

# Curriculum Vitae



## Personal information

Surname/Name **MAZZAGLIA Antonino**

## Professional experiences

Dates	15 Ottobre 2020-
Name and address of employer	<b>National Council of Research</b> (Consiglio Nazionale delle Ricerche, CNR) - Institute of Nanostructured Materials
Occupation or position held	Director of Research ( Dirigente di Ricerca)
Dates	18 November 2019 – 14 Ottobre 2020
Name and address of employer	<b>National Council of Research</b> (Consiglio Nazionale delle Ricerche, CNR) - Institute of Nanostructured Materials - in agreement with University of Messina – Department of Chemical , Biological, Pharmaceutical and Environmental Sciences
Occupation or position held	Senior Researcher ( Primo Ricercatore )
Dates	December 2001-November 2019
Name and address of employer	<b>National Council of Research</b> (Consiglio Nazionale delle Ricerche, CNR) - Institute of Nanostructured Materials - in agreement with University of Messina – Department of Chemical , Biological, Pharmaceutical and Environmental Sciences
Occupation or position held	Researcher (Ricercatore)
Dates	October 2000 – December 2001
Name and address of employer	University of Messina
Occupation or position held	Post-doctoral fellowship
Research project	<i>Organized Supramolecular structures of porphyrins and complexes of platinum (II)</i>
Dates	June 1999 – September 2000
Name and address of employer	National University of Ireland - Dublin
Occupation or position held	Post-doctoral fellowship
Research project	<i>Biorganic and Physical Chemistry; Synthesis and lyotropic properties of amphiphilic cyclodextrins</i>
Dates	January 1995 – December 1995
Name and address of employer	National Council of Research (Consiglio Nazionale delle Ricerche, CNR)
Occupation or position held	Research fellowship
Research project	<i>Raman spectroscopy of protein in solution and in solid state</i>

## Education and training

Dates	June 2014-December 2014
Name and type of organisation providing education and training	University of Exeter, UK
Title of qualification awarded	Honorary Research Fellow
Dates	December 2013
Name and type of organisation providing education and training	MIUR
Title of qualification awarded	Enabling as Associate Professor in Basic and Inorganic Chemistry ( <b>3 B2, CHIM 03</b> ),
Dates	April 2017-October 2018
Name and type of organisation providing education and training	MIUR
Dates	Enabling as Associate and Full Professor in Basic and Inorganic Chemistry (3 B2, CHIM 03), Material Chemistry ( 3 B1, CHIM 07) and Associate and Full Professor in Pharmaceutical Technology ( 3D2, CHIM 09) and as Associate Professor in Physical Chemistry ( 2A2, CHIM 02)
Dates	January 1996 – May 1999
Name and type of organisation providing education and training	University of Catania
Title of qualification awarded	Ph.D., Bioinorganic and Analytical Chemistry
Dates	November 1989 – November 1994
Name and type of organisation providing education and training	University of Catania
Title of qualification awarded	Degree in Chemistry

## Research

Research aims to design and characterize biodegradable amphiphilic materials ( i.e amphiphilic cyclodextrin and/or block copolymer) able to host, deliver and especially target a drug/metals to the sites of action. These carriers, have a size compatible with i.v. injection and posses high potential to optimize drug distribution in the body, and selectively deliver anticancer, photosensitiser for PDT, antiviral, metal nanoparticles , DNA for gene therapy or joint dose of therapeutics and /or diagnostic probe for theranostic . Our multifunctional nanoconstructs can be engineered with stimuli-responsive probes i.e. pH, magnetic field, light , redox potential, or combined with nanoplatform based on MWCNT and /or graphene to give dispositives for investigating cell behaviour. Recently research was focused on drug delivery soft bio-nanoconstructs for application in cancer therapy and diagnosis, osteoarticular disease, neurodegeneration and antiviral release.

