https://doi.org/10.1021/acsorginorgau.6c00086, in press*)*

2. Eltemur D., Morozova K., **Ceccon A.,** Riccio GM, Robatscher P., Oberhuber M., Scampicchio M. *1H NMR detection of cyclopropane fatty acids in yoghurt as molecular markers for haymilk authentication* ***Journal of Food Composition and Analysis****, December 202, 108623 Volume 148, Part 4 10.1016/j.jfca.2025.108623*

3. Riccio GM. Eltemur D. Fava F. Martini-Lösch D. Peratoner G. Venir E. Eisenstecken D. Robatscher P. Scampicchio M. Oberhuber M. **Ceccon A.** *Differentiating Cyclopropane Fatty Acids to Support Milk Authenticity Through Gc-Ms and Nmr Spectroscopy.* **Food Chemistry X** 2025 Sep 16;31:103033. doi: 10.1016/j.fochx.2025.103033. eCollection 2025 Oct. PMID: 41036461

4. Zuccon G. Darnal A. Longo E. D'Aronco S. Boselli E. Orlando P. **Ceccon A.** *Molecular Mechanisms of Amyloid Inhibition: An NMR-Driven Framework with Polyphenols as a Case Study.* **Front Mol Biosci Sec Molecular Biophysics** 2025 Sep 12;12:1676927. doi: 10.3389/fmolb.2025.1676927. eCollection 2025. PMID: 41017856

5. Zuccon G. Longo E. Tugarinov V. Boselli E. **Ceccon A.** *Probing Self-Association of (+)-Catechin Coupled with Hydrogen-Deuterium Exchange by Solution NMR Spectroscopy.* **Chemphyschem** 2025; Jul 28:e2500325. doi:10.1002/cphc.202500325

6. TO Caretta. Unterholzner M. Zuluaga MYA. Spitaler U. **Ceccon A.** Cesco S. Pii Y. *Antifungal activity of surfactin produced by Bacillus subtilis against phytopathogenic fungi in apple and strawberry: an in vitro and in vivo study*. **Int J Food Sci Tech** 2025; 60(1):vvaf087. doi:10.1093/ijfood/vvaf087

7. Darnal A., **Ceccon A.,** Magni M., Robatscher P., Poggesi S., Boselli E., Longo E. *Enantioselective-GCxGC determination of α-terpinyl ethyl ether in wine: Quantitative analysis and identification of main terpene precursors*. **Applied Food Research** 2024 Oct 18;8(44):41835-41843. doi.org/10.1016/j.afres.2024.100538.

8. Eltemur D, Robatscher P, Oberhuber M, **Ceccon A.** *Improved Detection and Quantification of Cyclopropane Fatty Acids via Homonuclear Decoupling Double Irradiation NMR Methods.* **ACS Omega.** 2023 Oct 24;8(44):41835-41843. doi: 10.1021/acsomega.3c06538. eCollection 2023 Nov 7. PMID: 37970028

9. Eltemur D, Robatscher P, Oberhuber M, Scampicchio M**, Ceccon A.** *Applications of Solution NMR Spectroscopy in Quality Assessment and Authentication of Bovine Milk.* **Foods.** 2023 Aug 28;12(17):3240. doi: 10.3390/foods12173240. PMID: 37685173 Free PMC article. Review

10. **Ceccon A.**, Kubatova N, Louis JM, Clore GM, Tugarinov V. *Global Dynamics of a Protein on the Surface of Anisotropic Lipid Nanoparticles Derived from Relaxation-Based NMR Spectroscopy.* **J Phys Chem B.** 2022 Aug 4;126(30):5646-5654. doi: 10.1021/acs.jpcb.2c03519. Epub 2022 Jul 25. PMID: 35877206

11. **Ceccon A.**, Tugarinov V, Torricella F, Clore GM. *Quantitative NMR analysis of the kinetics of prenucleation oligomerization and aggregation of pathogenic huntingtin exon-1 protein*. **Proc Natl Acad Sci U S A.** 2022 Jul 19;119(29):e2207690119. doi: 10.1073/pnas.2207690119. Epub 2022 Jul 12. PMID: 35858329

12. Tugarinov V, **Ceccon A.**, Clore GM. *NMR methods for exploring 'dark' states in ligand binding and protein-protein interactions.* **Prog Nucl Magn Reson Spectrosc.** 2022 Feb;128:1-24. doi: 10.1016/j.pnmrs.2021.10.001. Epub 2021 Nov 2. PMID: 35282867

