

AHMAD MOHAMMAD ABU-JRAI

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Professor Ahmad Abu Jrai is a Jordanian academician who is specialized in Hydrogen Reforming and Emissions Reductions. He is currently the Vice President for Academic Affairs at Al-Hussein Bin Talal University (AHU) in Jordan. He obtained his Ph.D. in Mechanical Engineering from the Department of Mechanical and Manufacturing Engineering, School of Engineering, University of Birmingham, United Kingdom in 2007. Prof. Abu Jrai has published more than 44 articles in prestigious journals and proceedings with more than 1087 citations. Prof. Abu Jrai was awarded the AUSTIN ROVER Prize in 2006 for the best paper published in that year. He was also awarded the prestigious Fulbright visiting scholar at the Department of Mechanical and Aerospace Engineering, Faculty of Engineering, West Virginia University, Morgantown, USA in 2013.

He conducted several scientific research visits at the Institute of Thermodynamics, Friedrich Alexander University, Erlangen, Germany. He joined three funded international projects; a team member of the Mediterranean partner in eQTeL (Project co-funded by TEMPUS program), a representative of the Mediterranean partner AHU in SERMANTEQ Project (Co-funded by TEMPUS), and AHU Representative for Dual Study program (Funded by GIZ). Moreover, he was successfully granted three funded research projects with total budget of (\$268000) from the Scientific Research Support Fund / Ministry of Higher Education and Scientific research in Jordan and from AHU.

Personal Information

<i>Full Name</i>	Ahmad Mohammed Khaleel Abu Jrai
<i>Academic Position and Rank</i>	Professor Ph.D. in Mechanical Engineering
<i>Address and Contact Information</i>	Department of Mechanical Engineering & Department of Environmental Engineering Faculty of Engineering Al-Hussein Bin Talal University Ma'an, Jordan P.O. Box 20 Jordan Tel. (office): +96232719000, Ext. 8081 Mobile: 00962 777 311177 E-mail: ahmad_abujrai@ahu.edu.jo E-mail: dr.ahmad_abujrai@yahoo.com
<i>Nationality</i>	Jordanian
<i>Date and Place of Birth</i>	1 Jan 1977, Saudi Arabia

Education

<u>2004 – 2007</u>	Ph.D. in Mechanical Engineering Mechanical and Manufacturing Engineering Department School of Engineering University of Birmingham United Kingdom
<u>2000 – 2002</u>	M.Sc. in Mechanical Engineering, average of 3.94 out of 4.00 rating (Excellent) Mechanical Engineering Department Faculty of Engineering and Technology University of Jordan Amman, Jordan
<u>1995 – 2000</u>	B.Sc. in Mechanical Engineering, average of 3.15 out of 4.00 rating (very good) Mechanical Engineering Department Faculty of Engineering and Technology University of Jordan Amman, Jordan

1994 – 1995

General Secondary Degree,
Scientific Stream
Percentage Average 91.6
Ma'an Secondary School
Ma'an, Jordan

Doctoral Program

Ph.D. Specific Field

Internal Combustion Engines and Air Pollution
(Selective Catalytic Reduction of Diesel Emissions)

Thesis Title

Control of Diesel Engine NO_x Emissions by Selective Catalytic Reduction and Exhaust Gas-Assisted Fuel Reforming

Thesis Contribution and Field Weight

Concerns over global warming has in recent years led to international government and industry efforts being focused on the reduction of emissions of greenhouse gases. In the area of automotive transport, the interest in more fuel-efficient technologies to achieve better fuel economy and reduce CO_2 emission has been fundamental to the increasing popularity of the diesel passenger car. The main aim of the work was to study and improve the low-temperature Hydro-Carbon Selective Catalytic Reduction (HC-SCR) of NO_x . The exhaust gas-assisted fuel reforming has been also studied as a way to improve the performance of SCR process by providing H_2 -rich reformat gas.

