

CURRICULUM VITAE

Personal Information: Dr. JENŐ HANCSÓK
(Bonyhád, 21.12.1947)

Employment: professor emeritus (2018-), professor (2009-2017), (from 1974 assistant lecturer, adjunct, associate professor), Head of MOL Department of Hydrocarbon- and Coal Processing (2009 -2014)

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MOL Department of Hydrocarbon- and Coal Processing
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Language skills: German (intermediate level state examination, type „C”, translator licence)
Russian (intermediate level state examination „C”)
English

Higher education: Chemical University of Veszprém, chemical engineer, MSc (1972)

Scientific degree: Dr. Techn. (1974), PhD (1997),
Doctor of Hungarian Academy of Sciences (2009)

Professional accreditation: EUR ING (FEANI, Paris, 1996), habilitation (2008)

Experties activities:

Technological expert (from 1989; from 1996 Hungarian Chamber of Engineers),
Accreditation expert (NAT, from 2001-2016),
Expert of standardization (MSZT, from 1991-2022).

Professional training:

- **1972-1974** Chemical University of Veszprém, Scientific Scholarship (Dr. Tech.),
- **1979** BASF AG, Ludwigshafen
- **1983** Continuative Education in Organic and Petroleum Chemistry for Engineers, National University of Oil and Gas (Gubkin University)
- **1994-2019** UNITI Mineralöltechnologie-Forum/UNITI Mineral Oil Technology Congress, Hohenheim/Stuttgart, Germany, (3-3 days/year)
- **1985-2019**
 - Participation on training of international companies:**
 - 1985: UOP (USA) Company Technology Seminar
 - 1991: "SHELL Lubricants Technical Seminar"
 - 1992: "SHELL Additives Seminar-92"
 - 1995: "FUEL TRENDS 1995", Lubrizol
 - 1996: "AUTOTRENDS'96", EXXON Chemicals
 - 1998: "Clariant (Höchst-Sandoz)" Technical Seminar
 - 2000: "Fuel Additives" Lubrizol Seminar on Additives
 - 2002: "Fuel Additives" BASF Seminar on Fuel Additives
 - 2006: Infineum Trends Seminar
 - 2015: Infineum Trends Seminar
 - 2016: Infineum Trends Seminar
 - 2017: Pre-seminar NESTE- „Sustainability Mobility impacting future Fuels & Lubricants”
 - 2018: Pre-seminar Infineum Trends 2018
 - 2019: Pre-seminar NESTE – „Join us on the road to sustainability 2019”
- **from 1975** Scientific trips:
 - Weimar, Harkov, Burgas, Varna, Merseburg, Saint Petersburg, Vienna, Bratislava, Gliwice, Prague, Moscow, Stuttgart, Yonago, Tokyo, Trondheim, Washington D.C., Beijing, Esslingen

- **from 1991** Scientific trips in the frame of cooperation with companies:
 - from 1991 BASF, Ludwigshafen, (7 times)
 - from 1996 Süd-Chemie, München (3 times)
 - 1998: Chevron-Oronite, Le Havre Paris

- **1995** "Planning of Chemical Plants" OLAJTERV (Contracting and Engineering Company Ltd.) Seminar

- **1978-2019** Member of scientific committees, chairman, lecturer of 127 international conferences
Member of scientific committees, chairman, lecturer of 40 Hungarian conferences

Educational activities:

from 1972 initially lecturer in seminars and laboratories; supervisor of diplomas in the field of hydrocarbon processing

from 1992 previous plus lecturer at advanced engineer training and professional engineer training; supervisor of design projects (4-8 people from 2001)

Main gradual education fields (lesson plans/course sheets in Hungarian and English):
until 2011

- Chemical engineer university degree: 6 courses
- Chemical engineer high school degree: 4 courses
- Supervising of design projects

From 2008:

- Chemical engineer BSC: 6 courses
- Chemical engineer MSC: 4 courses
- Supervising of design projects and thesis

