

November 2011

CURRICULUM VITAE
Leonid TARTAKOVSKY, D. Sc

PERSONAL

Date of birth: 10.08.1958
Place of birth: USSR
Marital status: married + 2
Present address: Pinhas Rozen St. 13/4, Haifa, Israel
Phone: + 972-4-8292077 (office) +972-4-8254982 (home)
Fax: +972-4-8295711
E-Mail: tartak@technion.ac.il

ACADEMIC DEGREES

1975 - 1980 M.Sc. *with distinction* in Mechanical Engineering, Moscow
Automotive Mechanical Institute, USSR.
Specialization: Internal Combustion Engines

1980 - 1983 D.Sc in Mechanical Engineering,
Central Automobile and Automotive Engines Research Institute
(NAMI), Moscow, USSR (date of D.Sc confirmation – 1986).
Specialization: Thermal Engines

CURRENT APPOINTMENT

1996 - present *Chief Engineer Internal Combustion Engines Laboratory, Center of
Energy and Environmental Engineering, Faculty of Mechanical
Engineering, Technion - Israel Institute of Technology, Haifa, Israel*

ACADEMIC APPOINTMENTS

2002 - present *Adjunct Senior Lecturer, Faculty of Mechanical Engineering,
Technion - Israel Institute of Technology, Haifa, Israel*

Aug-Oct 2003 *Visiting scientist, Environmental Studies & Testing Laboratory,
TNO Automotive, TNO – Netherlands Organization for Applied
Scientific Research, Delft, the Netherlands*

1992 - 1996 *Research Fellow, Center of Energy and Environmental Engineering,
Faculty of Mechanical Engineering, Technion - Israel Institute of
Technology, Haifa, Israel*

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- 1987 - 1991 *Head of the Engine Research Laboratory, Department of Engines and Vehicle Emissions, Research Center for Testing and Refining of Motor Vehicles, Moscow, USSR.*
- 1983 - 1987 *Research Fellow, Department of Engines and Vehicle Emissions, Research Center for Testing and Refining of Motor Vehicles, Moscow, USSR.*
- 1982 - 1983 *Junior Research Fellow, Department of automotive engines, Central Automobile and Automotive Engines Research Institute (NAMI), Moscow, USSR.*

RESEARCH INTERESTS

Internal combustion engines for UAV
Advanced propulsion systems
Energy and environmental impacts of vehicles
Alternative fuels
Turbocharging of diesel engines
Environmental friendly vehicles
Fuel effects on emissions
Diesel exhaust aftertreatment
Remote sensing of vehicle emissions
Fuel by gas saturation

TEACHING EXPERIENCE

1. Internal Combustion Engines (undergraduate)
2. Internal Combustion Engines Laboratory (undergraduate)
3. Advanced Energy Laboratory (undergraduate)
4. Internal Combustion Engine Fundamentals (graduate) – newly developed course
5. Supervision of senior student projects in the fields of internal combustion engines, cogeneration energy systems, mechatronics (undergraduate)

New courses and programs (*at various stages of approval*)

1. Interdisciplinary Master of Engineering Program in Automotive Systems Engineering (jointly with Prof. Shmulevich and Prof. Shapiro)
2. Advanced Automotive Propulsion Systems – graduate (in consideration at the ME Faculty, jointly with Prof. Shapiro)

3. Control of Vehicle Emissions – graduate (in consideration at the ME Faculty, jointly with Prof. Shapiro)
4. Laboratory on Advanced Propulsion Systems – graduate (in consideration at the ME Faculty, jointly with Prof. Shapiro)

Invited lectures

1. Problems of particulate emissions reduction, Israeli Petroleum Institute (today Israeli Institute of Energy and Environment, Tel Aviv, May 1997
2. Diesel engines for diesel-generators, Ministry of Environment, Hafets Haim, Israel, October 2000
3. Analysis of results of emissions roadworthiness tests, Ministry of Environment, Maale Ha'Chamisha, Israel, January 2002
4. Assessment of emissions by motor vehicles using remote sensing technology, Technical University Biel, Switzerland, March 2002
5. Challenges of Sustainable Transport: Providing Mobility while Conserving Energy and Environment (coauthored with Michel Parent and Yoram Zvirin), Technical University Biel, Switzerland, April 2009
6. Internal combustion engines for combat vehicles, Course of Lectures, Israeli Ministry of Defense, Tel-Aviv August 2010
7. Motor vehicles fueled by natural gas – a potential of use in Israel, Course of Lectures organized by Israeli Ministry of National Infrastructures, Tel-Aviv, December 2010.
8. Natural gas as automotive fuel – a potential of use in Israel, Course of Lectures organized by Israeli Institute of Energy and Environment, Tel-Aviv, April 2011.
9. Natural gas for transportation – technologies and environmental impacts, International Workshop on Natural Gas as a Feedstock for the Production of Oil Replacement for Transportation. Tel-Aviv University, June 2011.

