

CURRICULUM VITAE

NAME: Eleni F. Iliopoulou

DATE OF BIRTH: May 31st, 1972

PLACE OF BIRTH: Thessaloniki

ADDRESS

Work:

Laboratory of Environmental Fuels & Hydrocarbons,
Chemical Process Engineering Research Institute,
Centre for Research and Technology Hellas, (CPERI/CERTH),
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RESEARCH INTERESTS

Heterogeneous Catalysis Development of new catalytic systems

Synthesis –Characterization –Applications of catalytic materials

Material synthesis applying several methods: spray pyrolysis, ion-exchange, dry/wet impregnation, co-precipitation

Compositional/Structural/Morphological characterization of materials applying several methods: ICP-AES, Nitrogen physi-sorption, XRD, SEM, FTIR

Evaluation, characterization, mechanistic studies of catalytic materials applying several techniques: temperature-programmed reduction/desorption/oxidation/surface reaction (H₂ TPR-TPD, TPO, TPSR) via adsorption-desorption of reactants in combination with mass spectrometer, gas chromatography, infrared spectroscopy

Process simulation in bench-scale units

Fluid Catalytic Cracking (FCC), deactivation of FCC catalysts by deleterious FCC feed metals, laboratory deactivation techniques, elucidation of deactivation and metal passivation methods, regeneration of spent FCC catalyst, development and evaluation of of deNO_x, deSO_x FCC catalytic additives

Development-Optimization of Environmental Techniques

Development and evaluation of catalysts for the reduction of toxic pollutants and green-house gases (NO_x, SO_x, N₂O, CO, CO₂ emitted from stationary and mobile sources).

Application of the selective catalytic reduction of NO_x with hydrocarbons, catalytic decomposition of NO_x and N₂O to N₂ and O₂, oxidation of CO and unburned hydrocarbons, SO_x capture via adsorption, reduction of CO₂ emissions via development of biofuels. Catalytic pyrolysis of biomass, development and evaluation of micro/mesoporous catalytic materials incorporating several metals (Ni, Al, Co, Mo, Fe, Cu) for upgrading the biofuel and producing fine chemicals

EDUCATION

7/2004-1/2006

POST-DOC POSITION

Laboratory of Environmental Fuels & Hydrocarbons, Chemical Process Engineering Research Institute, Centre for Research & Technology Hellas (CPERI/CERTH)

AKMON *“Implementation of catalysts’ evaluation technology to the oil industry”*

Scientific coordinator: Prof. Iacovos A. Vasalos

“Deactivation, testing and evaluation of high accessibility catalysts on lab scale”

Scientific coordinator: A.A. Lappas, Researcher A’

“INSIDE-POReS: IN-Situ Study and DEvelopment of Processes Involving PORous Solids”

Scientific coordinator: A.A. Lappas, Researcher A’

Department of Chemistry, Aristotle University of Thessaloniki

“Development of Nanostructured Micro/mesoporous Catalytic Materials for the production of Biofuels and Fine Chemicals via Biomass Fast Pyrolysis”

Pythagoras EPEAEK, 2004-2006, Scientific coordinator: Lect. Kostas S. Triantafyllidis

7/2001-7/2004

PHD THESIS

Department of Chemical Engineering, Faculty of Engineering,
Aristotle University of Thessaloniki

Title of PhD Thesis: *“Reduction of NO_x emissions from the flue gases of the regenerator of a Fluid Catalytic Cracking (FCC) unit using catalytic additives”*

Supervising Committee: Prof. I.A. Vasalos
Ass. Prof. A.A. Lemonidou
Prof. M. Stoukides

10/1999-12/2001

MASTER COURSE

Department of Physics,
Aristotle University of Thessaloniki,

Subject: *“Materials Physics”*

Thesis: *“Preparation of catalytic nanoparticles applying the spray pyrolysis technique”*