Number of theses under my supervising: 121

Number of design projects under my supervising on the 5 year training: 16 (76)

Number of design projects under my supervising on the 3 year training: 4 (13)

Number of theses on engineering: 5

Number of theses on the 3 year training: 28

Number of scientific student works under my supervising: 34

Prizes (I, III) on the national scientific student conferences: 10

Doctorial School of Chemical Engineering- and Material Sciences (working out of syllabuses for lectures on Hungarian and English language):

Main Subject: Modern crude oil- and petrochemical processes (6 credits)

Minor Subject: Modern engine- and jet engine fuels (4 credits)

Catalytic processes in the hydrocarbon industry (4 credits)

Successfully defended PhD theses under my supervising: 20

Received absolutories over the abovementioned: 2

Number of current PhD students 1

Invited Professor: Budapest University of Technology and Economics; University of West Hungary, Sopron; Széchenyi University, Győr

Research area:

- *hydrophobicizing and anti-adhesive compositions of solid fertilizers*,
results: patent, industrial utilization, plant modernization, exportable products
- production and utilization of environmental friendly, sulphur- and nitrogen free, high isoparaffin containing (high hydrogen content) *gasoline blending components* having reduced aromatic content, high octane number (from conventional and alternative sources),
results: contribution to the modernization of the light gasoline isomerization plant in the Danube Refinery, development of a new catalytic system, production of „iso-gasoline” from alternative sources (EU patent), Hungarian patent for the production of isoparaffins, commercialization of gasolines containing bioalcohols and those derivatives, Dissertation of Hungarian Academy of Sciences, PhD theses, diploma theses, the Annual Scientific Student Associations' Conference (TDK, institutional level) and National Scientific Students' Associations Conference (OTDK, country-level) theses, scientific articles, etc.
- production and utilization of environmental friendly, sulphur- and nitrogen free, high iso- and alkyl-cycloparaffin containing (high hydrogen content) *JET fuels* with very low freezing point and reduced aromatic content (from conventional and alternative sources),
results: development of new catalytic systems, PhD theses, diploma theses, The Annual Scientific Student Associations' Conference (TDK, institutional level) and National Scientific Students' Associations Conference (OTDK, country-level) theses, research articles, etc.
- production of environmental friendly, sulphur- and nitrogen free, high iso- and alkyl-cycloparaffin containing *diesel fuel blending components* with reduced aromatic content and high cetane number;
results: plant modernization in Danube Refinery for the production of diesel fuels

having sulphur content < 10 mg/kg, development of new catalytic systems, development of alternative components containing diesel fuels, EU patent application, accepted Hungarian patent, Academic Doctoral Dissertation, PhD theses, diploma theses, The Annual Scientific Student Associations' Conference (TDK, institutional level) and National Scientific Students' Associations Conference (OTDK, country-level) theses, scientific articles, etc.

- production and utilization of *alternative fuels* (especially biomass and waste-based ones, including the Fischer-Tropsch fuels);
results: plant implementation based on a granted Hungarian patent and ongoing EU patent, Academic Doctoral Dissertation, PhD theses, diploma theses, The Annual Scientific Student Associations' Conference (TDK, institutional level) and National Scientific Students' Associations Conference (OTDK, country-level) theses, scientific articles, etc. (see also in gasoline and diesel fuel section)
- catalytic production and utilization of *base oils from crude oil and alternative sources* (including Fischer-Tropsch base oils);
results: PhD and diploma theses, scientific articles, contribution to patent application (see in additives and lube oil sections)
- *production and utilization of other crude oil based products with reduced aromatic content* (solvents, white oils, pyrolysis feedstock etc.)
results: PhD and diploma theses, scientific articles, etc.
- *additives for petroleum industry*, synthesis and investigation of detergent-dispersant additives for fuels and lube oils;
results: (>10 Hungarian, European and World patents, implementation of two green-field plants, modernization of product blending units, development of ash-free detergent-dispersant additive family for fuels and lube oils, for cleaning of chemical industry equipments, for explosives, high performance motor oil compositions / motor oils (commercial products, significant export), PhD and diploma theses, scientific articles, etc.
- *catalyst development*; analytical and technological tests for petroleum industry and petrochemistry;
results: Hungarian patents, PhD and diploma theses, scientific articles, etc.
- *investigation of interaction between reformulated fuels and modern engine oils*
results: patents, PhD and diploma theses, scientific articles, commercial products, etc.