PUBLIC PROFESSIONAL ACTIVITIES

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| 2001 | Israeli representative at the EU PREMTECH (Advanced propulsion systems and emission reduction technologies) final dissemination event. Appointed by Ministry of Transportation |
| 2002 - 2005 | Member (Israeli representative), EU COST 346 Action "Emissions and Fuel Consumption from Heavy Duty Vehicles" Management Committee, Appointed by the Ministry of Science |
| 2003 – present | Member, National Steering Committee on Automotive Engineering, Israeli Engineers Chamber |

Leonid TARTAKOVSKY

2010 – present Member (Technion representative), Technical Committee 1317 on Electric Vehicle, the Standards Institution of Israel

Reviewer:

UNEP (United Nations Environmental Programme)
Intergovernmental Panel on Climate Change (IPCC)

MEMBERSHIP IN PROFESSIONAL SOCIETIES

SAE – International Society of Automotive Engineers

ISEEQS – Israel Society for Ecology and Environmental Quality Sciences

HONORS

2007-2010: Marquis Who's Who in the World, Citation

2008-2009: Marquis Who's Who in Science and Engineering, Citation

1998: Best research in Environmental Sciences. Awarded by the Israeli Ministry of Environment and published in a Special Jubilee edition of selected studies (together with Y. Zvirin, M. Gutman, E. Golgotiu, Y. Aleinikov) – see report 25

GRADUATE STUDENTS

M.Sc. students

Completed theses:

1. Nir Tsabar (primary supervisor Prof. Y Zvirin), "Oxygen enrichment of intake air for improving the performance of internal combustion engines and reducing the emission of pollutants", 2002.
2. Shai Bengio (primary supervisor Prof. Y Zvirin), "Remote sensing of emissions by diesel engine vehicles", 2010.
3. Ilia Shir (primary supervisor Prof. Y Zvirin), "Remote sensing of emissions from vehicles with spark ignition engines", 2010.

Theses in progress:

4. Yuri Shukhman (primary supervisor Prof. Y Zvirin), "Study of internal combustion engine's sensitivity to ambient conditions", started from 2009.
5. Jonathan Tenenbaum (primary supervisor Prof. M Shapiro), "Formulation of improved dynamic model of fuel injection in DI diesel engine" (BRAKIM student – a special B.Sc & M.Sc program for distinguished students), expected graduation – 2011.

6. Or Sezana (primary supervisor Prof. M Shapiro), "Complex energetic analysis of the reformer – SI engine integrated system operating with products of ethanol steam reforming" (BRAKIM student – a special B.Sc & M.Sc program for distinguished students), started from 2011. In process of topic formulation.

M. E. projects supervision

1. Doron Popescu, Project "Study of fuel-by-air saturation effects on its atomization", started in 2009.
2. Tamir Shemesh, "Thermodynamic analysis of internal combustion engine fed by ethanol decomposition products", started in 2009.
3. Victor Kislovsky, "Operation of SI engine with products of methanol steam reforming", started in 2010.

Graduate Students' supervision as a consultant

1. Gil Golan, *M. Sc.*: "Experimental and theoretical investigation of temperature and stress fields in internal combustion engines", 1997 primary supervisor Prof. Y Zvirin
2. Essam Totari, *M. Sc.*: "Measurement of particulates emission from diesel engine by dilution tunnel", Jointly with Dr. M. Gutman, 1998 primary supervisor Prof. Y Zvirin
3. Yitshak Harpaz, *M. Sc.*: "Introduction of methanol into the intake air of diesel engine for combustion improvement", Jointly with Dr. M. Gutman, 1998. primary supervisor Prof. Y Zvirin
4. Ami Oz, *M. E.*: "Determination of representative driving cycles of urban buses in Israel", 2001. primary supervisor Prof. Y Zvirin
5. Avner Flor, *M. Sc.*: "Use of gas as alternative fuel for vehicles in Israel", Jointly with Prof. J. Dayan and Dr. M. Gutman, 2003. primary supervisor Prof. Y Zvirin
6. Alon Davidi, *PhD.*: "Theoretical and experimental study of remote sensing for measuring emission of pollutants", 2004. primary supervisor Prof. Y Zvirin

RESEARCH GRANTS (Last 10 years)

- 2000-2003: Senior Investigator. Study of detergent additives for diesel fuel. \$70,000, Sponsored by the Israeli Ministries of National Infrastructures, Transport, Defense and Environment, Railway Division of the Israeli Port and Train Authority, the Israeli Transportation Corps. ("Egged" and "Dan"), "Volvo", and "Delek" Oil Co. PIs: Y. Zvirin, M. Gutman.
- 2000-2001: Senior Investigator. Design of road tests with gas powered light vehicles. \$ 10,000 sponsored by "Dorgas". PIs: Y. Zvirin, M. Gutman.