**H-index=27, Number of Publications: 82 Number of citation : 1233, from Scopus),**

2020

### 12 Main Recent publications

\* indicates corresponding author

CORDARO, A., ZAGAMI, R., MALANGA, M., VENKATESAN J. K., ALVAREZ-LORENZO C., CUCCHIARINI, M., PIPERNO A., **MAZZAGLIA A.\*** (2020). Cyclodextrin Cationic Polymer-Based Nanoassemblies to Manage Inflammation by Intra-Articular Delivery Strategies. *NANOMATERIALS*, vol. 10, p. 1712, ISSN: 2079-4991, doi: 10.3390/nano10091712

ZAGAMI R.\* FRANCO D., PIPKIN J. D., ANTLE V., DE PLANO L., PATANÈ, S., GUGLIELMINO, S., MONSÙ SCOLARO L., **MAZZAGLIA A.\*** (2020). Sulfobutylether- $\beta$ -cyclodextrin/5,10,15,20-tetrakis(1-methylpyridinium-4-yl)porphine nanoassemblies with sustained antimicrobial phototherapeutic action. *INTERNATIONAL JOURNAL OF PHARMACEUTICS*, vol. 585, p. 119487, ISSN: 0378-5173, doi: 10.1016/j.ijpharm.2020.119487

2019

PIPERNO, A., **MAZZAGLIA A.**, SCALA, A., PENNISI, R., ZAGAMI, R., NERI, G., TORCASIO, S. M., ROSMINI, C., MINEO, P. G., POTARA, M. FOCSAN, M., ASTILEAN, S., ZHOU, G. G., SCIORTINO M. T. (2019). Casting light on intracellular tracking of a new functional graphene-besd microRNA delivery system by FLIM and RAMAN Imaging. *ACS APPLIED MATERIALS & INTERFACES*, VOL. 11, P. 46101-46111, ISSN: 1944-8244, DOI: 10.1021/ACSAMI.9B15826

ZAGAMI, R., ROMEO, A., **MAZZAGLIA A\*** (2019). Bio-soft cyclodextrin nanomaterials. *LA RIVISTA DEL NUOVO CIMENTO DELLA SOCIETÀ ITALIANA DI FISICA*, vol. 42, p. 407-441, ISSN: 1826-9850, doi: 10.1393/ncr/i/2019-10163-3.

ZAGAMI, R., RAPOZZI, V., PIPERNO, A., SCALA, A., TRIOLO, C., TRAPANI, M., XODO, L. E., MONSÙ SCOLARO, L., **MAZZAGLIA A\*** (2019). Folate-Decorated Amphiphilic Cyclodextrins as Cell-Targeted Nanophototherapeutics. *BIOMACROMOLECULES*, vol. 20, p. 2530-2544, ISSN: 1526-4602, doi: 10.1021/acs.biomac.9b00306.

2018

ZAGAMI, R., SORTINO, G., CARUSO, E., MALACARNE, M. C., BANFI, S., PATANÈ, S., MONSÙ SCOLARO, L., **MAZZAGLIA A.\*** (2018). Tailored-BODIPY/Amphiphilic Cyclodextrin Nanoassemblies with PDT Effectiveness. *LANGMUIR*, VOL. 34, p. 8639-8651, ISSN: 0743-7463, DOI: 10.1021/ACS.LANGMUIR.8B01049..

**MAZZAGLIA A\***, SCALA A., SORTINO G., ZAGAMI R., ZHU Y., SCIORTINO M. T., PENNISI, R., MUSARRA PIZZO M., NERI G., I GRASSI G., PIPERNO A.\* (2018) Intracellular trafficking and therapeutic outcome of multiwalled carbon nanotubes modified with cyclodextrins and polyethylenimine, *COLLOIDS AND SURFACES B: BIOINTERFACES*, ISSN: 0927-7765, VOL. 163 P. 55–63, DOI: 10.1016/j.colsurfb.2017.12.028

2017

CASTRICIANO, M. A., ZAGAMI, R., CASALETTO, M. P., MARTEL, B., TRAPANI, M., ROMEO, A., VILLARI, V., SCIORTINO, M. T., GRASSO, L., GUGLIELMINO, S., MONSÙ SCOLARO, L., **MAZZAGLIA A\*** (2017). Poly(carboxylic acid)-Cyclodextrin/Anionic Porphyrin Finished Fabrics as Photosensitizer Releasers for Antimicrobial Photodynamic Therapy. *BIOMACROMOLECULES*, p.

1134-1144, ISSN: 1525-7797, doi: 10.1021/acs.biomac.6b01752.