Research leadership experience:

Activity in tenders (from 2001)

VIKKK (University of Pannonia, Cooperating Research Center at Institute of Chemical- and Process Engineering) 2001-2012: Support of the fuel research topic (modern gasolines, diesel fuels, alternative fuels): **33.16 million HUF/year**. (Total: ca. **398 million HUF**); for establish a new reactor system and experimental hall: **88 million HUF**.

Jedlik Ányos Program: „*Developing of production conditions of new generation biofuels (especially vegetable oil based) and organization of its use for environmental*

protection purposes” (2005-2007). Support of my topic: **16 million HUF** (Members of consortium: 4 universities, 2 colleges and 2 research institutes.)

Jedlik Ányos Program: „*Development of new generation biofuels (especially bio gas oils)*” (2006-2009). Support of my topic: **165 million HUF** (Leader of consortium: MOL Plc.; members: PE, OLAJTERV, KITE, FVM Gödöllő, VRIC).

TÁMOP 4.2.1/B „*Mobility and Environment: Research in the field of vehicle industry, energy and environment in Middle- and West-Pannonia – PE. 4. Main research area – Contribution (targeted base researches) to the development of environmental friendly fuels with high energy content of internal combustional engines*” (2010-2012). Financial support ca. **450 million HUF**.

TÁMOP-4.2.2/B „*Supporting the scientific education on the University of Pannonia*” (2010 september – 2013 june) Doctorial School of Chemical Engineering- and Material Sciences, Biofuels, ca. **5 million HUF**.

TÁMOP 4.2.2/A „*From the properties of the material to the use – foundational research for using natural feedstocks and wastes*” „*Research related to the chemical processing of plastic waste*” (2013 february -2015 may). Financial support ca. **24 million HUF**.

TÁMOP-4.1.1.C-12/1/KONV-2012-0002 "*Higher education and research cooperation in the automotive industry*", ca. **2.9 million HUF**

TÁMOP-4.1.1.C-12/1/KONV-2012-0017 "*Green Energy - Higher education sectoral cooperation for the development of the green economy in the field of energy*" project, subproject leader (Biomass to Energy) financial support: **ca. 8.9 million HUF**

GINOP 2.3.2.-15 II. circle (Excellence of strategic workplaces) winner tender with my leadership „*Liquid fuels with high hydrogen content in their molecular structure (contributions to sustainable mobility)*”, NKFI (Bureau of National Research, Development and Innovation) judgement: **662.218.594.- HUF** not for refund (100% support intensity). (Participants: PE Engineering Department; subcontractor: Hungarian Academy of Sciences, Natural Science Research Center). **(2017-2022)**

GINOP 2.3.3.-15 II. circle (Strengthening of the research infrastructure) winner tender with my leadership „*Upgrade/Expansion of hydrocarbon research and development laboratory with microreactor system*” **460.360.392.- HUF** financial support. **(2017-2021)**

Financial support for textbooks („*Modern Engine and JET fuels, in 3 volumes*”) from the Ministry of Education and from the Financial tender of High Education Library: **1.667 thousand HUF. (1997-2003)**

The value of research and development activities carried out with my leadership and participation for various chemical companies (1973-2009): approx. HUF 3 billion (10⁹) net present value.

The value of research and development activities carried out with my leadership and participation for various chemical companies (2010-2017): approx. HUF 358 million net present value.

