

PERSONAL INFORMATION

Ahmed Barhoum



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🌐 https://www.researchgate.net/profile/Ahmed_Barhoum
 🔗 https://www.linkedin.com/profile/view?id=271852118&trk=nav_responsive_tab_profile_pic
 📄 <https://scholar.google.be/citations?user=nXtvCNYAAAAJ&hl=en>
 🌐 <http://www.vub.ac.be/MACH/FYSC/people/ahmed-barhoum>

Sex Male | Date of birth 24/02/1985 | Nationality Egyptian

POSITION

PhD candidate, Department of Materials and Chemistry (MACH),
 Vrije Universiteit Brussel (VUB), Brussels, Belgium

WORK EXPERIENCE

Research Experience

Jun 2015 - Jul 2015

Researcher

Institute of Technical Chemistry
 Leibniz Universität Hannover, Hannover, Germany

- Synthesis of metal, metal oxide and composite nanoparticles
- Characterization of nanocrystalline, transparent, and functional photocatalysts
- H₂ evolution via photocatalytic water splitting

Dec 2012 - till present

Researcher

Department of Materials and Chemistry (MACH)
 Vrije Universiteit Brussel (VUB), Brussels, Belgium

- Synthesis, modification and characterization of nano single crystals and composite nanoparticles
- Processing, fabrication and characterization of polymer nanocomposites
- Advances thermal analysis of polymer nanocomposites
- Alkali activation of alumino-silicate based materials as nonocementic binding materials

Oct 2012 - Nov 2012

Researcher

Grenoble IPN Pagora
 Grenoble Institute of Technology, Grenoble, France

- Preparation, modification and characterization of nanopigments for papermaking industry
- Papermaking and paper coating
- Paper testing according to TAPPI and ISO Standard

Jul 2008 - May 2011

Researcher

Central Metallurgical Research and Development Institute (CMRDI)
 Helwan, Cairo, Egypt

- Controlling the composition and structure of nanomaterials
- Creating specific properties on the material surface for different industrial applications

Teaching Experience

Sept 2007 - present

Assistant lecturer

Department of Materials and Chemistry (MACH)
 Vrije Universiteit Brussel (VUB), Brussels, Belgium

Guiding master and internship students

Chemistry Department, Faculty of Science
 Helwan University, Cairo, Egypt
 Conducting weekly laboratory sections, as well as developing and grading quizzes for the following courses: alkali metals and complexometry, spectroscopy and stereochemistry, colloidal chemistry and corrosion chemistry of silicates, chemistry of petroleum and petrochemicals, chemistry of iron and steel, chemistry of building materials, chemistry and technology of plastics and unit operations, etc.

Industrial Experience

Sep 2008 - Aug 2012

Assistant Supervisor

Chemistry Department, Faculty of Science
Helwan University, Cairo, Egypt

Assistant professor for the industrial training programs and scientific visits

- PACHIN, Elamiriya, Cairo, Egypt | Paints & Chemical Industries Company
- National Cement Com., Cairo, Egypt | Gypsum, Cement, Bricks and Concrete
- Miser Helwan Spinning & Weaving Industry, Cairo, Egypt | Fabrics - Bedding - Linen | Fabrics - Linen | Spinning - Weaving Industry Supplies
- Egyptian Iron and steel com., Helwan, Cairo, Egypt | Iron and steel production
- Paper for the Middle East - SIMO, Cairo, Egypt | Manufacture and distribution of paper and cardboard products
- Rosa El Youssef, Downtown, Cairo, Egypt | Printing Newspapers and Magazines
- Rakta Paper Manufacturing (RAKT), Alexandria, Egypt | Manufacture and distribution of paper and cardboard products

Technical Experience

I am familiar with the powder characterisation techniques, X-ray Diffraction (XRD), X-ray Photoelectron Spectroscopy (XPS), X-ray Fluorescence (XRF), Transition Electron Microscope (TEM), Scanning Electron Microscope (SEM), Fourier Transform Infrared (FT-IR), Zeta Potential Measurements (Zeta Pot.), Mass Spectrometry (MS), Inductive Coupled Plasma (ICP), UV-Visible Absorption Spectroscopy, Photoluminescence Spectroscopy (PL) and Raman Spectroscopy (RS). I also have a strong background in evaluation and characterization of papers and polymeric materials such as physical properties (thickness, density, grammage, etc.), thermal properties (TGA, DSC and DMA), mechanical properties (burst strength, breaking length, tensile strength, tear resistance, etc.), and optical properties (brightness, whiteness, gloss, opacity, etc.)