13. **Ceccon A.**, Tugarinov V, Clore GM. *Quantitative exchange NMR-based analysis of Huntingtin-SH3 interactions suggests an allosteric mechanism of inhibition of Huntingtin Aggregation.* **J Am Chem Soc.** 2021 Jun 30;143(25):9672-9681. doi: 10.1021/jacs.1c04786. Epub 2021 Jun 17.PMID: 34137596

14. Tugarinov V, **Ceccon A.**, Clore GM. *Probing Side-Chain Dynamics in Proteins by NMR Relaxation of Isolated ^{13}C Magnetization Modes in $^{13}CH_3$ Methyl Groups.* ***J Phys Chem B.*** 2021 Apr 8;125(13):3343-3352. doi: 10.1021/acs.jpcb.1c00989. Epub 2021 Mar 26. PMID: 33769060.

15. **Ceccon A.**, Tugarinov V, Clore GM. *Kinetics of Fast Tetramerization of the Huntingtin Exon 1 Protein Probed by Concentration-Dependent On-Resonance R1ρ Measurements.* ***J Phys Chem Lett***. 2020 Jul 16;11(14):5643-5648. doi: 10.1021/acs.jpclett.0c01636. Epub 2020Jul 1.

16. **Ceccon A.,** Tugarinov V., Ghirlando R., Clore GM. *Abrogation of pre-nucleation, transient oligomerization of the Huntington exon-1 protein by human profilin-I.* **Proc Natl Acad Sci U S A**. 2020 Mar 17;117(11):5844-5852. doi:10.1073/pnas.1922264117. Epub 2020 Mar 3. PubMed PMID: 32127471.

17. Tugarinov V, Karamanos TK, **Ceccon A.**, Clore GM. *Optimized NMR Experiments for the Isolation of I = ½ Manifold Transitions in Methyl Groups of Proteins.* **Chemphyschem**. 2019 Nov 8. doi: 10.1002/cphc.201900959. Epub 2019 Dec 5. PubMed PMID: 31703148.

18. Kotler S.A., Tugarinov V., Schmidt T., **Ceccon A.**, Libich D.S., Ghirlando R., Schwieters C.D., Clore GM. *Probing initial transient oligomerization events facilitating Huntingtin fibril nucleation at atomic resolution by relaxation-based NMR.* **Proc Natl Acad Sci U S A**. 2019 Feb 26;116(9):3562-3571.doi:10.1073/pnas.1821216116. Epub 2019 Feb 11. PubMed PMID: 30808748

19. **Ceccon A**, Tugarinov V, Clore GM. *TiO_2 Nanoparticles Catalyze Oxidation of Huntingtin Exon 1 Derived Peptides Impeding Aggregation: A Quantitative NMR Study of Binding and Kinetics.* **J Am Chem Soc.** 2019 Jan 9;141(1):94-97. doi:10.1021/jacs.8b11441. Epub 2018 Dec 26. PubMed PMID: 30540190; PubMed Central PMCID: PMC6475464.

20. **Ceccon A**, Clore GM, Tugarinov V. *Decorrelating Kinetic and Relaxation Parameters in Exchange Saturation Transfer NMR: A Case Study of N-Terminal Huntingtin Peptides Binding to Unilamellar Lipid Vesicles.* **J Phys Chem B.** 2018 Dec 13;122(49):11271-11278. doi: 10.1021/acs.jpcb.8b07112. Epub 2018 Sep 12. PubMed PMID: 30156416; PubMed Central PMCID: PMC6414278.

21. **Ceccon A**., Schmidt T., Tugarinov V., Kotler S.A., Schwieters C.D. Clore GM *Interaction of Huntingtin Exon-1 peptides with lipid-based micellar nanoparticles probed by solution NMR and Q-band pulsed EPR*. **J Am Chem Soc.** 2018 May 23;140(20):6199-6202. doi: 10.1021/jacs.8b02619. Epub 2018 May 14. PubMed PMID: 29727175.

22. **Ceccon A.**, Tugarinov V., Boughton A., Fushman D., Clore GM. *Probing the Binding Modes of a Multi-domain Protein to Lipid-based Nanoparticles by Relaxation-Based NMR.* **J Phys Chem Lett.** 2017 Jun 1;8(11):2535-2540. doi:10.1021/acs.jpclett.7b01019. Epub 2017 May 24. PubMed PMID: 28530812;

23. **Ceccon A.**, Marius Clore GM, Tugarinov V. *Towards interpretation of intermolecular paramagnetic relaxation enhancement outside the fast exchange limit.* **J Biomol NMR.** 2016 Sep;66(1):1-7. doi: 10.1007/s10858-016-0053-x. Epub 2016 Aug 24. PubMed PMID: 27558624.