2016

CONTE, C., SCALA, A., SIRACUSANO, G., SORTINO, G., PENNISI, R., PIPERNO, A., MIRO, A., UNGARO, F., SCIORTINO, M. T., QUAGLIA, F., **MAZZAGLIA, A.\*** Nanoassemblies based on Non-ionic Amphiphilic Cyclodextrin hosting Zn(II)-Phthalocyanine and Docetaxel: Design, Physicochemical Properties and Intracellular Effects. COLLOIDS AND SURFACES. B, BIOINTERFACES, VOL. 146, P. 590-597 ISSN: 0927-7765, DOI: 0.1016/J.COLSURFB.2016.06.047

2015

BONDÌ M. L., SCALA A., SORTINO G., AMORE E., BOTTO C., AZZOLINA A., BALASUS D., CERVELLO M., **MAZZAGLIA A.\*** Nanoassemblies Based on Supramolecular Complexes of Nonionic Amphiphilic Cyclodextrin and Sorafenib as Effective Weapons to Kill Human HCC Cells. BIOMACROMOLECULES, vol. 16, p. 3784-3791 ISSN: 1525-7797, doi: 10.1021/acs.biomac.5b0108

FOSCHI G., LEONARDI F., SCALA A., BISCARINI F., KOVTUN A., LISCIO A., **MAZZAGLIA A.\***, CASALINI S. (2015). Electrical release of dopamine and levodopa mediated by amphiphilic  $\beta$ -cyclodextrins immobilized on polycrystalline gold. NANOSCALE, vol. 7, p. 20025-20032, ISSN: 2040-3364, doi: 10.1039/c5nr05405b

2013

**MAZZAGLIA A\***, BONDÌ M.L., SCALA A., ZITO F., BARBIERI G., CREA F., VIANELLI G., MINEO P., FIORE T., PELLERITO C., PELLERITO L., COSTA M. A. (2013). Supramolecular Assemblies Based on Complexes of Nonionic Amphiphilic Cyclodextrins and a meso-Tetra(4- sulfonatophenyl)porphine Tributyltin(IV) Derivative: Potential Nanotherapeutics against Melanoma. BIOMACROMOLECULES, vol. 14, p. 3820-3829, ISSN: 1525-7797, doi: 10.1021/bm400849n

**Author and coauthor of about 195 poster and oral conference communications of which 53 as speaker (12 Invited).**

## Reviewer and editing

Section Board Member of **Nanomaterials** (Biology and Medicines section))

Guest Editor of Special Issue "Multifunctional Organic-Inorganic Hybrid Materials for Therapy, Diagnosis and Regenerative Medicine

Editorial Board Member of **International Journal of Molecular Science** (Material section)

**Guest Editor di Nanomaterials.** Special Issue Nanoconstructs Based on Cyclodextrins

**Guest Editor di Nanomaterials.** Special Issue Carbon Nanomaterials for Therapy, Diagnosis, and Biosensing)

September 2019: Reviewer for project of HRZZ (Croatian Science Foundation)

Member of Editorial Advisory Board of Current Nanomedicine (CNANOM), Bentham Science)

EDITOR of Journal of Inclusion Phenomena and Macrocyclic Chemistry (Special Issue of First European Cyclodextrin Conference – Aalborg, Denmark, 11-13th October 2009), CO-AUTHOR of special issue preface.

Revisore inserito in Albo REPRISE (Ricerca di base)

## Teaching and Supervisioning

2020: Lecture: Spectroscopic techniques for the characterization of nanomaterials colloidal dispersions (6h: 19-21 Febbraio 2020); Scuola di Dottorato in Scienze Chimiche XXXV Ciclo, University of Messina

2020: Lectures for presenting Chemistry Master Degree in the Secondary Schools (Project Scientific Lauree, PLS, University of Messina, 2h

2019: Lecture: Spectroscopic techniques for the characterization of nanomaterials colloidal dispersions (10 h: 1-3 April 2019); Prov. Director CNR-ISMN) number 18/2018.

2018: Lectures for presenting Chemistry Master Degree in the Secondary Schools (Project Scientific

Lauree, PLS, University of Messina, 10 h

2017-2019: Member of Exams Commission (CdL, SAN, University of Messina), Basic and Inorganic Chemistry.

2015: Lecturer for Training Project I" "Nanomateriali e nanotecnologie per lo sviluppo sostenibile e il patrimonio culturale" CUP G78B1400010006 ("Rafforzare l'occupabilità R&S e la nascita di Spin-Off di Ricerca in Sicilia"). Teaching subject: Organic-inorganic hybrid nanostructured materials ( 10 hrs); Carbon Nanotubes: Toxicity and environmental impact. (10 hrs).