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- 2000-2005: Senior Investigator. Assessment of road transport emissions and inventory systems (ARTEMIS). 143,000 Eu, sponsored by the European Commission (EC). This research project is part of a big programme, carried out by a consortium coordinated by Dr. J. Hickman and Dr. I. McRae, Transportation Research Laboratory (TRL), UK. Our participation is in the work-package: Assessment of Emissions by Heavy-Duty Vehicles(WP400), coordinated by Dr. S. Hausberger, Technical University Graz (Austria). WP400 budget is ~2 MEu, and partners include TUV (Germany), VITO (Belgium), INRETS and RATP (France), TNO (the Netherlands), AVL (Austria), EMPA (Switzerland), IVL (Sweden), KTI (Hungary), and others. PI: Y. Zvirin.
- 2000-2001: Co-Principal Investigator (with Y. Zvirin). Assessment of emission factors of two-wheeled vehicles in Israel. \$ 20,000, sponsored by the Israeli Ministry of Environment.
- 2000-2001: Senior Investigator Development of a strategy for removal of lead from gasoline in Israel. \$ 14,000, Sponsored by the Israeli Ministry of National Infrastructures (Fuel Authority). PIs: Y. Zvirin, M. Gutman.
- 2000-2001: Co-Principal Investigator (with Y. Zvirin).. Feasibility study of propulsion of zero emission vehicles by zinc-air batteries and by fuel cells. \$20,000, sponsored by the Israel Electric Corp., Ltd.
- 2000-2004: Co-Principal Investigator (with Y. Zvirin).. Reduction of pollutants emissions from diesel bus engines by using oxidation catalysts and particulate traps. \$65,000, sponsored by the Israeli Ministry of Environment, with the cooperation of "Egged". Israel Transportation Corp.).
- 2001-2003: Senior Investigator. Development of test procedures for diesel engine smoke measurements. \$46,000, sponsored by the Israeli Ministry of Transportation. PIs: Y. Zvirin,. M. Gutman.
- 2001-2002: Co-Principal Investigator (with Y. Zvirin).. Development of a standard draft for enforcement of hydrocarbon emissions from gasoline vehicles. \$ 14,000, sponsored by the Israeli Ministry of Environment.
- 2001-2004: Co-Principal Investigator (with Y. Zvirin). Assessment of emission factors of diesel trucks in Israel. \$ 44,000, sponsored by the Israeli Ministry of Environment.
- 2001-2003: Senior Investigator. Cybernetic cars for a new transportation system in the cities (CyberCars). 129,000 Eu, sponsored by the IST Programme of the European Commission (EC). This research project is part of a big programme, carried out by a consortium coordinated by Dr. M. Parent, INRIA (France), (the proposal was coordinated by Parent and Zvirin). Our participation is mainly in the work-packages related to Energy and Environment. CyberCars budget is 5.07 MEu, and partners include Fiat Research Center and University of Rome (Italy), Robosoft and EDF (France), TNO and Frog (the

Netherlands), Ruf (Denmark), SSA, GEA and Autos & Energy (Switzerland), Universities of Bristol and of Southampton, (UK), University of Coimbra (Portugal), and participation of several European cities. PI: Y Zvirin

