Curriculum Vitae

METWALLY MUHAMMAD

Postdoctoral Researcher
Department of Organic and Macromolecular Chemistry
Ghent University
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EDUCATION & TRAINING

2017-2022 **Ph.D. (CHEMISTRY)**
Department Of Organic and Macromolecular Chemistry, Ghent University, Belgium

2015-2016 **M.Sc. (BIOMEDICAL ENGINEERING)**
Department Of Biomedical Sciences & Engineering, National Central University, Taiwan

2007-2011 **B.SC. (CHEMISTRY)**
Chemistry Department, Assiut University, Egypt

PROFESSIONAL EXPERIENCE

2022-Present **POSTDOCTORAL RESEARCHER**
Department Of Organic and Macromolecular Chemistry, Ghent University, Belgium

2020-Present **ACADEMIC EDITOR**
ENAGO and EDITSPRINGS

2021-2022 **SCIENTIFIC ASSISTANT**
Department Of Organic and Macromolecular Chemistry, Ghent University, Belgium

2013-2015 **RESEARCH ASSISTANT**
Egypt-Japan University of Science and Technology (E-JUST), EGYPT

CORE PROFICIENCIES AND SKILLS

Research Interests: Polymer Synthesis |Controlled Radical Polymerization | Responsive Polymers | Organic Chemistry | Zwitterionic Polymers | Nanomaterials | Superhydrophilic Coating | Drug Delivery | Surface Chemistry | Cement and Concrete Industry | Chemical Admixtures | Rheology

Analytical Skills: Size-exclusion Chromatography (SEC), Agilent 1260-series HPLC System | UV-VIS spectra, Varian Cary 100 Bio UV-VIS Spectrophotometer | Dynamic light Scattering (DLS), Zetasizer Nano-ZS Malvern | Infrared Spectra, PERKIN-ELMER 1600 Series |Gas Chromatography (GC) Operation and Analysis Experience (Agilent 7890A GC) | Nuclear Magnetic Resonance (NMR), 300 MHz, 400 MHz, and 500 MHz | Electro spinner | X-Ray Diffraction (XRD), Shimadzu | Rheometer, Anton Paar MCR 102 | Centrifuge, PK 121R from Thermo-Scientific

Digital Skills: Microsoft Office | Endnote | Anton Paar RheoCompass | Origin 8.5 | ChemDraw Professional | MestReNova | BIOVIA draw 2016 | ACD/ChemSketch

Soft Skills: Time Management | Communication | Adaptability | Problem-Solving | Teamwork | Leadership | Interpersonal skills | Work Ethics | Attention To Details.

PATENTS

Metwally Ezzat, Richard Hoogenboom, Karel Lesage, Geert De Schutter, The use of a polymer comprising side chains having a sterically hindered amine as chemical admixture for a cementitious material, EP 21197878.8; PCT application number PCT/EP2022/075953.

PUBLICATIONS

12. **Metwally Ezzat**, Karel Lesage, Richard Hoogenboom, Geert De Schutter, Magnetic-responsive polymer composites for rheology control of cementitious materials, In preparation.
11. **Metwally Ezzat**, Karel Lesage, Richard Hoogenboom, Geert De Schutter, Novel Concrete superplasticizers containing crown ether pendant side chains for improved cement workability, Under review.