2014: Lecturer in Master (II level). Design and potential of metal based drug delivery systems (HIPPOCRATES Project)

2012 Lectures for presenting Chemistry Master Degree in the Secondary Schools (Project Scientific Lauree, PLS, University of Messina, 10 h)

2011: Summer School on "Photochemistry and Applications to Photosensitizable Anticancer drugs" FP7 Marie Curie ITN Project CYCLON), CNR Bologna

**2008 - Present:** affiliation to the Professor Collegium of the "Scuola di Dottorato", University of Messina, in Chemical Sciences.

2008 Master in Biotechnology (UNIME-FP7)

2008: University of Aalborg: teacher at PhD Course on Controlled Release and Drug Delivery

2006 - 2011 Lecturer of General and Inorganic Chemistry with Elements of Physical Chemistry in the Pharmacy Faculty (University of Messina, external contract).

2005: 10th Summer Course on Pharmaceutical Analysis, (Rimini, Italy)

2005-2011 Lecturer at PhD School" in Pharmaceutical Science and in Chemical Science (UNIME); );

Visiting Researcher: University of Twente, Nijmegen, Dublin, Bari, Turin, Florence, Padua, Naples Federico II, Rome la Sapienza, Sevilla, Exeter, KCL London, Tarragona ( Pamplona ( Univ Navarra)

Supervisor of 1 PhD Student, 1 Master Degree Student and 3 Researcher Grant

## Committees

JANUARY 2020: Committee Member PhD Examination, University of Turin

SEPTEMBER 2020: Opponent PhD Thesis (University of Almeria , Spain) Title of the Thesis: Carbohydrates for the construction of nanocarriers with "stealth" and/or targeting properties: synthesis and applications

MARCH 2018: Opponent PhD Thesis (University of Rhodes, South Africa) Title of the Thesis: . Photophysical properties and photodynamic therapy activities of symmetrical and asymmetrical porphyrins embedded into Pluronic polymer micelles and nonlinear optical properties of an asymmetrical phthalocyanine

MARCH 2018: Committee Member: Examination Fellowship Candidates (BANDO N. ISMN/001/2018/PA/BORFOR)

JUNE 2017: Opponent PhD Thesis (Universidad de Santiago de Compostela, Spain, Departamento de Farmacia y Tecnología Farmacéutica. Title of the Thesis: Productos sanitarios funcionalizados con fármacos y enzimas para prevención y tratamiento de procesos infecciosos.

APRIL 2016: Committee President: Examination for Research Grant Candidates ( CNR-ISMN Institute Project: Materials and Nanostructured Systems for Drug Delivery and Nanomedicine), CNR-ISMN, UOS Palermo

APRIL 2016 Opponent PhD Thesis (Universidad de Santiago de Compostela, Spain, Departamento de Farmacia y Tecnología Farmacéutica) Title of Thesis: Sistemas poliméricos implantables para la administración de agentes antimicrobianos y antitumorales.

JANUARY 2015; Opponent PhD Thesis (Dept of Chemistry, Rhodes University, South Africa, Title of Thesis: Synthesis, characterization, photochemical and photophysical studies of differently modified Zn(II) Phthalocyanine- Silica Nanoparticles Conjugates.

MARCH 2014: Committee President: Examination for Research Grant Candidates (Hippocrates Project), CNR-ISMN, UOS Palermo

DECEMBER 2013: External Examiner (Opponent) for the Viva vox examination. Title of Thesis: "Cationic amphiphilic quaternized aminocalix[4]arenes as novel potential drug delivery vehicles (vectors)", University of Iceland, Reykjavik

OTT 2011: Examiner for Research Grant Candidates (EUROCORES 10-EuroBioSAS-FP-009: Intelligent Cell Surfaces) , CNR-ISMN, UOS Palermo)

JULY 2011: External Examiner for the Viva vox examination. Title of Thesis: "Characterization of Metallo-Cyclodextrins for Chiral Separations" , Dublin Institute of Technology ; Dublin

DECEMBER 2008: External Examiner for the Viva vox examination National University of Ireland; Dublin

NOVEMBER 2005: Extern Examiner for the Viva examination National University of Ireland; Dublin