- 2001-2003: Senior Investigator. Cybernetic Transportation Systems for the Cities of Tomorrow (CyberMove). 181,000 Eu, sponsored by the EESD – City of Tomorrow Programme of the European Commission (EC). This research project is part of a big program, carried out by the same consortium of CyberCars, coordinated by Dr. M. Parent, INRIA (France), (the proposal was coordinated by Parent and Zvirin). Our participation is mainly in the work-packages related to Field Experimentations, Energy, Environment and economic analyses. CyberMove budget is 4.08 MEu. PI: Y Zvirin
- 2001-2002: Senior Investigator. Study of diesel particulates trapping and oxidation on novel fibrous cloth catalysts. DM 200,000, sponsored by the Niedersachsen Ministry of Education and Science. PIs Y. Zvirin, M. Sheintuch, and Prof. K. Leschonski, Environmental Research CUTEC Institute, Germany.
- 2002-2003: Co-Principal Investigator (with Y. Zvirin). Reduction of pollutants emission by off-road vehicles in airports. \$18,000, sponsored by the Israeli Airports Authority.
- 2002-2003: Senior Investigator. Study of the performance of low sulfur diesel fuel. \$8,000, sponsored by the Israeli Oil Refineries. PIs Y. Zvirin, M. Gutman
- 2003-2004: Senior Investigator. Effect of diesel fuel additives on engine performance. \$21,000, sponsored by the Delek Israeli Oil Co. PIs Y. Zvirin, M. Gutman.
- 2003-2006: Senior Investigator. Effectiveness and intactness of catalytic converters for gasoline vehicles. \$45,000, sponsored by the Israeli Ministry of Environment. PIs Y. Zvirin, M. Gutman.
- 2004-2006: Co-Principal Investigator (with Y. Zvirin). Exposure of drivers and transportation users to air pollution inside vehicles at driving conditions typical to Haifa. \$40,000, sponsored by the Haifa Region Association of Cities for the Environment.
- 2005: Co-Principal Investigator (with Y. Zvirin). Study of exhaust temperature distribution in real-world driving of urban buses in Tel-Aviv. \$6,000, sponsored by the DAN Transportation Co.
- 2005-2008: Senior Investigator. Simulation of diesel particulate traps operation. \$36,000, sponsored by the Israeli Ministry of Environment. PIs Y. Zvirin and B. Aronov.
- 2005-2006: Co-Principal Investigator (with Y. Zvirin). Road tests of garbage trucks retrofitted by aftertreatment systems in Petach-Tikva. \$26,000, sponsored by the Israeli Ministry of Environment and the Municipality of Petach-Tikva.

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- 2005-2006: Senior Investigator. Analysis of military diesel engine failure and development of a strategy for failure prevention. \$26,000, sponsored by the Israeli Ministry of Defense. PI Y. Zvirin.
- 2005-2006: Co-Principal Investigator (with Y. Zvirin). Analysis of heat transfer in the cooling jacket of a two-stroke SI UAV engine. \$16,000, sponsored by the Israeli Ministry of Defense.
- 2005-2006: Co-Principal Investigator (with Y. Zvirin). Road tests and performance analysis of Phileas hybrid bus. \$60,000, sponsored by the Yaffe Nof Transport Planning
- 2005-2006: Co-Principal Investigator (with Y. Zvirin). Assessment of the effects of CMR surface treatment on diesel engine performance. \$23,000, sponsored by the FRICSO Ltd.
- 2005-2006: Senior Investigator. Assessment of implementation issues of novel technologies for conventional and alternative vehicle propulsion systems. \$26,000, sponsored by the Israeli Ministry of Transport. PIs Y. Zvirin and M. Gutman.
- 2006-2007: Co-Principal Investigator (with Y. Zvirin). Analysis of heat transfer in the two-stroke SI UAV engine. \$29,000, sponsored by the Aeronautics Defense Systems.
- 2006-2007: Co-Principal Investigator (with Y. Zvirin). Survey on SI engines conversion to heavy fuels. \$25,000, sponsored by the Israeli Ministry of Defense.
- 2006-2007: Co-Principal Investigator (with Y. Zvirin, M Gutman). Effects of additives to diesel fuel and lubrication oil on engine performance. \$21,000, supported by Logus Ltd., USA.
- 2006-2011: Senior Investigator. CityMobil. 65,000 Eu, sponsored by the European Commission (EC). This research project is a continuation of the CyberCars and CyberMove EC Projects mentioned above. It is coordinated by J. Van Dijke, TNO (Holland). The total CityMobil budget is about 10 MEu. PI Y. Zvirin
- 2007-2008: Senior Investigator. Implementation of natural gas use for vehicle propulsion. \$36,000, sponsored by the Israeli Ministry of Environment. PI Y. Zvirin
- 2007-2008: Co-Principal Investigator (with Y. Zvirin, H. Manor). Analysis and improvement of crankshaft design for SI UAV engine. \$60,000, sponsored by the Aeronautics Defense Systems.
- 2008: Senior Investigator. Survey of automotive renewable fuels. \$5,000, sponsored by the Israeli Ministry of Environment. PIs Y. Zvirin and M. Gutman.