Supervising Professor: Ass. Prof. A. G. Konstandopoulos
Researcher A'
Laboratory of Aerosol and Particle Technology (LAPT)
CPERI/CERTH

1990-1996

DIPLOMA OF CHEMICAL ENGINEERING

Department of Chemical Engineering, Faculty of Engineering,
Aristotle University of Thessaloniki

RESEARCH EXPERIENCE

20/11/2005-26/11/2005 & 26/05/2002-16/06/2002

Technical University of Munich (TUM), Munich, Germany

Participation in the research of the institute for Chemical Technology conducting a mechanistic study applying Infrared Spectroscopy (FTIR)

19/04/1999-19/07/1999

University of Reading, UK

Participation in the research of the Centre of Catalytic Research of the Chemistry Department under a EU funded project for the preparation and evaluation of catalysts for the reduction of NO_x emissions from the flue gases of stationary or/and mobile sources

02/02/1998-01/05/2008

CPERI/CERTH

Active member of the research group of the Laboratory of Environmental Fuels & Hydrocarbons (LEFH) as a collaborating researcher

01/05/2008-today

Active member of the research group of LEFH as a Researcher D'

PARTICIPATION IN RESEARCH PROJECTS & EDUCATIONAL PROGRAMMS

- ***“Heterogeneous Catalysis for the Conversion of Solid Biomass into Renewable Fuels and Chemicals (HECABIO)” - ACENET common initiative 1st transnational call for proposals***

Scientific Coordinator: A.A. Lappas, Researcher A', Host organization: CPERI/CERTH
Funded from the Greek General Secretariat for Research & Technology

- ***“Catalysis: Vital tool for environmental upgrading and energy production”***

HUMAN NETWORKS FOR RESEARCH & TECHNOLOGICAL TRAINING

Scientific Coordinator: Eleni F. Iliopoulou, Researcher D', Host organization: CPERI/CERTH
Funded from the Greek General Secretariat for Research & Technology

- ***“INSIDE-PORes: IN-Situ Study and DEvelopment of Processes Involving PORous Solids”***

- Scientific Coordinator: A.A. Lappas, Researcher A', Host organization: CPERI/CERTH
 Co-funded from the European Commission: 500895
- ***“INTERREG III A / CARDS Greece – F.Y.R.O.M.”***
 Sub-project: Development of common educational projects and environmental technology exchange
 Project: Network of knowledge and information dissemination about educational and research constitutions in the environmental field, to develop a common collaboration framework, according to the EU Legislation and the technology transfer
- Scientific Coordinator: Prof. C. Kiparissides, Host organization: CPERI/CERTH
 Funded from the Greek General Secretariat for Research & Technology
- ***“Study of the deactivation of FCC catalysts from heavy metals deposited from the FCC feed”***
 PENED 2003:
- Scientific Coordinator: A.A. Lappas, Researcher A', Host organization: CPERI/CERTH
 Funded from the Greek General Secretariat for Research & Technology
 (and co-funded from the catalysts vendor Albemarle via the project:
“Deactivation, testing and evaluation of high accessibility catalysts on lab scale”)
- ***“Development of Nanostructured Micro/mesoporous Catalytic Materials for the production of Biofuels and Fine Chemicals via Biomass Fast Pyrolysis”***
 Pythagoras EPEAEK, 2004-2006,
- Scientific coordinator: Lect. Kostas S. Triantafyllidis
 Host organization: Department of Chemistry, Aristotle University of Thessaloniki
 Funded from the Greek General Secretariat for Research & Technology
- ***“Implementation of catalysts’ evaluation technology to the oil industry”***
 Project AKMON,
- Scientific Coordinator: Prof. I.A. Vasalos, Host organization: CPERI/CERTH
 Funded from the Greek General Secretariat for Research & Technology
- ***«DeNOx Process for the Refinery of the Future»***
- Scientific Coordinator: Prof. I.A. Vasalos, Host organization: CPERI/CERTH
 Co-funded from the European Commission: G1RD-CT997-0065
- ***«Novel Bifunctional Nanocomposite Catalysts for the Removal of Nitrogen Oxides from Oxygen – Rich Streams using Hydrocarbons or Oxygenates as Reductants»***
- Scientific Coordinator: Prof. I.A. Vasalos, Host organization: CPERI/CERTH
 Co-funded from the European Commission: ENV4-CT97-0658

EDUCATIONAL EXPERIENCE

Hellenic Open University

- Collaborating Educational Personell in the Master Course entitled Catalysis and Environment
(10/2008-today)

Technical University of Crete

- Invited speaker in the seminar entitled:
 “Environmental technologies during production and utilization of conventional fuels” under the human network for research and technological training ***“Catalysis: Vital tool for environmental upgrading and energy production”***
(10/2007)

Centre for Research & Technology Hellas Chemical Process Engineering Research Institute

- Invited speaker in the seminar entitled:
 “Biomass Exploitation for the production of alternative fuels and high added value chemicals” under the human network for research and technological training ***“Catalysis: Vital tool for environmental upgrading and energy production”***
(12/2007)
- Invited speaker in the 2nd WORKSHOP – Emission Control Technologies, Interreg Project, Thessaloniki, Greece με τίτλο: “Reduction of NOx emissions from refinery flue gases” *(14-18/05/2007)*
- Invited speaker in the seminar entitled:
 “Biomass valorization for the production of Bio-fuels and Electrical Energy” in the thematic session:
 “Synthesis Techniques of Catalytic Materials for Biomass Pyrolysis” under the human network for research and technological training ***“Energy Technologies for Sustainable Development”***
(5-13/12/2006)

**Technological Scientific Institution (TEI) of Western Macedonia,
School of Technological Applications, General Department of Applied Sciences**

- Teaching undergraduate students in laboratory-exercise: “Quality Control & Materials Technology”
(academic years:2006-2007,
2005-2006)

Department of Chemical Engineering, Faculty of Engineering, Aristotle University of Thessaloniki

- Subsidiary supervision of the PhD thesis of A. Psarras, entitled “*Deactivation of FCC catalysts from FCC feed metals*” Supervisor: Prof. I.A. Vasalos
(09/2005-today)
- Subsidiary supervision of the PhD thesis of V. Komvokis, entitled “*Synthesis, characterization and evaluation of novel nanostructured catalytic materials in processes reducing nitrogen oxides from industrial units’ fluegases*” Supervisor: Prof. I.A. Vasalos
(March 2004-today)
- Supervision of the Diploma Thesis of N. Soultanidis, entitled “*Study of Ru-based Catalysts for utilization in Selective Catalytic Reduction (SCR)of nitrogen oxides (NO_x) with hydrocarbons*” in cooperation with Assoc. Prof. A.A. Lemonidou
(11/2004-10/2005)
- Coordination, and training of undergraduate students in laboratory-practice: “Removal of NO_x emissions from the refinery flue gases” during the course “Environmental Practice” in cooperation with Assoc. Prof. A.A. Lemonidou
(academic year 2003-2004)
- Supervision of the Diploma Thesis of A. Evdou, entitled: “*Study of Ag/Al₂O₃ catalysts used in selective Catalytic Reduction of nitrogen oxides (NO_x) with hydrocarbons*” in cooperation with Assoc. Prof. A.A. Lemonidou
(03-09 2003)
- Subsidiary teaching of undergraduate students in laboratory-practice “Fuel Characterization Techniques-Specifications” during the course “Chemical Engineering Laboratory-Practice II” under the supervision of Assoc. Prof. A.A. Lemonidou
(academic years 2000-2001,
2001-2002)

SEMINARS-TRAINING

17-21/09/2007

“SPECTROCAT-Vibrational spectroscopies for catalysis”

Laboratoire Catalyse et Spectrochimie ENSICAEN, Campus II UNIVERSITE DE CAEN BASSE-NORMANDIE, Normandy (Caen - FRANCE)

08-16/12/2003

“Natural Gas Valorization for Energy Production”.

Human network for research and technological training: “Energy Technologies for Sustainable Development” AUTH & CERTH, Thessaloniki

12-13/11/2001

“How to develop, validate and troubleshoot GC methods”.

S.P. Cram, American Chemical Society Short Course, Greek Chemists Association, Thessaloniki

18/06/2001-23/06/2001

6th Italian Seminar on Catalysis:

“Fundamentals and Applications to Environmental Problems”

Gruppo Interdivisionale di Catalisi Divisione di Chimica Industriale, Grado, Italy

13-15/06/2001

Seminar: “Gas Chromatography”

Ass. Prof. A.A. Lemonidou, AUTH, CPERI/CERTH, Thessaloniki

28/03/2001-1/4/2001

“1st EFCATS School on Catalysis”

European Federation of Catalysis Societies (EFCATS), Prague Czech Republic

4-10/9/2000

3rd Summer School on Green Chemistry

Italian Interuniversity Consortium "Chemistry for the Environment" (INCA), Venice, Italy

OTHER PROFESSIONAL ACTIVITIES

01/09/1995-14/10/1995

Universitat Konstanz, Germany

In terms of Educational Organization IAESTE (International Association for the Exchange of Students for Technical Experience) employed as a practical trainee in the University of Kostanz, Germany

03/07/1995-31/08/1995

EKO ABEE, Thessaloniki

Employed as a practical trainee in the Department of Environment and Quality Control

Invited reviewer in international scientific journals

Applied Catalysis A: General, Applied Catalysis B: Environmental, Journal of Catalysis, Catalysis Today, Microporous & Mesoporous Materials, Industrial Engineering & Chemistry Research, Energy & Fuels, Journal of Molecular Catalysis A: Chemical, Environmental Science & Technology

Foreign Languages

English, Proficiency Michigan, Lower Cambridge
German, Zertifikat Goethe Institut

Computing knowledge

Windows, Ms Office, internet utilization for research and technology issues

Other activities

Member of the Technical Chamber of Greece

Member of the Panhellenic Association of Chemical Engineers

PUBLICATIONS IN INTERNATIONAL JOURNALS

A.1 Review of C-C Coupling Reactions in Biomass Exploitation Processes, Eleni F. Iliopoulou, accepted in Current Organic Synthesis (2010).

A.2 Investigation of advanced laboratory deactivation techniques of FCC catalysts via FTIR acidity studies A.C. Psarras, E.F. Iliopoulou, K. Kostaras, A.A. Lappas and C. Pouwels Micropor. Mesopor. Mat. 120 (1-2) (2009) 141.

A.3 Electro-kinetic study of the reverse water gas shift (RWGS) reaction and its potential role in the production of power in a solid oxide fuel cell (SOFC) G. Pekridis, K. Kalimeri, N. Kaklidis, E. Vakouftsi, E.F. Iliopoulou, C. Athanasiou and G.E. Marnellos* Cat. Today 127 (1-4) (2007) 337.

A.4 Study of the accessibility effect on the irreversible deactivation of FCC catalysts from contaminant feed metals A. C. Psarras*, E.F. Iliopoulou, L. Nalbandian, A.A. Lappas, C. Pouwels Cat. Today 127 (1-4) (2007) 44.

A.5 Development of optimized Cu-ZSM-5 deNO_x catalytic materials both for HC-SCR applications and as FCC catalytic additives V.G. Komvokis, E.F. Iliopoulou, I.A. Vasalos, K.S. Triantafyllidis*, C.L. Marshall, Appl. Catal. A 325 (2) (2007) 345.

A.6 Catalytic conversion of biomass pyrolysis products by mesoporous materials: Effect of steam stability and acidity of Al-MCM-41 catalysts E.F. Iliopoulou, E.V. Antonakou, S.A. Karakoulia, A.A. Lappas, I.A. Vasalos, K.S. Triantafyllidis*, Chem. Eng. J. 134 (2007) 51.

A.7 Hydrothermally-stable mesoporous aluminosilicates (MSU-S) assembled from zeolite seeds as catalysts for biomass pyrolysis K.S. Triantafyllidis*, E.F. Iliopoulou, E.V. Antonakou, A.A. Lappas, H. Wang, T.J. Pinnavaia Micropor. Mesopor. Mat. 99 (2007) 132.

A.8 Novel metal-modified ZSM-5 formulations as catalysts for the simultaneous reduction of NO and CO emissions from the regenerator of an FCC unit V.G. Komvokis, E.F. Iliopoulou, I.A. Vasalos, K.S. Triantafyllidis, C.L. Marshall Preprints of Symposia - American Chemical Society, Division of Fuel Chemistry (2006), 51(1), 256.

A.9 Effect of Ru-based Catalytic Additives on NO and CO formed during Regeneration of spent FCC catalysts E.F. Iliopoulou*, E.A. Efthimiadis, A.A. Lappas and I.A. Vasalos, Ind. Eng. Chem. Res. 44 (2005) 4922.

A.10 Ir-based Additives for NO Reduction and CO oxidation in the FCC regenerator: Evaluation, Characterization and Mechanistic Studies E.F. Iliopoulou*, E.A. Efthimiadis, L. Nalbandian and I.A. Vasalos, J.-O. Barth and J.A. Lercher, Appl. Catal. B 60 (2005) 277.

A.11 Development and Evaluation of Ir-based Catalytic Additives for the Reduction of the NO Emissions from the Regenerator of a Fluid Catalytic Cracking Unit, E.F. Iliopoulou*, E.A. Efthimiadis, A.A. Lappas, D.K. Iatridis and I.A. Vasalos, Ind. Eng. Chem. Res. 43 (2004) 7476.

A.12 Ag/alumina Catalysts for the Selective Catalytic Reduction of NO_x using various reductants E.F. Iliopoulou*, A.P. Evdou, A.A. Lemonidou and I.A. Vasalos, Appl. Catal. A 274 (2004) 179.

A.13 Novel derivatives of MCM-36 as catalysts for the reduction of nitrogen oxides from FCC Regenerator flue gas streams J.-O. Barth*, A. Jentys, E.F. Iliopoulou, I.A. Vasalos, and J.A. Lercher, J. Catal. 227 (2004) 117.

A.14 Ag-based Catalytic Additives for the Simultaneous Reduction of NO and CO Emissions from the Regenerator of a FCC Unit, E.F. Iliopoulou*, E.A. Efthimiadis and I.A. Vasalos, Ind. Eng. Chem. Res. 43 (2004) 1388.

A.15 Effect of Rh-based Additives on NO and CO Formed during Regeneration of Spent FCC Catalyst, E.F. Iliopoulou*, E.A. Efthimiadis and I.A. Vasalos, J.-O. Barth and J.A. Lercher, Appl. Catal. B 47 (2004) 165.

A.16 NO Reduction Studies in the FCC Process. Evaluation of NO Reduction Additives for FCCU in Bench- and Pilot Plant-Scale Reactors, E.A. Efthimiadis, E.F. Iliopoulou, A.A. Lappas*, D.K. Iatrides and I.A. Vasalos, Ind. Eng. Chem. Res. 41 (2002) 5401.

A.17 Novel bifunctional catalytic systems for the SCR of NO_x using hydrocarbons as reductants: step one, NO oxidation, S.C. Christoforou*, E.F. Iliopoulou, E.A. Efthimiadis, A.A. Nikolopoulos and I.A. Vasalos, Global Nest: the Int.J. 2 (2000) 159.