EDUCATION

Dec 2012 - till present

Doctoral degree in Chemical Engineering

Expected in April 2016

Department of Materials and Chemistry (MACH)
Vrije Universiteit Brussel (VUB), Brussels, Belgium
Advances in Nanocomposite Materials

Sept 2011 - Jun 2012

Pre-doctoral program in Applied Chemistry

Very Good

Chemistry Department, Faculty of Science
Helwan University, Cairo, Egypt

Nanotechnology, nanocomposites, chemistry of polymers, biodegradable polymers, chemistry of dyes, paper chemistry, chemistry of surfactants

Jul 2008 - May 2011

Master degree in Applied Chemistry

Helwan University (HU), Cairo Egypt

Central Metallurgical Research and Development Institute (CMRDI), Egypt [Dual degree].

Preparation of nano calcium carbonate, nano silica and their composites for application in papermaking industry

Sept 2006 - May 2007

Pre-master degree in Applied Chemistry

Very Good

Chemistry department, Faculty of Science
Helwan University (HU), Cairo, Egypt

Advanced analytical and environmental chemistry, physicochemical studies in mining, surface chemistry and colloidal chemistry, Industrial management chemical technology and units operation, Molecular biology, biotechnology and genetic engineering, industrial chemistry (organic and inorganic chemical industries)

Sept 2002 - May 2006

Bachelor degree in Applied Chemistry

Excellent with honour degree

Chemistry department, Faculty of Science
Helwan University (HU), Cairo, Egypt
Chemistry and applied chemistry

PERSONAL SKILLS

Mother tongue(s)

Arabic Egypt

Other language(s)

UNDERSTANDING		SPEAKING		WRITING
Listening	Reading	Spoken interaction	Spoken production	

English	Excellent	Excellent	Very good	Very good	Excellent
French	Poor	Poor	Poor	Poor	Poor
I have started to learn French					

Communication skills Good ability to adapt to multicultural environments (acquired in the context of professional necessity). I have worked with various teams in different countries when I got bachelor, pre-master, master degree and pre-doctoral degree. As researcher at Helwan University, CMRDI, Grenoble institute of technology and VUB University, I cooperated with many partners in industry and academia.

- Team worker; quality assurance and control at Faculty of Science, Helwan University.
- Team worker; repair, renovation and development the laboratories at Chemistry Department, Faculty of Science, Helwan University.

Organisational / managerial skills I have supervised more than 700 Bachelor Students, 2007 till present

Computer skills Good knowledge in a user's perspective on Windows and Apple (Word, Excel, Outlook, Internet Explorer, PowerPoint). Basic knowledge of graphic design applications. Successfully completed the seven modules of ICDL (International Computer Driving License).

Driving licence B

ADDITIONAL INFORMATION

Honours and awards

- May 2015 Travel grant: FWO, Belgium | Institute of Technical Chemistry, Hannover, Germany
- Nov 2012 PhD Scholarship: Erasmus Munds, Welcome Program, EU | VUB University, Belgium
- Aug 2012 PhD Scholarship: French Culture Centre, Egypt | Grenoble Institute of Technology, France
- Mar 2012 PhD Scholarship: Erasmus Munds, Welcome Program, EU | Politecnico di Torino, Turin, Italy
- Sep 2008 Award: Golden medal, Egyptian Syndicate of Scientific Professions, Egypt
- Oct 2007 Award: Golden medal "The First Student" | Faculty of Science, Helwan University, Egypt
- May 2006 Honour: BSc. Excellent with honour degree | Faculty of Science, Helwan University, Egypt
- Jul 2005 Travel grant: Helwan University, Egypt | The University of Jordan, Jordan