10. **Metwally Ezzat**, Xiaowen Xu, Karel Lesage, Henk Vrielinck, Richard Hoogenboom, Geert De Schutter, Redox responsive polymers as a new strategy to control the rheology of cementitious materials, Cement and Concrete Research, 2023, 165, 107084 .
9. **Metwally Ezzat**, Hoang Nam Nguyen, Chun-Jen Huang, Induced Vesicalization of Lysolipid-Inspired Polymer, ACS Applied Nano Materials, 2022, 5, 1, 107-112.
8. Geert De Schutter, **Metwally Ezzat**, Karel Lesage, Richard Hoogenboom, Geert De Schutter, Responsive superplasticizers for active rheology control of cementitious materials, Cement and Concrete Research, under review.
7. **Metwally Ezzat**, Karel Lesage, Richard Hoogenboom, Geert De Schutter, Novel concrete superplasticizers with sterically hindered amines as stabilizing pendant side chains, Under review.
6. **Metwally Ezzat**, Xiaowen Xu, Khadija El Cheikh, Karel Lesage, Richard Hoogenboom, Geert De Schutter, Structure-property relationships for polycarboxylate ether superplasticizers by means of RAFT polymerization, Journal of colloid and interface science, 2019, 533, 788-797.
5. G. De Schutter, K. El Cheikh, R. De Schryver, C. Chibulu, D. Jiao, **M. Ezzat**, M.Y. Yardimci, K.Lesage, Introduction to the concept of active rheology control in case of pumping of cementitious materials, RILEM RheoCon2 & SCC9, 2019.
4. **Metwally Ezzat** and Chun-Jen Huang, Zwitterionic Polymer Brush Coatings with Excellent Anti-fog and Anti-frost Properties, RSC Advances, 2016,6, 61695-61702.
3. **Metwally Ezzat**, Mohammed Ghanim, Hassan Nageh, Ahmed Hassanin, and Ahmed Abdel-moneim, Antimicrobial Activity of O-Carboxymethyl chitosan Nanofibers Containing Silver Nanoparticles Synthesized by Green Method, Journal of Nano Research, 2016, 40, 136-145.
2. AA El-Moneim, **M Ezzat**, WA Badawy, Electrochemical and surface characteristics of sputter-deposited amorphous Mn-Zr-Cr alloys in 1M HSO solution, RSC Advances, 2015, 5 (31), 24460-24468.
1. Hasan Nageh, **Metwaly Ezzat**, Mohammed Ghanim, Ahmed Hasanin, and Ahmed Abd El-moneim, Evaluation of Antibacterial Activity and Drug Release Behavior of Chitosan-Based Nanofibers (In Vitro Study), UK J Pharm & Biosci., 2014, 2(3).

BOOK CHAPTERS

Metwally Ezzat, Richard Hoogenboom, Karel Lesage, Geert De Schutter, Active rheology control of cementitious materials with responsive polymers, Metwally Ezzat, Richard Hoogenboom, Karel Lesage, and Geert De Schutter, Active Rheology Control of Cementitious Materials, Taylor&Francis *(2023)*.

CONFERENCE PRESENTATIONS

6. 14th International Symposium on Ionic Polymerization (IP'22) “Novel Concrete Superplasticizers With Sterically Hindered Amines As Stabilizing Pendant Side Chains”, September 2022, Ghent, Belgium (Oral Presentation).
5. First Virtual BPG Meeting, 2021 (Online) "Superplasticizers for Concrete: From Systematically Optimization to Novel Bulky Pendant Side Chains" (Oral Presentation)
4. 4th International Symposium on Design, Performance, and Use of on Self-Consolidating Concrete, May 2018, Hunan University, China. (Oral Presentation)
3. The 46th IUPAC World Polymer Congress (MACRO 2016), Istanbul, Turkey. (Oral Presentation)
2. Sixth International Conference on Nano-Technology In Construction (NTC 2014), Egypt. (Oral Presentation)
1. The 14th International Conference on Materials Science, 2013, Alexandria, Egypt. (Oral Presentation)

PROJECTS

2022-2024	Polycarboxylate Amine Superplasticizers for Concrete (PCA Superplast), Industrial Research Fund, Ghent University, Belgium
2020-2021	Novel Superplasticizers for Concrete, Industrial Research Fund, Ghent University, Belgium
2017-2022	ERC Advanced Grant project ‘SmartCast’. (Grant Agreement No. 693755)
2013-2015	Electrospun Nanofibers for Encapsulation and Sustained Release of Ciprofloxacin Drug, Pharco Company of Medical Industries, Egypt
2013-2015	Development of New Materials for Biomedical Applications, Pharco Company of Medical Industries, Egypt

AWARDS & PROFESSIONAL ACTIVITIES

Awards and Fellowships:

- Ghent University Ph.D. Scholarship (Jan. 2017- Jan. 2021), Belgium
- National Central University Graduate Scholarship (2015 and 2016), Taiwan
- Ministry of Science and Technology Travel Grant, 2016, Taiwan

Memberships:

- American Chemical Society (ACS), DOC, ACS Poly, and PMSE Divisions
- Society of Chemical Industry (SCI)

Service and Outreach:

- Reviewer for Scientific Journals
- Editorial board member of Pharmaceutical and Biosciences Journal