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- 2007-2008: Co-Principal Investigator (with Y. Zvirin) Simulation of Wankel engine performance. \$40,000, sponsored by the Israeli Ministry of Defense.
- 2007-2008: Co-Principal Investigator (with Y. Zvirin) Development of an outline for a standard for emissions test of in-use two- and three-wheel vehicles. \$25,000, sponsored by the Israeli Ministry of Environment.
- 2006-2008: Co-Principal Investigator (with Y. Zvirin) Experimental assessment of in-use catalytic converters efficiency. \$36,000, sponsored by the Israeli Ministry of Environmental Protection.
- 2009-2011: Co-Principal Investigator (with Y. Zvirin) Development of SI engine fueled by heavy fuels for UAV. \$290,000, MAGNETON project, sponsored by the Israeli Ministry of Industry and Trade.
- 2008-2011: Co-Principal Investigator (with Y. Zvirin) Numerical analysis and performance simulation of SI UAV engine. \$130,000, sponsored by MAFAT, Israeli Ministry of Defense.
- 2009-2011: Co-Principal Investigator (with Y. Zvirin and A Marmur) Study of internal combustion engine's sensitivity to ambient conditions. \$110,000, sponsored by MAFAT, Israeli Ministry of Defense.
- 2008-2010: Co-Principal Investigator (with Y. Zvirin) Analysis and performance simulation of the tank engine. \$45,000, sponsored by the Israeli Ministry of Defense.
- 2009-2010: Co-Principal Investigator (with Y. Zvirin) Comparison of emissions by urban buses and passenger cars in Israel. \$34,000, sponsored by Egged and Dan Transportation Co.
- 2010-2014: Co-Principal Investigator (with Y. Zvirin) CATS – City Alternative Transport System. 182,000 Eu, sponsored by the European Commission (EC). This research project is a continuation of the CyberCars, CyberMove and Citymobil EC Projects mentioned above. It is coordinated by Jean-François Argence, LOHR Industrie (France). The total CATS budget is about 4 MEu.
- 2010-2012: Senior Investigator. CONDUITS – Evaluating the Impact of ITS in Urban Areas. 93.5,000 Eu, sponsored by the European Commission (EC). Our contribution is an assessment of energy and environmental impacts of ITS. Technion activities are coordinated by Prof. D. Mahalel, Faculty of Civil Engineering. and Prof Y. Zvirin
- 2011-2012: Improvement of heavy fuel combustion in a spark-ignition engine with fuel-by-hydrogen saturation. \$27,000, supported by the Technion Funds for Security Research. Jointly with Prof. M. Shapiro and Prof. Y. Zvirin.

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- 2011-2012: Co-Principal Investigator (with A Marmur) Study of a big diesel engine sensitivity to ambient conditions. \$60,000, supported by MAFAT, Israeli Ministry of Defense.
- 2011-2012: Co-Principal Investigator (with M Shapiro) Study of air mixing with heavy fuel and prediction of UAV engine performance. \$105,000, supported by MAFAT, Israeli Ministry of Defense.
- 2011-2014: Senior Investigator. Study of engine for hybrid propulsion system fueled by methanol reforming products. \$210,000, supported by the Israeli Ministry of National Infrastructures. PIs M. Shapiro and M. Sheintuch.

PUBLICATIONS

Theses:

M.Sc. – Final Project topic: "Development and analysis of combustion chamber for automotive gas-turbine engine", 1980. Moscow Automotive Mechanical Institute

D.Sc – Thesis topic: "Study of gas dynamics in the turbocharger ducts of a diesel engine", 1986. Central Automobile and Automotive Engines Research Institute (NAMI), Moscow

Chapters in books:

1. N.S. Hanin, M.S. Levit, G. Ter-Mkrtichyan, A.V. Ivanov., L. Tartakovsky and S.M. Levit: Heavy duty diesel engines. Moscow, USSR, 56 pp., 1983 (In Russian).
2. M. Gutman, L. Tartakovsky and Y. Zvirin: Fuel Effects on Emissions. Chapter 16 in the Handbook Of Air Pollution From Internal Combustion Engines: Pollutant Formation And Control, edited by E. Sher, Academic Press, 548 – 651, 1998. **DOI:** 10.1016/B978-012639855-7/50055-7.

In preparation

3. L. Tartakovsky and M. Gutman: Energy efficiency of powertrains in road vehicles – trends and challenges. *Invited chapter* in the Edited Collection "Energy Efficiency: Methods, Limitations and Challenges", Nova Science Publishers, February 2012.

