# Mohammad Reza Mohammadi

## Assistant Professor

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## Education

- B.Sc, Applied Physics,Sistan and Baluchestan University - 2000
- MS, Solid State Physics,Imam Khomeini International University - 2002
- PhD, Physics,Freie Universitat Berlin - 2019

## Courses

1. Physics 1
2. Physics 2
3. Physics Laboratory 2
4. Nanoparticles and Applications

## Master Thesis

### 1. The effects of cobalt on catalytic activity of magnetite nanoparticles synthesis using green method by Salsola Rosmarinus

فرشته غيبي, [Mohammad Reza Mohammadi, Majid Rashidi Huyeh, Yoones Moosazadeh, Soodeh Zarepour, Zihab Sohbatzadeh, Mohsen Saadat]

نيمسال دوم سال تحصيلي 01-00

### 2. Magnetite nanoparticles, green synthesis, Salsola Rosmarinus, water splitting, electrochemistry

علي شهركي, [Majid Rashidi Huyeh, Mohammad Reza Mohammadi, Hamid Reza Shaterian]

نيمسال اول سال تحصيلي 01-00

# Journals Papers

## 2025

### 1. Phosphorus doped few layer WS2 flakes grown by chemical vapor deposition for hydrogen evolution reactions

Elham Rahmani, Ali Reyhani, Mohammad Reza Khanlary, Seyedeh Zahra Mortazavi, Mohammad Reza Mohammadi

Scientific Reports Volume: (15) 1 - 14

## 2024

### 2. Innovative Insights into Water-Oxidation Mechanism: Investigating Birnessites Reaction with Cerium(IV) Ammonium Nitrate

Mohammad Reza Mohammadi, Pavlo Aleshkevych, Yoones Moosazadeh, Minoo Tasbihi, Holger Dau, Mohammad M

INORGANIC CHEMISTRY Volume: (63) 12200 - 12206

### 3. Exploring an Electrochemical Route for Water-Enhanced Oxygenation Reactions Utilizing Nickel Molecular Structures: A Case Study

, Mohammad Reza Mohammadi, Holger Dau, Babak Kaboudin, Mohammad Mahdi Najafpour

INORGANIC CHEMISTRY Volume: (63) 2268 - 2274

## 2023

### 4. Role of decomposition products in the oxidation of cyclohexene using a manganese(III) complex

Zahra Zand, Younes Mousazade, Ryan Lacdao Arevalo, Robabeh Bagheri, Mohammad Reza Mohammadi, Rahman

Communications Chemistry Volume: (6) 94-1 - 94-8

### 5. Oxygen Evolution Reaction by Silicate-Stabilized Manganese Oxide

Zahra Zand, Mohammad Reza Mohammadi, Alla S. Sologubenko, Stephan Handschin, Robabeh Bagheri, Petko

ACS Applied Energy Materials Volume: (6) 1702 - 1713

## 2022

### 6. Electrodeposition of self-supported NiMo amorphous coating as an efficient and stable catalyst for hydrogen evolution reaction

Fu-Hang Yuan, Mohammad Reza Mohammadi, Li-Li Ma, Zhen-Duo Cui, Sheng-Li Zhu, Zhao-Yang Li, Shui-Lin

RARE METALS Volume: (41) 2624 - 2632

### 7. Trends and progress in application of cobalt-based materials in catalytic, electrocatalytic, photocatalytic, and photoelectrocatalytic water splitting

Mahdi Khosravi, Mohammad Reza Mohammadi

PHOTOSYNTHESIS RESEARCH Volume: (154) 329 - 352

### 8. Synchrotron-based X-ray absorption spectroscopy of Pd nanoparticles decorated on multi-walled carbon nanotubes during successive cycles of He/H2 exposure

A. Reyhani, S. Z. Mortazavi, A. Taherkhani, Mohammad Reza Mohammadi, M. Mehrabi, P. Parvin

PHYSICAL CHEMISTRY CHEMICAL PHYSICS Volume: (25) 749 - 758

## 2021

### 9. In Situ Synthesis of Manganese Oxide as an Oxygen-Evolving Catalyst: A New Strategy

Zahra Abdi, Robabeh Bagheri, Mohammad Reza Mohammadi, Zhenlun Song, Mikaela G?rlin, Holger Dau, Moha

CHEMISTRY-A EUROPEAN JOURNAL Volume: (27) 1330 - 1336

### 10. Operando tracking of oxidation-state changes by coupling electrochemistry with time-resolved X-ray absorption spectroscopy demonstrated for water oxidation by a cobalt-based catalyst film

Chiara Pasquini, Si Liu, Petko Chernev, Diego Gonzalez-Flores, Mohammad Reza Mohammadi, Paul Kubella

ANALYTICAL AND BIOANALYTICAL CHEMISTRY Volume: (413) 5395 - 5408

### 11. A Chemical Evolution-Like Method to Synthesize a Water-Oxidizing Catalyst

Navid Jameei Moghaddam, Hadi Feizi, Mohammad Reza Mohammadi, Robabeh Bagheri, Petko Chernev, Zhenlun

ChemElectroChem Volume: (8) 4612 - 4617

## 2020

### 12. A synthetic manganese-calcium cluster similar to the catalyst of Photosystem II: challenges for biomimetic water oxidation

Younes Mousazade, Mohammad Reza Mohammadi, Robabeh Bagheri, Rahman Bikas, Petko Chernev, Zhenlun Son

DALTON TRANSACTIONS Volume: (49) 5597 - 5605

### 13. Exploring the Limits of Self-Repair in Cobalt Oxide Films for Electrocatalytic Water Oxidation

Mohammad Reza Mohammadi, Stefan Loos, Petko Chernev, Chiara Pasquini, Ivelina Zaharieva, Diego Gonz?

