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<http://uccs.univ-lille1.fr/index.php/catalyse-heterogene/energie>

Academic education

2002 **Dr Sci** (Habilitation degree), Université des Sciences et Technologies de Lille

1991 **PhD** graduation at the Zelinsky Institute of Organic Chemistry, Russian Academy of Sciences, Moscow, PhD advisor: Prof. V.B. Kazansky

1987 **Master** in Chemistry, Lomonosov Moscow State University, Moscow

Professional career

Since 2007 CNRS Research Director, Unité de Catalyse et Chimie du Solide, UMR 8181 CNRS

From 2013 Scientific Manager of the Pilot Hall of the UCCS

Since 2010 Leader of "Catalysis for energy" Team, Unité de Catalyse et Chimie du Solide (10 permanent and 12-15 PhD students and post docs)

1999-2007 CNRS research fellow (permanent), unit of Unité de Catalyse et Chimie du Solide, UMR CNRS 8181 (former Laboratory of Catalysis of Lille)

1998-1999 Research associate, SABIC Technology Center, Houston, United States

1997-1998 Postdoctoral fellow, University of California at Berkeley and Lawrence Berkeley National Laboratory, California, United States

1995-1996 Postdoctoral Fellow, Institut Français du Pétrole, Rueil-Malmaison, France

1995 Researcher, University of Manchester, Institute of Science and Technology, Manchester, UK

1994-1995 Research fellow, Department of Chemistry, University of Edinburgh, Edinburgh, UK

1992-1993 Postdoctoral fellowship, École nationale supérieure de chimie de Paris et Laboratoire pour l'utilisation du rayonnement électromagnétique Paris, Orsay

1987-1991 Research Engineer, Researcher, Institute of organic chemistry, Academy of Sciences, Moscow, Russia

Professional activities

2010-2015 Member of the scientific council of the Catalysis and Solid-State Chemistry Unit (UCCS)

2016-2018 Project coordination for the French National Research Agency: DirectSynBioFuel (2016-2019), Catsyn-Biofuel (2013-2016), Olsyncat (2012-2015)

2013-2016 Special Invited Scientist, Program of the Brazilian Government "Science without borders" Direction of PhD theses in Brazil, joint PhD projects

2016 Visiting Professor, South Central University for Nationalities, Wuhan, (China)

2010-2014 Workpackage leader the FP7 European project EUROBIOREF « EUROpean multilevel integrated BIOREFinery design for sustainable biomass processing »

2011-2012 Chairman of the International Symposium on Clean Alternative Synthetic Fuels 'SynFuel2012' in Munich, June 2012 (> 210 participants)

2009-2010 Member of the Organizing Committee of the 9th Natural Gas Conversion Symposium in Lyon, chairman of the session "Synfuels".

2010-2011 Chairman of the Franco-Chinese symposium "Exploring New Challenges in Catalytic Science", Xiamen, Jan. 2011

2012-2013 Executive Editor of a special issue of «Catalysis Today» (volume 215)

2012 Scientific Committee member, 9th International Conference "Mechanisms of Catalytic Reactions", Saint-Petersburg, Russia, October 2012

2013 Chairman and organizer of the 1st, 2nd and 3rd French-Chinese "Catalysis and sustainable development", Xiamen, Villeneuve d'Ascq 2011-2015

Number of articles in peer-reviewed journals: 125

Invited lectures in international conferences: 20

Sum of the Times Cited: 5256 (Google Scholar, dec 2015)

After graduating from Moscow University, Andrei Khodakov was recruited in September 1987 by the Laboratory of Professor V.B. Kazanky at the Institute of Organic Chemistry of the USSR Academy of Sciences. He worked on the characterization of zeolites and adsorption by spectroscopic techniques, as well as on aromatization of light alkanes on these catalysts. This research was presented in a PhD thesis defended in 1991.

With a postdoctoral fellowship Elf Aquitaine, Dr Khodakov continued his research in 1992-1994 at the Ecole Nationale Supérieure de Chimie de Paris under the direction of Professor Jacques Oudar and in the Laboratory for the use of electromagnetic radiation (LURE) in Orsay under the direction of Dr. Hervé Dexpert. This research targeted preparation of new platinum-based catalysts supported on a zeolite (mazzite) and characterization of the structure of the metal nanoparticles by EXAFS.

In 1994-1995, he worked at the University of Edinburgh in Scotland with Professor Lovat V.C. Rees, under a contract with the British Gas company on the diffusion of mixtures of alkanes (methane, ethane, and propane) and carbon dioxide in zeolites. This work has gained experience in the adsorption kinetics, particularly in transient kinetic technique (frequency response). During his stay in the UK in 1995, Dr Khodakov was also involved with Dr John Dwyer in the Institute of Science and Technology, University of Manchester (UMIST) in *ab initio* molecular modeling of carbon monoxide adsorption on the acid sites of zeolites.

To approach the industrial context, Andrei Khodakov exercised his research activities at the IFP (French Petroleum Institute) between 1995 and 1997 in the field of the design of catalysts for Fischer-Tropsch synthesis. Research work in 1997-1998 in teams of Professors Enrique Iglesia and Alexis T. Bell at the University of California at Berkeley gave him excellent knowledge of the oxidative dehydrogenation of alkanes, active sites and the kinetics of this reaction. The skills of Dr Khodakov in academic research were then enriched by an industrial research experience in the SABIC Technology Center in Houston, where he was hired as a research engineer.

In October 1999, Dr Khodakov joined the Laboratory of Catalysis of Lille (now "Unité de Catalyse et de Chimie du Solide", UMR 8181 CNRS). He is particularly interested on the one hand in the development and optimization of new catalysts and catalyst supports for Fischer-Tropsch synthesis, and also in the understanding of the mechanism and kinetics of this reaction. His approach combines both fundamental research and possible industrial use. With a high level of research in the field of Fischer-Tropsch synthesis, the group of Dr Khodakov also works on the valorization of renewable resources (biomass) by thermochemical processes, new catalyst preparation methods as well as to the process intensification and miniaturization.

Since 2010, he is responsible for the team "Catalysis for Energy" of UCCS which consists of 10 permanent researchers and teachers researchers. The group currently has 12 PhD students and 3 postdocs working in the framework of different research projects. Since 2012, the team has responsibility for the new Pilot Hall. This Pilot Hall was built based on the decision of the University of Lille 1, Science and Technology in collaboration with the CNRS to perform experiments in the field of energy and synthesis of molecules under relevant industrial conditions (pressure and temperature).

Dr Khodakov has co-authored more than 125 articles in the top chemical journals and gave more 20 invited lectures at the international conferences. His team maintains on-going collaboration with China, Brazil, India, Russia and several European countries. Several joint co-tutorial theses and projects are currently in progress.