Patents:

1. N.S. Hanin and L. Tartakovsky: Device for gas supply to turbocharger of internal combustion engine. USSR Patent No. 1160079, 1985.
2. V.F. Kutenev, A.P. Gusarov, A.N. Semehin, L. Tartakovsky, and V.A. Tiulnev: Supercharged internal combustion engine. USSR Patent No. 1518559, 1989.
3. A.P. Gusarov, M.G. Sokolov and L.Tartakovsky: Internal combustion engine, working on liquid and gaseous fuels. Positive solution on claim for USSR Patent No. 4815926/06-037207, 1990.
4. M. Veinblat, Y. Zvirin, L. Tartakovsky, M. Gutman and Beibikov: SONIC SYSTEM AND METHOD FOR PRODUCING LIQUID-GAS MIXTURES. Patent Number: EP2294305, March 2011.
5. L. Tartakovsky, Y. Zvirin, I. Shir and S. Bengio: METHOD AND APPARATUS FOR SENSING THE NATURE OF A GASEOUS COMPOSITION, PARTICULARLY VEHICULAR EMISSIONS. Patent Number: EP2338044, June 2011.

Refereed papers in professional journals:

In Russian

1. L. Tartakovsky, Interaction of turbulent flows in pulse-converter of turbo-charged engine. *NAMI Transactions*, vol. 186, 61-66, Moscow, USSR, 1982.
2. N.S. Hanin, G. Ter-Mkrtichyan, L. Tartakovsky and V.V. Tokar, Problems of the reduction of fuel consumption of heavy duty diesel engines. *NAMI Transactions*, Moscow, USSR, 16-28, 1984.
3. N.S. Hanin and L. Tartakovsky: Study of flow interaction in symmetric exhaust duct branches of internal combustion engine. *Izvestia VUZov. Mashinostroenie*, Moscow, USSR, No. 6, 65-69, 1983.
4. A.P. Gusarov, L. Tartakovsky and I.V. Dolgov: Development of the methodology of measurement of particulate emission by automobile diesel engines. *NAMI Transactions*, Moscow, USSR, 32-30, 1989.
5. A.N. Semenihiin, L. Tartakovsky and V.A. Tiulnev: Investigation of the possibility of using combined supercharging in multicylinder diesel engine. *NAMI Transactions*, Moscow, USSR, 126-131, 1989.
6. L. Tartakovsky, M.G. Sokolov and A.B. Zinyaev: Fuel apparatus for high energy fuel injection. *Avtomobilnaya promishlennost*, USSR, No. 1, 13, 14, 1990.

In English

7. L. Tartakovsky: Comparing Ecological Indices of Diesel and Gas-Diesel Engines. *SAE Technical Paper* No. 905243, 1990.
8. M. Gutman, L. Tartakovsky, Y. Kirzhner and Y. Zvirin: Development of a screening test for evaluating detergent/dispersant additives to diesel fuels. *SAE Technical Paper* No. 961184, 1996. **DOI:** 10.4271/961184
9. M. Veinblat, L. Tartakovsky, M. Gutman, Y. Zvirin and S. Hausberger: Fuel Effects on Emissions from Heavy-Duty Diesel Engines – Results of Recent Research Programs. *SAE Technical Paper* No. 2001-24-0081, September 2001. **DOI:** 10.4271/2001-24-0081
10. L. Tartakovsky, A. Mosyak, Y. Zvirin: Energy analysis of ethanol steam reforming for internal combustion engine. *International Journal of Energy Research* (2011), published online in Wiley Online Library. **DOI:** 10.1002/er.1908.
11. L. Tartakovsky, V. Baibikov, M. Gutman, A. Mosyak, M. Veinblat: Performance analysis of SI engine fueled by ethanol steam reforming products. *SAE Technical Paper* No. 2011-01-1992, September 2011.
12. L. Tartakovsky, B. Aronov, Y. Zvirin: Modeling the regeneration processes in diesel particulate filters. *Submitted to the International Journal of Engine Research*, May 2011.

13. L. Tartakovsky, M. Gutman, M. Veinblat, V. Baibikov, D. Popescu: Mileage Influence on Conversion Efficiency of Catalytic Converter from In-Use Vehicles. *Submitted to the Environmental Science & Technology*, August 2011.

In preparation

14. B. Aronov, Y. Zvirin, L. Tartakovsky: Model for performance evaluation of electric vehicle. *In preparation for the Engineering, Technology & Applied Science Research Journal*, November 2011.
15. L. Tartakovsky, V. Baibikov, J. Czerwinski, M. Gutman, M. Kasper, D. Popescu, M. Veinblat: Air pollution by particulates inside a vehicle and ways of its mitigation. *In preparation for the Environmental Science & Technology*, December 2011.