Career Objective

To conduct research on solving the state-of-the-art problems in Energy Scarcity, Renewable Energy, and Global Warming using Hydrogen Reforming and Emissions Reductions.

Field of Specialization

Effect of reformed gases on the selective catalytic reduction of diesel emissions (mainly NO_x); Environmental catalysts and catalytic systems; Combustion and emission control; Hydrogen reforming; Alternative fuels (Biofuels).

Professional Experience

Sep. 2018 – Present

Vice President for Academic Affairs
Al-Hussein Bin Talal University
Ma'an, Jordan

Jun. 2018 – Sep. 2018

Member of Board of Trustees
The Hashemite University
Al-Zarqa, Jordan

May. 2017 – Present

Professor
Department of Mechanical Engineering &
Department of Environmental Engineering
Faculty of Engineering
Al-Hussein Bin Talal University
Ma'an, Jordan

Sep. 2014 – Sep. 2019

Director of Admission and Registration Unit
Al-Hussein Bin Talal University
Ma'an, Jordan

Aug. 2013 – July 2014

Fulbright Visiting Scholar
Department of Mechanical and Aerospace Engineering
Faculty of Engineering
West Virginia University
Morgantown, USA

May. 2012 – May. 2017

Associate Professor
Department of Mechanical Engineering
Department of Environmental Engineering
Faculty of Engineering
Al-Hussein Bin Talal University
Ma'an, Jordan

May 2007 – May 2012

Assistant Professor
Department of Environmental Engineering
Faculty of Engineering
Al-Hussein Bin Talal University
Ma'an, Jordan

Dec. 2009 – Dec. 2010

Vice Dean of Studentship Affairs
Al-Hussein Bin Talal University
Ma'an, Jordan

Sept. 2008 – Sept. 2010

Head of the Environmental Engineering Department
Faculty of Engineering
Al-Hussein Bin Talal University
Ma'an, Jordan

Feb. 2004 – May 2007

Teaching Assistant “Small group teaching for Refrigeration and Air conditioning courses”
Mechanical and Manufacturing Engineering
Department Engineering school
University of Birmingham
United Kingdom

Feb. 2004 – May 2007

Teaching Assistant and demonstration work for Heat and mass transfer, Refrigeration and air conditioning, Fluid mechanics, Thermodynamics laboratories
Mechanical and Manufacturing Engineering Department
Engineering school
University of Birmingham
United Kingdom

Feb. 2001 – June 2002

Research Assistant
Mechanical Engineering Department
Faculty of Engineering and Technology
University of Jordan
Amman, Jordan

June 2000 – June 2002

Teaching Assistant for Heat transfer, Power plants, Modern Control, and Internal Combustion Engines courses
Mechanical Engineering Department
Faculty of Engineering and Technology
University of Jordan
Amman, Jordan

June 2000 – June 2002

Teaching Assistant and demonstration work for Fluid mechanics and Thermodynamics laboratories
Mechanical Engineering Department
Faculty of Engineering and Technology
University of Jordan
Amman, Jordan

Awards and Honors

- **Engineering training internship** at Freiberg Technical University, Germany, 1999.
- **Scholarship from AHU**, Jordan to pursue a Ph.D. in the Mechanical Engineering at the University of Birmingham, UK, 2004 to 2007.
- **AUSTIN ROVER Prize**, UK for the best scientific paper published in 2006.
- **DFG Research Visits**, Germany for years 2009, 2011, and 2012.
- **Fulbright Scholarship Program** at West Virginia University, USA, 2013.

Training and Courses

Feb. 2005

Technical Paper and Report Writing

School of Engineering
University of Birmingham
United Kingdom

April 2004 – May 2004

Comprehensive Course in Education Skills

School of Education
University of Birmingham
United Kingdom

April 2004

Laboratory Demonstration

Engineering School
University of Birmingham
United Kingdom

Feb. 2004

Engineering Safety

Engineering School
University of Birmingham
United Kingdom

July 1999 – Sept. 1999

Practical Engineering Training, “fluid mechanics and laser techniques”

University of Friberg
Germany

Scholarly Activities

July 2017 – Sep. 2019

Member of the Scientific and Technical Committee of the 4th International Conference on Energy and Environment Research (ICEER)

Porto, Portugal

Aug. 2013 – July 2014

Fulbright Visiting Scholar/ Scientific Research Visit

"Diesel fuel exhaust gas-reformer for on-board H_2 production to improve the HC-SCR catalyst NO_x reduction activity and performance of the combustion process".