Projects

- Tools for rational processing of nanoparticle based materials (TRAP), Department of Materials and Chemistry (MACH), Vrije Universiteit Brussel (VUB), Brussels, Belgium, 2014-present.
URL: <http://www.sim-flanders.be/research-program/trap>
- Chemical Stabilisation of Natural Geomaterials for Construction and Industrial Applications, Department of Materials and Chemistry (MACH), Vrije Universiteit Brussel (VUB), Brussels, Belgium, 2012-2013.
URL: http://www.vub.ac.be/infovoor/onderzoekers/research/project.php?project_code=VLIR129&team_code=FYSC
- Project with US-Egypt Joint entitled Preparation of Nano-Fillers from Waste Materials and Their Application in Papermaking Industry Project, CMRDI, Cairo, Egypt from February, 2009-2011.
URL: <http://grantome.com/grant/NSF/IIA-0913623>
- Developing Paper and Printing Accredited Laboratory Project, Chemistry Department, Faculty of Science, Helwan University (HU), Cairo, Egypt, 2010-2011.
URL: http://www.helwan.edu.eg/scienceproject_en/index.htm
- Development of Certified Chemistry Education at Helwan University, Integration of Theory, Experiment and Learning Resources, Chemistry Department, Faculty of Science, Helwan University (HU), Cairo, Egypt from October, 2006-2008.
URL: http://www.helwan.edu.eg/CIPF/file/HEEPF/B-143-ko_EG.htm

Publications

- Esaifan Muayad, Hubert Rahier, Ahmed Barhoum, Hani Khoury, Hourani Mohammed, Jan Wastiels: Development of inorganic polymer by alkali-activation of untreated kaolinitic clay: Reaction stoichiometry, strength and dimensional stability. *Construction and Building Materials* 05/2015; DOI:10.1016/j.conbuildmat.2015.04.034
- Samya El-Sherbiny, Said M. El-Sheikh, Ahmed Barhoum: Preparation and modification of nano calcium carbonate filler from waste marble dust and commercial limestone for papermaking wet end application. *Powder Technology* 04/2015; DOI:10.1016/j.powtec.2015.04.006
- Ahmed Barhoum, Guy Van Assche, Abdel Salam Hamdy Maklouf, Herman Terryn, Kitty Baert, Marie-Paule Delplancke, Said M. El-Sheikh, Hubert Rahier: A Green, Simple Chemical Route for the Synthesis of Pure Nanocalcite Crystals. *Crystal Growth & Design* 01/2015; DOI:10.1021/cg501121t
- Fatma A. Morsy, Said M. El-Sheikh, Ahmed Barhoum: Nano-Silica and SiO₂/CaCO₃ Nanocomposite Prepared from Semi-Burned Rice Straw Ash as Modified Papermaking Fillers. *Arabian Journal of Chemistry* 11/2014; DOI:10.1016/j.arabjc.2014.11.032
- Marion Thébault, Antonio Pizzi, H.A. Essawy, Ahmed Barhoum, Guy Van Assche: Isocyanate free condensed tannin-based polyurethanes. *European Polymer Journal* 11/2014; 67. DOI:10.1016/j.eurpolymj.2014.10.022
- Said M. El-Sheikh, Ahmed Barhoum, Samya El-Sherbiny, Fatma Morsy, Ayman Abdel-Hamid El-Midany, Hubert Rahier: Preparation of superhydrophobic nanocalcite crystals using Box-Behnken design. *Arabian Journal of Chemistry* 11/2014; DOI:10.1016/j.arabjc.2014.11.003
- Ahmed Barhoum, Said M El-Sheikh, Fatma Morsy, Samya El-Sherbiny, F Reniers, Therriy Dufour, M P Delplancke, Guy Van Assche, Hubert Rahier: Preparation and characterization of ultra-hydrophobic calcium carbonate nanoparticles. *IOP Conference Series Materials Science and Engineering* 08/2014; DOI:10.1088/1757-899X/64/1/012037
- Ahmed Barhoum, Hubert Rahier, Ragab Esmail Abou-Zeid, Mohamed Rehan, Thierry Dufour, Gavin T H Hill, Alain Dufresne: Effect of Cationic and Anionic Surfactants on Application of Calcium Carbonate Nanoparticles in Paper Coating.. *ACS Applied Materials & Interfaces* 01/2014; 6(4). DOI:10.1021/am405278j
- S. M. El-Sheikh, S. El-Sherbiny, A. Barhoum, Y. Deng: Effects of cationic surfactant during the precipitation of calcium carbonate nano-particles on their size, morphology, and other characteristics. *Colloids and Surfaces A Physicochemical and Engineering Aspects* 04/2013; 422:44–49. DOI:10.1016/j.colsurfa.2013.01.020