Refereed papers published in proceedings of International conferences:

1. M. Gutman, L. Tartakovsky, Y. Kirzhner, Y. Zvirin, D. Luria, A. Weiss and M. Shuftan: Improvement of engine test methodology for evaluating diesel fuel stability. Proc. 5th Int. Conf. Stability & Handling of Liquid Fuel, Rotterdam, The Netherlands, Vol. 1, 423-431, Oct. 1994.
2. L. Tartakovsky, M. Gutman, Y. Kirzhner and Y. Zvirin: A fleet test to study the effects of detergent additives on the performance of bus diesel engines. Proc. 29th ISATA (Int. Symposium on Automotive Technology & Automation), Florence, Italy, 183-190, June. 1996.
3. L. Tartakovsky, M. Gutman, Y. Zvirin and A. Serry: Influence of urban driving conditions on on-road exhaust emissions and fuel consumption of gasoline cars. Proc. 30th ISATA (Int. Symposium on Automotive Technology & Automation), Florence, Italy, June. 1997.
4. Y. Zvirin, L. Tartakovsky, N. Vescio, M. Gutman, Y. Aleinikov A., E. Golgotiu and A. Serry: Estimate of emission coefficients from vehicles in Israel. Paper 98EL019, 31th ISATA (Int. Symp. Automotive Tech. & Automation) Conf., Düsseldorf, Germany, June. 1998.
5. L. Tartakovsky, Y. Aleinikov, V. Fainberg, A. Garbar, M. Gutman, G. Hetsroni, Y. Shindler, and Y. Zvirin: Hybrid propulsion system based on an ICE fueled by methanol dissociation products – general concept. Paper 98EL018, 31th ISATA (Int. Symposium on Automotive Tech. & Automation) Düsseldorf, Germany, June 1998.
6. M. Gutman, L. Tartakovsky, Y. Zvirin and E. Golgotiu: Hybrid vehicles with gas turbines. Proceedings of the Third International Conference on Turbomachinery “Turbo ‘98”, Bucharest, Romania, July 1998.
7. Y. Zvirin and L. Tartakovsky: Energy Consumption of motor vehicles in Israel. Opet News 1998. internet:www.eng.tau.il/~ictafweb/energy_consumption_of_motor_vehi.htm
8. L. Tartakovsky, M. Gutman, Y. Zvirin, Y. Aleinikov, E. Golgotiu, A. Serry: Emission factors of passenger cars in Israel. Proc. The VII Intern. Scientific Seminar on Improvement of

- Power, Economical and Ecological Indices of Internal Combustion Engines. Vladimir (Russia), 242 – 244, May 1999.
9. D. Kottick, L. Tartakovsky, M. Gutman, Y. Zvirin: Results of electric vehicle demonstration program. Proc. IEEE Conference, Tel-Aviv, 318 – 321, April 2000.
 10. L. Tartakovsky, M. Gutman Y. Aleinikov, M. Veinblat, Y. Zvirin, B. Flicstein and B. Ben David: The Effect of Road Profile on Passenger Car Emissions, Transport and air pollution, 9th International Scientific Symposium, Avignon, France, 445 – 449, June 2000.
 11. L. Tartakovsky, A. Davidy, D. Dvorjetski, Y. Aleinikov, M. Veinblat, M. Gutman and Y. Zvirin: The Potential of the Remote Sensing Method for Vehicle Inspection Programs. 11th Intern. Symposium on Transport and Air Pollution, Graz, Austria, June 2002.
 12. S. Bekhor, Y. Zvirin and L. Tartakovsky: Investigating the potential application of cybernetic cars for a university campus. 82nd Annual Meeting of the Transportation Research Board (TRB), Washington, DC, Jan. 2003
 13. L. Tartakovsky, Y. Zvirin, M. Motzkau, M. Van Poppel, I. Riemersma, M. Veinblat, V. Baybikov, Y. Aleinikov, & M. Gutman: Measurements and analysis of real-world driving behavior of urban buses. Proceedings of the 12th International Scientific Symposium on Transport and Air Pollution, Avignon (France), June 2003.
 14. E. Golgotiu, R. Drosescu, E. Rakosi, M. Gutman and L. Tartakovsky: Gas Turbines Used in Hybrid Automotive Propulsion. Buletinul Institutului Politehnic Din Iasi, Publicat de Universitatea Tehnica “Gh. Asachi”, Iasi (Romania), Tomul XLIX (LIII), Fasc. 3-4, 2003.
 15. M. Gutman, Y. Zvirin and L. Tartakovsky: Strategy of phasing-out the leaded gasoline in Israel. Buletinul Institutului Politehnic Din Iasi, Publicat de Universitatea Tehnica “Gh. Asachi”, Iasi, Tomul L (LIV), Fasc. 6D, 2004.
 16. L. Tartakovsky, M. Veinblat, M. Gutman, Y. Aleinikov and Y. Zvirin: Methodology of emission factors estimation for buses in Israel. Buletinul Institutului Politehnic Din Iasi, Publicat de Universitatea Tehnica “Gh. Asachi”, Iasi, Tomul L (LIV), Fasc. 6D, 2004.
 17. L. Tartakovsky, J. Czerwinski, Y. Aleinikov, B. Aronov, V. Baybikov, M. Gutman, M. Veinblat and Y. Zvirin: Retrofitting of urban buses in Israel with particulate traps – first results. Proc. of the 13th World Clean Air and Environmental Protection Congress (IUAPPA), Transport, Environment and the Sustainable City, Paper No. 1, London (UK), August 22-27, 2004.
 18. M. Gutman, L. Tartakovsky, Y. Zvirin, A. Flor, A. Gonen and H. Ben Ari: Development of a method to measure diesel smoke emission for Inspection/Maintenance programs. Proc. of the 13th World Clean Air and Environmental Protection Congress (IUAPPA), Transport, Environment and the Sustainable City, Paper No. 221, London (UK), August 22-27, 2004.
 19. L. Tartakovsky, M. Gutman, Y. Aleinikov, V. Baybikov, M. Veinblat and Y. Zvirin: Road tests of diesel oxidation catalysts on urban buses. Proceedings of the 13th International