Research reports and expert opinions:

More than 280 in the professional fields of above-mentioned

Inventor activities:

inventor in 22 Hungarian, European and World patents, what were partly (11) introduced in the industry

Industrial results of patent and scientific activity:

- 1 new chemical fertilizer surface treater plant unit – participant (It was operated based on our patent for more than 20 years; high amount of product export)
- 2 new additive producer plants – (high amount of product export) participant in process design and implementation
- transformation of catalytic system for 2 plants (significant increase in product value)
- modernization of 2 lube oil blending plants (significant increase in product value, export possibilities)
- 2 pilot plant applications (2010)
- modification/modernization of an existing gas oil hydrotreating plant (capacity ca. $2 \cdot 10^6$ t/year) to produce diesel fuel with alternative components from waste sources (2019)

Publications:

983 Hungarian and international scientific papers and presentations

6 books

1 professional book on English (50%)

4 professional books (with co-authors)

3 chapters in Kirk-Othmer Encyclopedia of Chemical Technology

3 monography

>40 education work-helps.

Textbooks:

„Modern Fuels of Engines and Turbines”

I. Engine Gasolines (1997); ISBN 963 7332 74 X

II. Diesel Fuels (1999); ISBN 963 9220 27 2

III. Alternative Fuels (2004); ISBN 963 9495 33 6

„Modern Fuels of Engines and Turbines: I. Engine Gasolines”, 2014;
updated and expanded edition, 543 pages, ISBN 978-963-396-009-7

„Alternatív Fuels”, e-book, Editor and Co-author: Hancsók Jenő, 2015, 257
pages;

„Modern Fuels of Engines and Turbines: II. Diesel Fuels”, Veszprém, 2016;
updated and expanded edition, 654 pages, ISBN 978-963-396-041-7

„Modern Fuels of Engines and Turbines: III/A. Alternative Fuels,
Veszprém, 2022; updated and expanded edition, 676 pages, ISBN 978-963-
396-250-3

Encyclopedia chapters

„Diesel Fuels for Compression Ignition Internal Combustion Engines”,
in „Kirk-Othmer Encyclopedia of Chemical Technology”, John Wiley and
Sons, Inc., Hoboken, New Jersey, 2016, DOI: 10.1002/0471238961
.koe00014, pp.35

„Gasoline Fuels for Spark Internal Combustion Engines”, ”, in „Kirk-
Othmer Encyclopedia of Chemical Technology”, John Wiley and Sons, Inc.,
Hoboken, New Jersey, 2016, DOI: 10.1002/0471238961.
0701191508150308.a01.pub3, pp. 62

„Fuels for Internal Combustion Engines”, in „Kirk-Othmer Encyclopedia
of Chemical Technology”, John Wiley and Sons, Inc., Hoboken, New
Jersey, 2016, DOI: 10.1002/0471238961.koe00016, pp. 21

Professional books (with co-authors):

Book of „Fuels and their applications” (in Hungarian), TRIBOTECHNIK Kft, TEXT-PRINT Kft Press, Budapest, 1998, ISBN 963 04 8413 7

Chapter: „Fuels” in the book of „ Vehicle tribology” (in Hungarian), TRIBOTECHNIK Kft, POLYNEC Kft. Press, Budapest, 2003, ISBN 9630086921

Chapter: „Lubricants” in the book of „Lubricants and their tests” (in Hungarian) (2003) ISBN 9630086891

Book of „Mobility and Environment” (in Hungarian), Pannon University Press, Veszprém, 2008, ISBN 978-963 9696-50-1

„Fuels and Fuel-Additives” (50%), John Wiley & Sons, Inc., Hoboken, New Jersey, (ISBN: 978-0-470-90186-1), 376 pages (2014)

Professional book chapters (with co-authors): 7

Scientometric data:

Impact factor: 319,847

Independent citations: 2821

Every citation: 5132

Number of patents: 23

industrially realized: 11

Supervising of professional books:

1. Szota, Gy., Valasek, I.: „Tribology 1. Basics of tribology”, (in Hungarian) **2002**, Tribotechnik Kft., Budapest, (ISBN 963 00 8688 3),
2. Speight, G., J.: „Handbook of Industrial Hydrocarbon Processes”, 2nd edition, **2016**, Oxford : Gulf Professional, New York

Professional-public activities:

Scientific journals:

Editorial committee member:

- MOL Professional Journal (earlier: MOL Scientific Magazine, MOL Szakmai Tudományos Közlemények): 1998-2016
- Hungarian Chemical Journal: 2004-
- Hungarian Journal of Industrial Chemistry: 2015-
- Invited professional reviewer: 31 international scientific journals (>160 scientific papers)

Scientific conferences:

- Conference organization: Hungarian and foreign conferences
- Scientific committee board member of Hungarian and foreign conferences
- Section chair in Hungarian and foreign conferences

Elected/invited institutional positions:

- University Council and Board of University Council (elected) (1979-81)
- Pedagogical Committee (1993-2008)
- Founding leader of MOL Department of Hydrocarbon and Coal Processing (2009-2014)
- Professorial Plenum member of University of Pannonia

Scientific organization/plenum/association/board activity:

- Chairman of Hungarian Chemical Society in Veszprém County (2007-2015)
- the Hungarian Chamber of Engineers, Division of Chemical Engineering, Qualificatory Board (1997-2005), Management Board (2005-2022),
- Secretary (1998-2014) and Chairman (2014-) of Catalysis Working Committee of Academic Committee in Veszprém of Hungarian Academy of Sciences (VEAB)

Member of:

- the Public Board of the Hungarian Academy of Sciences (HAS) (1998-),
- the Scientific Committee of Technical Chemistry (HAS) (2011-),
- the HAS Board of Chemical Technology and Environmental Protection and its predecessors, Hungarian Academy of Sciences (1999-),
- the Scientific Committee of Surface Science and Catalysis (HAS) and its predecessors (1999-),
- the American Chemical Society (1998-2020),
- Hungarian National Board of World Petroleum Council (2012-2021)
- the Hungarian Chamber of Engineers and its predecessors (1996-)
- the Hungarian Standards Institution, Technical Board of Petroleum Products and Lubricants, Industrial Gases and Energy Carriers of the Agriculture Sector as well as Industrial Materials, (1991-2021),
- the Hungarian Chemical Society and its section of Petroleum and Petrochemistry (1978-)
- the Association of Hungarian Inventors, (2002-),
- the Hungarian Biomass Association, (2003-),
- the Hungarian Machine Industry Scientific Association (2000-)
- the Working Board of Petroleum and Gas Industry of Veszprem Regional Committee, (HAS)
- Doctorial School of Chemical Engineering- and Material Sciences, University of Pannonia (2010-) (core member),
- Technical Habilitation Board, University of Pannonia (2010-),

Activity in foundations:

- Chairman of Varga József Award Board (2011-)
- Member of Varga József Award Scientific Board (2011-)
- Member of the Advisory Board of Scientific Award of MOL Plc.(2000-2018)
- Member of the Board of Foundation for Chemists in Veszprém (2010-)

Academic, Ph.D. and professional engineering theses reviewers and board activities:

Reviewer: 13

Board membership: 17

Scientific proofreader activity

International projects: 8

National projects: 14

Professional awards:

- 1979 **"Outstanding Inventor Award"**, silver medal. (Presenters: Minister of Education, Agency of Invention and President of National Council of Trade Union) ("for successful inventive activity")
- 1994 **Acknowledgement of significant and succesful innovation** (MOL Plc; Komáromi Kőolajipari Vállalat and University of Veszprém: Department of Hydrocarbon and Coal Processing; II. Hungarian Innovation Grand-Prix) "Development and production of ash-free detergent-dispersant additives to be used in engine oils" (Minister of Trade, Presindent of OMFB, Presindent of the Advisory Board of Hungarian Foundation for Innovation) (with co-authors)
- 1996 **Quality Award**, for the paper published in MOL Scientific Papers (Szakmai Tudományos Közlemények): „Pathway to SH performance engine oils” (with co-authors) (MOL Plc)
- 1997 **First prize in the competition called „Celebrating the ninety years of Hungarian lubricant production"**, „Development of the family of succinimid additives” (with co-authors) (MOL Plc)
- 1999 **Innovation Award of Environmental Protection**, (MOL Plc.) „Production of environmentally friendly fuels”, VIII. Hungarian Innovation Grand-Prix (with co-authors; founding participant as the head of thematic research at the University of Veszprém), (benzene free light gasoline fractions, increase the efficiency of sulphur removal from diesel fuels (ca. 1000 t sulphur/year, lower emission)
- 1999 **Professorship of Széchenyi Scholarship** (1999-2002)

- 2000 **Quality Award:** for the paper published in MOL Scientific Papers: „Benzene saturating isomerization over platinum /zeolite catalyst” (with co-authors) (MOL Plc)
- 2001 **József Varga Award** (Hungarian Academy of Sciences)
- 2004 **MOL Scientific Award** (The day of Hungarian Knowledge, MOL Plc., Hungarian Academy of Sciences), for development of modern and environmentally friendly fuels (MOL Tempo 91, 91K, 95, 98, 99 EVO; MOL Tempo Diesel)
- 2008 **MOL Scientific Award** (The day of Hungarian Knowledge, MOL Plc., Hungarian Academy of Sciences) for investigation targeted to introduction of bioethanol containing gasoline E5 in Hungary
- 2009 **Prima Award in Hungarian Science Category** (from Board of Veszprém County’s Prima Award) “For the internationally recognized, high added value research, development and innovation activity of modern, traditional and/or alternative motor fuels and their additives”
- 2011 **Méray László Award** (University of Pannonia; for innovation and development of the university, for the high results for the university, what adverse the good fame of the university)
- 2014 **Insigni Honoris Auero Pro Universitate Pannonica** (Gold medal for outstanding education and research activities for the University.)
- 2015 **Polinszky Award** (General Assembly of Veszprém City) technical, scientific and economic fields in Veszprém, recognition of a person who has achieved outstanding merits and his work. "In recognition of his outstanding, team-building work in the field of research and development, as well as his exemplary activity aimed at the moral and professional education of new generations"
- 2016 **Honour of Hungarian Office Order** (President of Hungary) award in recognition of his internationally renowned research work in the field of technologies and processes of the hydrocarbon industry, which also takes into account the requirements of sustainable development, as well as his outstanding results in talent management and doctoral training, as well as his significant publication and professional public life activities.

- 2018 **MOL Downstream Award** (Given by Senior Vice President of MOL Hungary Downstream; for outstanding university teaching and new value-creating, research-development and innovation activities)
- 2018 **Academid Patent Award** (Given by Hungarian Academic of Sciences and Hungarian Intellectual Property Office) "For his internationally recognized achievements in the research and development of modern fuels for internal combustion engines from traditional and alternative sources, used in the chemical industry and creating new values".
- 2019 **Wartha Vince Medallion** (Given by Hungarian Chemical Society for prominent technical creation)
- 2019 **Gold Medal for Teaching Excellence** (Given by National Council of Student Research Societies) "supporting activities for scientific student work, outstanding work as a supervisor and scientific organizer."
- 2021 **Environmental Innovation Award 2020** (MOL Plc.; 29th Hungarian Innovation Grand Prix) "Co-Processing – Co-transformation of biological and fossil raw materials into diesel fuel" (with co-authors; as the head of thematic research at the University of Pannonia)
- 2022 **Béla Péceli Award** (lifetime achievement award; the Hungarian Chamber of Engineers, Division of Chemical Engineering; for outstanding engineering creative activity; higher education and further training of engineers at a high level; significantly contributed to the development and dissemination of technical knowledge)

Veszprém, 09 July, 2024

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Prof. Dr. Jenő Hancsók