Department of Mechanical and Aerospace Engineering
Faculty of Engineering
West Virginia University
Morgantown, USA

June 2012– Aug 2012

Scientific Research Visit

Spray laser diagnostics, funded by DFG
Institute of Thermodynamics
Friedrich Alexander University
Erlangen, Germany

June 2011 – July 2011

Scientific Research Visit

Reaction chain study of spray and combustion processes for direct injection spark ignition (DISI) engines (Spray laser diagnostics), funded by DFG
Institute of Thermodynamics
Friedrich Alexander University
Erlangen, Germany

May 2009 - Present

External Examiner for Ph.D. and MSc. Theses:

- University of Jordan, Jordan
- University of Birmingham, UK
- Friedrich Alexander University, Germany

June 2009 – Aug 2009

Scientific Research Visit

Hydrogen combustion (optical technique), funded by DFG
Institute of Thermodynamics
Friedrich Alexander University
Erlangen, Germany

June 2008 – Aug 2008

Scientific Research Visit

Adiabatic premixed combustion in a porous inert media under high pressure and temperature, funded by Friedrich Alexander University
Institute of Fluid mechanics
Friedrich Alexander University
Erlangen, Germany

2008 – Present

Reviewer for several International peer-reviewed Journals:

- Chemical Engineering Journal
- International Journal of Hydrogen Energy
- Fuel
- Energy and Fuel
- Energy Conversion and Management

Aug. 2003 – May. 2007

Funded Scholarship to pursue Ph.D. in Mechanical Engineering

International Projects

Dec 2020 – Present

AHU Representative for Dual Study (Funded by GIZ). The program aims to integrating the theoretical knowledge that the student acquires from the university with practical application, by engaging the student in several semesters in actual training that he implements within the relevant companies.

April 2015 – June 2017

Team member of the Mediterranean partner AHU in *eQTeL* Project "Enhancing Quality of Technology-Enhanced Learning at Jordanian Universities" (Approved by the European Commission within the framework of the TEMPUS program); the wider objective of the project is to promote reform of higher education in Jordan through the introduction of national quality assurance system for technology-enhanced learning.

Sep 2009 – Sep 2010

Representative of the Mediterranean partner AHU in *SERMANTEQ* Project (funded by the European Commission within the framework of the TEMPUS program); the purpose of this project is to modernize the curricula of higher education by creating new programs or courses, and to increase service capabilities for students by promoting openness towards society.

Funded Scientific Research Projects

Research Funded projects from Scientific Research Support Fund (SRF), Ministry of Higher Education and Scientific Research, and AHU in Jordan. The projects aimed to improve the emissions reductions for diesel engines using alternative biofuels, the total fund was (\$ 268,000). These projects ended up with valuable publications where they are listed on Prof. Abu Jrai Scopus's Profile.

Professional Membership

- Jordan Engineers Association, Jordan
- Jordan Environment Society, Jordan
- Society of Automotive Engineers, USA
- American Society of Heating, Refrigerating, and Air- Conditioning Engineers (ASHRAE), USA

List of publications

Prof. Abu Jrai is classified as one of the top 10 listed scholars in his field in Jordan. Currently, he has more than 44 published articles and conferences with the Google scholar and Scopus databases. The Scopus citations score is 777 with h-index 14, and the Google scholar citations is 1087 with h-index 18 (these records are rapidly changing). For all information about his publications and scores, click on the following links.

- **Scopus profile**
- **Researchgate profile**
- **Google Scholar Account**