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100. L. Tartakovsky, D. Popescu, M. Gutman, M. Veinblat, V. Baibikov, Y. Zvirin: Comparative assessment of harmful emissions by urban buses and passenger cars. Final report to Egged and Dan Co., Project No. 2012791/2, Faculty of Mechanical Eng., Technion, February 2011 (in Hebrew).
101. L. Tartakovsky, M. Veinblat, V. Baibikov, M. Gutman: Analysis of abnormalities in operation of the KUBOTA D722 cooling system. Final report to the Israeli Ministry of Defense, Project No. 2011058, Faculty of Mechanical Eng., Technion, April 2011.
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103. L. Tartakovsky, M. Veinblat, M. Gutman, V. Baibikov and Y. Zvirin: UAV engines research. Final report to MAFAT, Israeli Ministry of Defense, Project No. 2011613, Faculty of Mechanical Eng., Technion, October 2011.

ORGANIZATIONAL ACTIVITIES AT CONFERENCES

- 2011 Organizer, National Conference on engines for Unmanned Aerial Vehicles, Technion, Haifa, to be held on December 8, 2011.
- 2011 Member, Organizing Committee, 31th Israeli Conference on Automotive Engineering, Herzlia, to be held on December 1, 2011.
- 2010 Member, Organizing Committee, 30th Israeli Conference on Automotive Engineering, Herzlia, November 2010.
- 2010 Organizer, International Workshop on Nano-Particle Emissions from IC-Engines. Tel-Aviv, June 17, 2010.
- 2009 Member, Organizing Committee, 29th Israeli Conference on Automotive Engineering, Herzlia, November 2009.
- 2008 Member, Organizing Committee, 28th Israeli Conference on Automotive Engineering, Herzlia, November 2008.
- 2007 Member, Organizing Committee, 27th Israeli Conference on Automotive Engineering, Herzlia, November 2007.
- 2006 Member, Organizing Committee, 26th Israeli Conference on Automotive Engineering, Herzlia, November 2006.
- 2005 Member, Organizing Committee, 25th Israeli Conference on Automotive Engineering, Herzlia, November 2005.
- 2005 Chairman, Morning session, Israeli - Italian Workshop on advances and collaboration in Automotive Industry, March 2005.
- 2004 Member, Organizing Committee, 24th Israeli Conference on Automotive Engineering, Herzlia, November 2004.

CONSULTING ACTIVITIES

- 1998 – present Israeli Ministry of Environment Protection (Pollutant emissions by motor vehicles)
- 2007 – present MAFAT, Israeli Ministry of Defense (Performance analysis of UAV engines)
- 2010 - present Aeronautics Defense Systems (Failure analysis of UAV engines)
- 2007 - 2009 Aeronautics Defense Systems (Cooling problems of UAV engines)
- 2009 Israeli Ministry of Defense (Various problems of tank engines)

Leonid TARTAKOVSKY

2005 – 2007 Israeli Ministry of Defense (Failure analysis of tank engines)

2003 Israeli Ministry of Transportation (Smoke measurement procedure for diesel engine vehicles)