Conferences

- Ahmed Barhoum, Hubert Rahier, Guy Van Assche, In situ synthesis, characterization and applications of metal oxide nanocrystals in mesoporous silica [oral presentation], The Advanced Materials World Congress (AMWC), Viking Line Cruise 'M/S Mariella' (Baltic Sea from Stockholm (Sweden), 23-26 August, 2015.
- Ahmed Barhoum, Hubert Rahier, Guy Van Assche, Growth of ultrafine silver Nano crystals on monodispersed single crystals: synthesis, properties and biomedical applications, The Advanced Materials World Congress (AMWC) [poster presentation], Viking Line Cruise 'M/S Mariella' (Baltic Sea from Stockholm (Sweden), 23-26 August, 2015.
- Ahmed Barhoum, Hubert Rahier, Guy Van Assche, An Overview: Preparation And Characterization Of Calcium Carbonate Nano Particles [oral presentation], NANOSTRUC 2014: International Conference on Structural Nano Composites, Consejo Superior de Investigaciones Científicas (CSIC), Calle de Serrano 123, 28006, Madrid, Spain, 20-21 May 2014
- Ahmed Barhoum, Hubert Rahier, Guy Van Assche: Interfacial Interactions In Nanoparticles-Polymer Nanocomposites [poster presentation]. BPG Annual Meeting, Houffalize, Belgium; 05/2015
- Ahmed Barhoum, Gavin Hill, Hubert Rahier, Preparation, Characterization and applications of Calcium Carbonate Nano Particles in Polymer [poster presentation]. BPG 2013 - Annual Meeting of the Belgian Polymer Group, Blankenberge, Belgium; 05/2012
- Ahmed Barhoum, International Conference on Materials Imperatives in the New Millennium [MINM 2010], Cairo, Egypt from 29 November to 2 December, 2010.

Workshops

- Effective Scientific Communication, Vrije Universiteit Brussel (VUB), Brussels, Belgium, October, 2013
- Petroleum Skills, Petroleum Skills Company, Cairo, Egypt, July 2011.
- Proposal Writing for GERLS, DAAD Office, 11, Sh. Saleh Ayoub Zamalek, Cairo, Egypt, 13 October, 2011.

- Code Ethics, Competency Development and Ongoing Training Center, Helwan University, Cairo, Egypt From 14th to 15th March, 2010.
- How to Compete the Research Fund, Competency Development and Ongoing Training Center, Helwan University, Cairo, Egypt from 10th to 11th March, 2010.
- Effective Presentation, Competency Development and Ongoing Training Center, Helwan University, Cairo, Egypt from 21th to 22th July, 2010.
- Conference Organization, Competency Development and Ongoing Training Center, Helwan University, Cairo, Egypt From 25th to 26th July, 2010.
- International Publication, Competency Development and Ongoing Training Center, Helwan University, Cairo, Egypt From 22th to 23th December, 2010.

Referee

- Journal Referee
 - Crystal Growth & Design
 - ACS Applied Materials & Interfaces
 - Cellulose
 - Materials
 - Journal of Magnetism and Magnetic Materials
 - Materials Research Innovations
- Conference Referee
 - The International Conference on Materials Science (ICMS2015)
 - The 4th International Conference on Biomedical Engineering and Biotechnology (ICBEB 2015)