ACS Catalysis Volume: (10) 7990 - 7999

### 14. Tuning cobalt e(g) occupation of Co-NCNT by manipulation of crystallinity facilitates more efficient oxygen evolution and reduction

Wenjin Yuan, Yueqing Wang, Petko Chernev, Katharina Klingan, Mohammad Reza Mohammadi, Stefan Loos, C

JOURNAL OF CATALYSIS Volume: (383) 221 - 229

### 15. Revisiting Metal-Organic Frameworks for Oxygen Evolution: A Case Study

Younes Mousazade, Mohammad Reza Mohammadi, Petko Chernev, Robabeh Bagheri, Zhenlun Song, Holger Dau,

INORGANIC CHEMISTRY Volume: (59) 15335 - 15342

### 16. Electrochemical alcohols oxidation mediated by N-hydroxyphthalimide on nickel foam surface

Leila Behrouzi, Robabeh Bagheri, Mohammad Reza Mohammadi, Zhenlun Song, Petko Chernev, Holger Dau, M

Scientific Reports Volume: (10) 19378-1 - 19378-11

## 2019

### 17. Origin of the heat-induced improvement of catalytic activity and stability of MnO electrocatalysts for water oxidation

Miroslav V. Abrashev, Petko Chernev, Paul Kubella, Mohammad Reza Mohammadi, Chiara Pasquini, Holger

Journal of Materials Chemistry A Volume: (7) 17022 - 17036

### 18. Structural and functional role of anions in electrochemical water oxidation probed by arsenate incorporation into cobalt-oxide materials

Javier Villalobos, Diego Gonz?lez-Flores, Katharina Klingan, Petko Chernev, Paul Kubella, Roberto Ur

PHYSICAL CHEMISTRY CHEMICAL PHYSICS Volume: (21) 12485 - 12493

### 19. Nickel-Vanadium Layered Double Hydroxide under Water-Oxidation Reaction: New Findings and Challenges

Zahra Zand, Payam Salimi, Mohammad Reza Mohammadi, Robabeh Bagheri, Petko Chernev, Zhenlun Song, Hol

ACS Sustainable Chemistry and Engineering Volume: (7) 17252 - 17262

### 20. H/D Isotope Effects Reveal Factors Controlling Catalytic Activity in Co-Based Oxides for Water Oxidation

Chiara Pasquini, Ivelina Zaharieva, Diego Gonzalez-Flores, Petko Chernev, Mohammad Reza Mohammadi, L

JOURNAL OF THE AMERICAN CHEMICAL SOCIETY Volume: (141) 2938 - 2948

## 2018

### 21. Water oxidation by a manganese-potassium cluster: Mn oxide as a kinetically dominant "true" catalyst for water oxidation

Younes Mousazade, Mohammad Reza Mohammadi, Petko Chernev, Rahman Bikas, Robabeh Bagheri, Zhenlun Son

Catalysis Science and Technology Volume: (8) 4390 - 4398

### 22. A mononuclear cobalt complex for water oxidation: new controversies and puzzles

Rasoul Safdari, Mohammad Reza Mohammadi, Ma?gorzata Ho?y?ska, Petko Chernev, Holger Dau, Mohammad Ma

DALTON TRANSACTIONS Volume: (47) 16668 - 16673

### 23. Nickel-iron catalysts for electrochemical water oxidation - redox synergism investigated by in situ X-ray spectroscopy with millisecond time resolution

Diego Gonz?lez-Flores, Katharina Klingan, Petko Chernev, Stefan Loos, Mohammad Reza Mohammadi, Chiar

Sustainable Energy and Fuels Volume: (2) 1986 - 1994

### 24. Geometric distortions in nickel (oxy)hydroxide electrocatalysts by redox inactive iron ions

Rodney D. L. Smith, Chiara Pasquini, Stefan Loos, Petko Chernev, Katharina Klingan, Paul Kubella, Mo

Energy and Environmental Science Volume: (11) 2476 - 2485

## 2017

### 25. Spectroscopic identification of active sites for the oxygen evolution reaction on iron-cobalt oxides

Rodney D. L. Smith, Chiara Pasquini, Stefan Loos, Petko Chernev, Katharina Klingan, Paul Kubella, Mo

Nature Communications Volume: (8) -

## 2016

### 26. Water oxidation catalysis - role of redox and structural dynamics in biological photosynthesis and inorganic manganese oxides

I. Zaharieva, D. Gonz?lez-Flores, B. Asfari, C. Pasquini, Mohammad Reza Mohammadi, K. Klingan, I. Zi

Energy and Environmental Science Volume: (9) 2433 - 2443

### 27. Electrosynthesis of Biomimetic Manganese-Calcium Oxides for Water Oxidation Catalysis-Atomic Structure and Functionality

Diego Gonz?lez-Flores, Ivelina Zaharieva, Jonathan Heidkamp, Petko Chernev, El?as Mart?nez-Moreno, C

ChemSusChem Volume: (9) 379 - 387

## 2013

### 28. The effect of TBAC on the collective diffusion coefficient and morphology of AOT microemulsion at X 6.7

, Mohammad Reza Mohammadi, Mousa Aliahmad, othmar marti, masoud amirkhani

PHYSICS AND CHEMISTRY OF LIQUIDS Volume: (51) 469 - 479

## 2008

### 29. بر ساختار بلوري و خواص اپتيكي و الكتريكي لايه هاي نازك سولفيد Cu ت ثير ناخالصي فلزي كادميوم

, Mohammad Reza Mohammadi

Volume: () -