



Daa Aref

Personal Biography:

Dr. Daa Aref is a researcher with expertise in Bioinorganic Chemistry, Photocatalysis, and Biomaterials Development.

He holds a PhD in Bioinorganic and Computational Chemistry, where his work focused on designing bio-inspired photocatalytic systems using bio-orthogonal crosslinking methods to tether metal-based photosensitizers to de novo-designed peptides for hydrogen evolution, with a particular emphasis on investigating charge transfer processes.

Daa's current research explores bioinspired photocatalysts for sustainable light-driven applications and the development of bio-based materials from natural polymers for medical purposes.

Ph.D. in **Inorganic Chemistry (2020)**, Department of **Chemical Sciences**, University of Naples Federico II, Naples, Italy.

MSc in **Chemistry (2014)**, Department of **Chemistry**, An-Najah National University, Nablus, Palestine.

Former Junior Member in the Italian Chemical Society (SCI) and Current Junior Member in the Biological Inorganic Chemistry (SBIC) since 2019.

Date of birth: 23/10/1986

Nationality: **Palestinian**

Contact details:

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ResearchGate: https://www.researchgate.net/profile/Daa_Aref2

Address:

Nablus, Palestine

Work experience

Academic staff

(05/09/2020 – Current)

Department of Chemistry, An-Najah National University, Nablus, Palestinian.

Supervision Activities:

Ongoing Supervision of MSc students in chemistry on the following topics:

1. Development of miniaturized electron-transfer artificial peptide and Iron-based bio-inspired catalysis. (joint program with the Department of Chemical Sciences at Naples Federico II)
2. Design and synthesis of chemically and physically functional bio-based materials with antimicrobial and antioxidant properties.

Teaching Courses:

1. General Chemistry courses.
2. Inorganic Chemistry (I + II) courses
3. Industrial Inorganic Chemistry course
4. Advanced Inorganic Chemistry courses
5. Inorganic and Physical chemistry labs

TA and Instructor in Chemical Sciences

(19/01/2014 – 01/09/2016)

Department of Chemistry, An-Najah National University, Nablus, Palestinian.

Activities, Duties, and Teaching Courses:

Teaching different labs in chemistry (General, Organic, Analytical, and Physical chemistry practical courses)

Education and training

Ph.D. in Chemical Sciences (XXXII cycle)-Department of Chemical Sciences

University of Naples Federico II, Naples, Italy

(01/02/2017 – 06/04/2020)

Thesis title: Developing Artificial Multi-Metal Peptide-Based Photocatalysts

Technical competence and used techniques:

1. Develop organometallic-based photosensitisers
2. Bio-conjugation techniques and strategies.
3. Purification chromatographic techniques (e.g. HPLC, Flash-chromatography, Size-exclusive chromatography, solid-phase extraction ... etc.)
4. Spectroscopic, structural techniques (e.g. IT-TOF LCMS, UV-vis, Fluorescence, NMR, ... etc.)
5. DFT computational calculations.

MSc. in Chemistry-Department of Chemistry

An-Najah National University, Nablus, Palestine

(01/09/2009 – 04/02/2014)

Thesis title: Synthesis of Nano-Meter-Sized Bimetallic Core/Shell Clusters and Their Hydrogen Uptake Capacity

Technical competence and used techniques:

1. Combined Salt reduction-electrochemical synthesis of nono-sized bimetallic clusters
2. Gravimetric and volumetric techniques for Hydrogen uptake Analysis
3. Thermodynamic and Kinetic methods for hydrogen sorption/desorption methods
4. Microscopic and structural techniques for size, size-distribution, shapes, and crystallinity characterization (e.g. TEM, SEM, EDS, AAS, FTIR and XRD)

B.Sc. in Chemistry-Department of Chemistry

An-Najah National University, Nablus, Palestine

(01/09/2006 – 26/05/2009)

Language skills

Arabic: (Mother Tongue)

LANGUAGE	LISTENING	SPEAKING	READING	WRITING
English	C1	B2	C1	C1
Italy	A2	A1	A1	A1
Greece	A1	A1	A1	A1

Computer and Digital skills

Operating Systems: LINUX / UNIX / MAC OSX / WINDOWS

Chemical Calculations and Visualise Software Packages:

- ChemOffice software package (**Experienced**)
- Gaussian (09 & 16) / Gaussian view (**Advance Independent**)
- Avogadro / Molden / Jmol / VMD (**Suffecient skills**)
- Orca (**Beginner**)
- PyMol (**Basic knowledge**)

Editing and Graphical Software Packages:

- OriginLab / spectrogryph / Microsoft Office

Programming Language:

- UNIX (**Independent User**)
- Matlab and Simulink (**Basic Knowledge Unpracticed**)
- Python and PyCharm (**Under Training**)

Social Media and Other Digital Programs:

- Google Drive / Microsoft Teams / Zoom / Facebook / Outlook / Skype / LinkedIn
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Networks and Memberships

1. Membership in Italian Chemical Society (SCI) [**Rome, Italy, 18/02/2019 – 18/02/2021**]
 2. Membership in the Society of Biological Inorganic Chemistry (SBIC) [**Rockville Pike Bethesda, Maryland (US), 01/01/2019 – Current**]
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Honors and Awards

Scholarship Grants: University of Naples Federico (II) [15/10/2019]

Title: Development of appropriate methods for anchoring artificial metalloproteins on antibodies and different natural supports. Evaluation of the catalytic performances of the conjugates and development of novel devices

Scholarship grants to cover the registration fee for the XLVII Congresso Nazionale di Chimica Inorganica Società Chimica Italiana (SCI) [13/07/2019]

Ph.D. scholarship in chemical sciences: An-Najah University [01/01/2017]

Three years scholarship for Ph.D. study in chemical sciences at University of Naples Federico (II)

TA-employment scholarship for M.Sc. student: An-Najah University [01/09/2014]

Scholarship awarded during my M.Sc. study to work as TA in the department of chemistry, An-Najah University

Most cited article Award: An-Najah University Journal for Research - A (Natural Sciences):

An-Najah University [23/05/2016]

Article: M. Suleiman, A. Al-Ali, A. Hussein, D. Aref (2016) "Size selective synthesis of tetraoctylammonium bromide stabilized/nanostabilized sulfur nanoparticles" An-Najah Univ. J. Res. (N. Sc.), 30(2), 303-322.

Best poster award: An-Najah University [22/04/2015]

Poster title: "Synthesis of core/shell Mg/Pd clusters and their hydrogen uptake capacity"

At 8th Palestinian International Conference "Chemistry Science toward Knowledge Based Economy"

Conferences, Seminars, and Schools

[1st International Conference on Materials Science and Applications, Sousse, Tunisia, 2024]

Development of Functional Bio-Based Materials from Chitosan ; Manar Abdalrazeq, Raghad Bayadh, and Diaa Aref.

[EuroBIC-17, Munster, British, 2024]

Repurposing a Miniaturized Electron Transfer Protein by Metal Replacement ; M. Chino, L. Leone, S. La Gatta, L. Di Costanzo, F. Arrigoni, D. Aref, and A. Lombardi

[47th national congress on inorganic chemistry, Bari, Italy, 2019]

Synthesis and characterization of a new class of Ru-based photosensitizer ; D. Aref, O. Maglio, C. Baiano, M. Chino, M. Pavone, and A. Lombardi.

[ICBIC-19 Congress, Interlaken, Switzerland, 2019]

Multiple Metal Sites in De Novo Designed Metalloproteins: From Isolated Cofactors to Bridged Metal Clusters ; M. Chino, D. Aref, L. Leone, F. Pirro, O. Maglio, F. Nistri, and A. Lombardi.

[ICBIC-19 Congress, Interlaken, Switzerland, 2019]

Synthesis of a Photosensitized Artificial Metalloenzyme for Hydrogen Evolution ; D. Aref, O. Maglio, M. Chino, M. Pavone, and A. Lombardi.

[MIIBSYS-2019 School, Oeiras, Portugal, 2019]

Synthesis and characterization of a new "Ru(II)/Co(III)" artificial peptide conjugate-based photocatalysis ; D. Aref, O. Maglio, M. Chino, M. Pavone, and A. Lombardi.

[INSPECTHE-2018 School, Grenoble France, 2018]

Synthesis and characterization of a new class of Ruthenium-based photosensitizer ; D. Aref, O. Maglio, O. Dragoni, M. Chino, M. Pavone, and A. Lombardi.

[PICNM-2016 Congress, Nablus, Palestine, 2016]

Hydrogen storage in 3.5nm core/shell Mg/Pd clusters synthesized by combined salt reduction-electrochemical technique ; D. Aref, and M. Suleiman.

[PICC-2015 Congress, Nablus, Palestine, 2015]

Synthesis of core/shell Mg/Pd clusters and their hydrogen uptake capacity ; D. Aref and M. Suleiman.

[The seventh Palestinian international chemistry conference, Nablus, Palestine, 2013]

Synthesis of core/shell Mg/Pd clusters and their hydrogen uptake capacity ; D. Aref and M. Suleiman.

[12/05/2019 – 19/05/2019 ; Oeiras (Portugal)]

School in chemistry of metals in biological systems (MIIBSYS)

[25/11/2018 – 30/11/2018 ; Grenoble (France)]

School in spectroscopies and theoretical chemistry: complementary approaches for bioinspired inorganic chemistry (INSPECTHE)

[22/09/2018 – 25/09/2018 ; Naples (Italy)]

Ischia advanced school of organic chemistry (IASOC2018)

[24/05/2017 – 26/05/2017 ; Naples (Italy)]

First national school on chemical sensors (SNSC)

Publications

1. Manar Abdalrazeq, **Diaa Aref**, Loredana Mariniello, Concetta Valeria Lucia Giosafatto. "Biochemical modification of heat-denatured whey proteins-based material by means of microbial transglutaminase", Coatings. (Submission): <https://www.mdpi.com/journal/coatings>
2. Tinhinane Louaileche; Salima Tabti; Amel Djedouani; Chaima Maouche; Khalil Shalalin; Mohammad K. Al-Sadoon; Helen Stoeckli-Evans; Jean-Pierre Djukic; Corinne Bailly; **Diaa Aref**; Abdelkader Zarrouk, ismail Kh Warad. "SC-XRD investigation, DFT/TDDFT, XRD/HSA-interaction, imine \leftrightarrow enol tautomerization and catecholase potential of new Zwitterionic pyran-2-one Schiff base ligand", Journal of Molecular Structure. (Submission): <https://www.sciencedirect.com/journal/journal-of-molecular-structure>
3. Salima Tabti, Djouhra Aggoun, **Diaa Aref**, Ashraf Sawafta, Amel Djedouani, Ahmed Abu-Rayyan, Abeer AIObaid, Jerome Lhoste, Carine Robert, Sandy Augste, Khalil Shalalin, Ismail Warad. "Spectral, crystal structure of novel Pyran-2-one Zwitterion Schiff derivative: Thermal, Physicochemical, DFT/HSA-interactions, enol \leftrightarrow imine tautomerization and anticancer activity", Journal of Molecular Structure 1310 (2024): 138258. <https://doi.org/10.1016/j.molstruc.2024.138258>
4. M. Chino, L. Leone, G. Zambrano, F. Pirro, D. D'Alonzo, V. Firpo, **D. Aref**, L. Lista, O. Maglio, F. Nastri and A. Lombardi. "Oxidation catalysis by iron and manganese porphyrins within enzyme-like cages", Biopolymers, 109 (2018): e23107. <https://doi.org/10.1002/bip.23107>
5. M. Suleiman, A. Al-Ali, A. Hussein and **D. Aref**, "Size Selective Synthesis of Tetraoctylammonium Bromide Stabilized Sulfur Nanoparticles", An - Najah Univ. J. Res. (N. Sc.), 30 (2016): 303-322; ISSN: 1727-2114, ISSN Online: 2311-8865. DOI: [10.35552/anujr.a.30.2.1281](https://doi.org/10.35552/anujr.a.30.2.1281)
6. M. Suleiman, M. Al-Masri, A. Al-Ali, **D. Aref**, A. Hussein and I. Warad, "Synthesis of 5.7nm-sized Sulfur Nanoparticles and their Antibacterial Activities", J. Mater. Environ. Sci., 6 (2015) 513-518; ISSN: 2028-2508. https://www.jmaterenvironsci.com/Document/vol6/vol6_N2/60-JMES-1108-2014-Suleiman.pdf

Recommendations

1. Prof. Angela Lombardi, Head of the Ph.D. School in Chemical Sciences, Department of Chemical Sciences, University of Naples Federico II (Italy) email: alombard@unina.it
 2. Prof. Marco Chino, Department of Chemical Sciences, University of Naples Federico II (Italy) email: marco.chino@unina.it
 3. Prof. Valeria Costantino, Department of Pharmacy, University of Naples "Federico II" (Italy) email: costanti@unina.it
 4. Prof. Mohammed Suleiman, Department of Chemistry, An-Najah National University, Nablus (Palestine) email: suleimanshtaya@najah.edu
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Nablus, Palestine
14/12/2024