24. **Ceccon A.**, Tugarinov V, Bax A, Clore GM. *Global Dynamics and Exchange Kinetics of a Protein on the Surface of Nanoparticles Revealed by Relaxation-Based Solution NMR Spectroscopy.* **J Am Chem Soc.** 2016 Apr 25. May 11;138(18):5789-92. doi: 10.1021/jacs.6b02654. Epub 2016 Apr 27. PMID: 27111298.

25. **Ceccon A**., Busato M, Pérez Santero S, D'Onofrio M, Musiani F, Giorgetti A, Assfalg M. *Transient Interactions of a Cytosolic Protein with Macromolecular and Vesicular Cosolutes: Unspecific and Specific Effects.* **Chembiochem.** 2015 Dec;16(18):2633-45. doi: 10.1002/cbic.201500451. Epub 2015 Nov 6. PubMed PMID: 26449487.

26. Radu BM, Radu M, Tognoli C, Benati D, Merigo F, Assfalg M, Solani E, Stranieri C, **Ceccon A**., Fratta Pasini AM, Cominacini L, Bramanti P, Osculati F, Bertini G, Fabene PF. *Are they in or out? The elusive interaction between Qtracker ® 800 vascular labels and brain endothelial cells.* **Nanomedicine (Lond).** 2015 Nov;10(22):3329-42. doi: 10.2217/nnm.15.120. Epub 2015 Jul 15. PubMed PMID: 26177081.

27. Zanzoni S, **Ceccon A.**, Assfalg M, Singh RK, Fushman D, D'Onofrio M. *Polyhydroxylated [60]fullerene binds specifically to functional recognition sites on a monomeric and a dimeric ubiquitin.* **Nanoscale.** 2015 Apr 28;7(16):7197-205. doi: 10.1039/c5nr00539f. PubMed PMID: 25811293; PubMed Central PMCID: PMC4443925.

28. **Ceccon A.,** Lelli M, D'Onofrio M, Molinari H, Assfalg M. *Dynamics of a globular protein adsorbed to liposomal nanoparticles.* **J Am Chem Soc**. 2014 Sep 24;136(38):13158-61. doi: 10.1021/ja507310m. Epub 2014 Sep 11. PubMed PMID: 25198387.

29. Favretto F, **Ceccon A.**, Zanzoni S, D'Onofrio M, Ragona L, Molinari H, Assfalg M. *The unique ligand binding features of subfamily-II iLBPs with respect to bile salts and related drugs.* **Prostaglandins Leukot Essent Fatty Acids.** 2015 Apr;95:1-10. doi: 10.1016/j.plefa.2014.10.005. Epub 2014 Oct 29. Review. PubMed PMID: 25468388.

30. Ragona L, Pagano K, Tomaselli S, Favretto F, **Ceccon A.**, Zanzoni S, D'Onofrio M, Assfalg M, Molinari H. *The role of dynamics in modulating ligand exchange in intracellular lipid binding proteins.* **Biochim Biophys Acta.** 2014 Jul;1844(7):1268-78. doi: 10.1016/j.bbapap.2014.04.011. Epub 2014 Apr 21. Review. PubMed PMID: 24768771.

31. Longo DL, Di Gregorio E, Abategiovanni R, **Ceccon A.**, Assfalg M, Molinari H, Aime S. *Chemical exchange saturation transfer (CEST): an efficient tool for detecting molecular information on proteins' behaviour***. Analyst.** 2014 Jun 7;139(11):2687-90. doi: 10.1039/c4an00346b. PubMed PMID: 24733370.

32. **Ceccon A.**, D'Onofrio M, Zanzoni S, Longo DL, Aime S, Molinari H, Assfalg M. *NMR investigation of the equilibrium partitioning of a water-soluble bile salt protein carrier to phospholipid vesicles.* **Proteins.** 2013 Oct;81(10):1776-91. doi: 10.1002/prot.24329. Epub 2013 Aug 13. PubMed PMID: 23760740.

33. D'Onofrio M, Gianolio E, **Ceccon A**., Arena F, Zanzoni S, Fushman D, Aime S, Molinari H, Assfalg M. *High relaxivity supramolecular adducts between human-liver fatty-acid-binding protein and amphiphilic Gd(III) complexes: structural basis for the design of intracellular targeting MRI probes.* **Chemistry.** 2012 Aug 6;18(32):9919-28. doi: 10.1002/chem.201103778. Epub 2012 Jul 4. PubMed PMID: 22763949.