APRIL 2002: Extern Examiner for the Viva examination, National University of Ireland; Dublin

## Scientific Boards

**Chair of the next ICS2021** (20<sup>th</sup> International Cyclodextrin Symposium <http://www.ismn.cnr.it/ics2021/home.html>) Member of: Italian Scientific Board of XIII International Symposium of Cyclodextrin (Turin 2006); Advisory Board of the First, Second and Third European Cyclodextrin Conference; I and II National Conference on Cyclodextrin (Asti 2007, 2009). Member of European Cyclodextrin Society Advisory Board; Delegate for ISMN-CNR to Nanomedicine European Platform. **Chair of the IV National Conference on CD (Giardini Naxos, Messina , 9-11 May 2013) and II International Summer School on CD ( Giardini Naxos, Messina 8-9 May 2013)**; Member of the Advisory Board of the 3rd European cyclodextrin Conference, Turkey, 2013, 02-04th October 2013; -Member of the Organizing Committee of the "XII Congresso Nazionale di Chimica Supramolecolare (Supramol 2015)", Giardini Naxos (ME), 27-30 September 2015; Member of the Scientific Committee of the III International Summer School on Cyclodextrins (Asti, Italy, 29th June-3rd July 2016); Member of the Organizing Committee of the Biomet 16, XVI Workshop on PharmacoBioMetallics, Messina, 28-29 Ottobre 2016. Since September 2016, Member of the Advisory Scientific Board of Italian Society of Photobiology, -Track Chair ( 5 Session Speakers) in Drug Discovery Therapy World Conference 2017 for the track "Innovative Drug Discovery and Nanotechnology" , Boston , MA, USA, 10-13 July 2017; Member of the Scientific Committee of the 19th International Symposium on Cyclodextrin (Tokyo, 27-30 Aprile, 2018). Member of the Scientific Committee of the SIFB-ALPE ADRIA Meeting on Photobiology (Udine, 20-22 Giugno 2018). Member Scientific Committee della IV International School on Cyclodextrins ( Milano 10-12 June 2019). Member of the Scientific Committee of the SIFB- Annual Congress of the Italian Society of Photobiology – SIFB2019 Bologna, June 19 -21 2019.

## Recent Founded Projects

AIRC (Italian Association of Cancer Research) **MFAG 8823**; 2010

EUROCORES (**Intelligent Cell Surfaces**) 2010;

MERIT-FIRB 2011-2014

Micro-and Nano Techn. District-PON Sicilia ( **Hippocrates**: Local coordinator for CNR-ISMN) 2013-2015; Local Funding;

Training Project "Nanomateriali e nanotecnologie per lo sviluppo sostenibile e il patrimonio culturale" CUP G78B1400010006 ("Rafforzare l'occupabilità R&S e la nascita di Spin-Off d Ricerca in Sicilia"). 2014-2015 ( teaching)

Biomedical District PON Sicilia (Drug Delivery: Vehicles for sustainable innovation **Scientific coordinator for CNR** for CNR-ISMN) 2015-2021,

Cultural Heritage District PON SICILIA ( **TECLA**: PON03PE\_00214\_1).

**Bando Research & Mobility 2016**: Signalosome Complex Activation by New Nanotherapeutic Agents in Viral and Cancer Treatment". ( UNIME, ISMN-CNR)

Training Project "Materiali Innovativi e Sostenibili per la Salute e l'Energia (**MatISSE**)" Rafforzare l'occupabilità R&S e la nascita di Spin-Off di Ricerca in Sicilia", 2018-2019 (Tutoring and teaching)

**MADIA H2020** (Magnetic Diagnostic Assay for Neurodegenerative Diseases); A. Mazzaglia is Participant in CNR-ISMN unit –CNR-ISMN (is European Coordinator).

**Master Research Agreement:** Contract Design of Novel Nanogel Based on CAPTISOL® and Cationic Photosensitizer as Promising Tools in Photodynamic Therapy(CyDex(Ligand)/CNR-ISMN, June 2018-June 2019)

**CYCLONET** (Cyclodextrin Network) Tipologia/Finanziamento: BANDO ACRI YOUNG INVESTIGATOR TRAINING PROGRAM (YITP) 2019., Prot. N°. 143 del 14.02.20 (ACRI). Scientific coordinator: