

CV - Prof. Martin K. Patel

Dr. Martin K. Patel is full professor (professeur ordinaire) at the University of Geneva, Switzerland, where he has been holding the Chair for Energy Efficiency since September 2013. His research deals with energy savings and emission reduction in the built environment, industry and at the interface between energy supply and energy demand (most notably including energy storage). Together with his group he performs environmental and economic assessments of technologies, processes, products and services as well as evaluations of policy programmes. The main research methods applied by the group include techno-economic modelling (simulation), Life Cycle Assessment, economic assessment (micro & macro) and policy analysis. Martin Patel and his group have co-ordinated and contributed to numerous national and international projects commissioned by a variety of organisations including national research funds (e.g. SNF), governmental bodies (e.g. SFOE), the European Commission, international organisations (e.g. UNECE, IEA, UNIDO and IRENA) and companies (e.g. SIG or Nestlé). Martin Patel is member of several large research consortia (most importantly SCCER-CREST, SCCER-FEEB&D, SCCER-EIP, SCCER-Storage and SCCER-JASM) and associations (e.g. eceee and swissesco). Until recently, he was responsible for the Environmental Master Programme (Master universitaire en sciences de l'environnement, MUSE; *président Comité MUSE*) at University of Geneva where he also has a number of administrative tasks (*Comité de Direction, Comité Stratégique* etc.).

In the past, Martin Patel studied chemical engineering at the University of Karlsruhe, Germany where he graduated in 1992 (Dipl.-Ing.). From 1993 until mid 2000 he was researcher at the department "Energy Technology and Energy Policy" of the Fraunhofer Institute for Systems and Innovation Research (ISI) in Karlsruhe, Germany. Between 1996 and 1999 he also worked as visiting researcher at Utrecht University, Department of Science, Technology and Society (STS). In 1999, he earned his Ph.D. from Utrecht University, Netherlands, for his thesis titled "Closing Carbon Cycles – Carbon Use for Materials in the Context of Resource Efficiency and Climate Change". Between mid 2000 and early 2001 Martin Patel was with the Department of Energy and Environmental Policy Studies at ECOFYS, Utrecht. From 2001 until 2013, he co-ordinated a research cluster on advanced energy and materials systems at the Copernicus Institute of Sustainable Development at Utrecht University where he was assistant professor and later on associate professor before joining University of Geneva.

1. PERSONAL INFORMATION

University of Geneva, Chair for Energy Efficiency, Faculty of Science
Institute for Environmental Sciences (ISE) and Dpt. F.-A. Forel for environmental and aquatic sciences (DEFSE),
Boulevard Carl-Vogt 66, 1205 Genève, Switzerland
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Google Scholar: 11460 citations, $h = 59$, $i10 = 167$,

<https://scholar.google.com/citations?user=dPPdJgUAAAAJ&hl=en>

Scopus: 6340 citations, $h = 45$, 204 documents,

<https://www.scopus.com/authid/detail.uri?authorId=57196079207>

2. EDUCATION

- 12/1999: Ph.D. thesis on energy & materials – Utrecht University, Netherlands
Title: "Closing Carbon Cycles" (modelling the non-energy use of primary fuels and of product life cycles and the attendant greenhouse gas emissions)
<https://dspace.library.uu.nl/bitstream/handle/1874/733/inhoud.htm;jsessionid=6A1E7BAB40F17BC1E9EFD9813E39FB53?sequence=32>
Supervisors: Prof. W. Turkenburg (Utrecht), Prof. L. Reh, (ETH) Zurich, Prof. Dr.-Ing. E. Jochem, FhG-ISI and CEPE, ETH Zurich; Co-promotor: Dr. E. Worrell, Berkeley, USA
- 11/1992: Dipl.-Ing. Chemical Engineering, University of Karlsruhe, Karlsruhe, Germany

3. EMPLOYMENT HISTORY

09/2013-present: Full Professor (Professeur Ordinaire) - Chair for Energy Efficiency, University of Geneva

- 06/2012-12/2016: Adjunct Associate Professor (part-time) School of Packaging, Center for Packaging Innovation and Sustainability, Michigan State University (MSU), East Lansing, USA
- 01/2012-09/2013: Associate Professor, Copernicus Institute of Sustainable Development, Utrecht Univ., NL
- 03/2001-12/2011: Assistant Professor, Department of Science, Technology and Society (STS), responsible for the cluster "Energy and Materials Demand and Efficiency (EME)", Utrecht Univ., NL
- 09/2000-02/2001: Senior Researcher, ECOFYS, Department Energy & Environmental Policy Studies, Utrecht, NL
- 01/2000-08/2000: Post-Doctoral Fellow, Fraunhofer Institute for Systems and Innovation (FhG-ISI), Energy Studies Unit, Karlsruhe, Germany
- 03/1994-11/1999: Ph.D. Fellow, Fraunhofer Institute for Systems and Innovation (FhG-ISI), Energy Studies Unit, Karlsruhe, Germany
- 03/1993-02/1994: Research assistant at the Fraunhofer Institute for Systems and Innovation Research (FhG-ISI), Energy Studies Unit, Karlsruhe, Germany

4. INSTITUTIONAL RESPONSIBILITIES

General

- Member of the *Comité de Direction*; Advisory group to the directors of the Institute of Environmental Sciences, February 2018 –
- Member of the *Comité stratégique de l'Institut des sciences de l'environnement*
- Member of the *Conseil scientifique sur le Développement Durable at UNIGE*, January 2016 –
- Member of the *Comité de conseil – Portefeuille UNIGE* (advisory group to rector), January 2019 –
- Member of Commission d'attribution instituant deux fonds pour le développement des énergies renouvelables et les économies d'énergie, Office Cantonal de l'Energie, Genève, November 2018 –

Teaching

- President of *Comité MUSE* (Comité of the Master en sciences de l'environnement/MUSE), September 2016 - August 2019
- Representative of Energy track within the *MUSE* (Responsable Thématique Energie), June 2014 - January 2019
- Member of the *Comité Directeur* of the *Certificate of Advanced Studies (CAS) on Energy Management*

Research

- Swiss Competence Centers for Energy Research (SCCER)
 - SCCER-FEEB&D (Future Energy Efficient Buildings & Districts): Depute head of SCCER
 - SCCER-CREST (Comp. Center for Research in Energy, Society & Transition): Exec. Board member
 - SCCER-HaE (Heat and Electricity Storage): Task lead
 - SCCER-EIP (Efficiency of Industrial Processes): Task lead
 - SCCER-JASM (Joint Activity - Scenarios and Modelling): Project member
- SNF/NRP 71 on energy saving tariffs (with Prof. Brosch, UNIGE), 2015-2018: Project co-ordinator
- SNF project "SwissStore" on energy storage (with UNIBA and HSLU), 2017-2021: Project co-ordinator
- SFOE project "GAPxPLORE" on energy performance gap, 2017-2019: Project co-ordinator
- SFOE project "EvalProgEff" on evaluation of en. eff. programs in households), 2017-2019: Project co-ordinator
- Horizon 2020 project Odyssee-MURE, task lead of Odyssee on energy efficiency indicators for CH, 2016-2018 and 2019-2021

5. APPROVED RESEARCH PROJECTS

- Since appointment as Chair for Energy Efficiency at University of Geneva in Sept. 2013, most projects are related to energy efficiency and energy storage: participating in phase 1 & 2 of SCCERs (FEEB&D, CREST, HaE and EIP), two ongoing SNF projects, two ongoing SFOE projects, one ongoing EU project ("Odyssee-MURE"), two ongoing projects funded by the local utility Services Industriels de Genève/SIG, one finalized EU project (Climate-KIC/BioSuccInnovate project)
- Prior to appointment in Geneva, a large share of my projects at University of Utrecht were related to LCA and industrial ecology, next to energy efficiency; among them: Scientific co-ordinator of the EU-funded project "PROSUITE" (Development and application of a standardized methodology for the PROspective SUstainability assessment of TEchnologies, FP 7 Collaborative Project (Large-scale integrating project consisting of 24 partners, 2009-2013)

6. SUPERVISION OF JUNIOR RESEARCHERS AT GRADUATE AND POSTGRADUATE LEVEL

Completed supervision of Ph.D. theses:

1. Ramírez, C.A.: *Monitoring energy efficiency in the food industry*. Utrecht University, September 2005

2. Neelis, M.L.: *Analysis of Energy Use, Energy Savings and CO₂ emissions in the basic chemical and other energy intensive industries*. Utrecht University, June 2008.
3. Ren, T.: *Petrochemicals from Oil, Natural Gas, Coal and Biomass: Energy Use, Economics and Innovation*. Utrecht University, March 2009.
4. Weiss, M.: *Learning carbon accounting and energy efficiency*. Utrecht University, December 2009
5. Oikonomou, V.: *Interactions of White Certificates for energy efficiency and other energy and climate instruments*. University of Groningen, May 2010
6. Hermann, B.G.: *Biomass for materials - potentials for reducing environmental impacts*. Utrecht Univ., Aug. 2010
7. Roes, A.L.: *Ex-ante Life Cycle Engineering: Application to nanotechnology and white biotechnology*. Utrecht University, January 2011
8. Shen, L.: *Bio-based and recycled polymers for cleaner production - An assessment of plastics and fibres*. Utrecht University, March 2011
9. Saygin, D.: *Assessing industrial energy use and CO₂ emissions – Opportunities for energy efficiency, biomass and CCS*. Utrecht University, December 2012
10. Patel, A.D.: *Towards Sustainable Fuels & Chemicals Assessment for the development of biobased production processes*. Utrecht University, August 2014
11. Manda, B.M.K.: *Application of Life Cycle Assessment for Corporate Sustainability - Integrating environmental sustainability in business for value creation*. Utrecht University, December 2014
12. Monkelbaan, J.: *Global Change, Sustainability, Governance: Constructing an integrative framework for steering transitions*. University of Geneva, December 2015
13. Tsiropoulos, I.: *Assessing the implications of advanced bioenergy and biochemicals with bottom-up and top-down modelling approaches*, Utrecht University, October 2016
14. Freyre, A. (born Yushchenko): *Energy programs for buildings – Analysis in the context of the Swiss Energy Transition*, University of Geneva, April 2019
15. Rentería Gámiz, A. G.: *Expanding the knowledge of environmental sustainability in the biopharmaceutical industry: from manufacturing technologies to supply chain*. Ghent University (Belgium) and University of Geneva, May 2019
16. Zuberi, M. Jibrán S.: *Improving energy Efficiency in Swiss industrial sectors – Status, emerging technologies and trends*. University of Geneva, May 2019

Ongoing supervision of members of the Chair for Energy Efficiency at University of Geneva

- Post-doc positions and senior researchers:
Dr. David Parra (since 9/2014), Dr. Selin Yilmaz (since 7/2017), Dr. Jonathan Chambers (since 7/2017), Dr. Kapil Narula (since 2/2018), Dr. M. Jibrán S. Zuberi (since 6/2019)
- Ph.D. students:
Kai Streicher (since 10/2015), Hae-In Cho (since 12/2015), Martin Soini (since 1/2016), Alejandro Pena Bello (since 1/2016), Stefano Cozza (since 6/2017), Ruchi Gupta (since 7/2017), Navdeep Bhadbhade (since 7/2017), Arthur Rinaldi (since 11/2017), Thomas Guibentif (since 4/2019), Xiang Li (since 5/2019), Matthias Reuter (since 8/2015; external Ph.D. student at Fraunhofer Inst. for Systems & Innovation Research, Karlsruhe, Germany)

7. TEACHING ACTIVITIES

Contributions to or co-ordination of the following M.Sc. and B.Sc. courses

- Energies renouvelables et non renouvelables, Ressources naturelles, MUSE Enjeux, Methods for technical and economic energy analysis, Cities in Transition – Energy, Sustainability and Governance in Perspective; in the past: Energy Policy, Chemistry and Sustainable Development, Environmental Life Cycle Assessment, Physique de la Terre II, SPACE Energie,
- Guided and co-guided more than 100 M.Sc. and B.Sc. theses

8. MEMBERSHIPS IN PANELS AND BOARDS, SCIENTIFIC REVIEWING ACTIVITIES

- Membership in Academic and Professional Societies (selection): Member of Advisory Group ProKilowatt, scientific advisory board of AEESuisse, UNECE's "Bureau of the Group of Experts on Energy Efficiency", European Council for an Energy Efficient Economy (ecee), Dechema, Bund der Energieverbraucher e.V., Öko-Institut, Dechema
- Peer reviewer for: Applied Energy, Applied Sciences, Energy, Energy Efficiency, Energy and Buildings, Energy Policy; ecee conference proceedings; Ecological Economics; Bioresource Technology; Biotechnology Reports; Journal of Biobased Materials and Bioenergy; Chimia; Geojournal; Global Change Biology (GCB); Journal of Biotechnology; Environmental Science & Technology; "Int. Journal of Innovation and Sustainable Development, International Journal of Life Cycle Assessment; Journal of Cleaner Production; Journal of Industrial Ecology; Process Safety and Environmental Protection; Resources, Conservation and Recycling; Sustainability, nature communications

Dr. Martin K. Patel, Geneva, February 2020