



Vytautas Getautis, CV

In short: Born 8 Feb. 1962 in Bijotai (Šilalė district), Lithuania. Studied for diploma engineer chemist technologist and PhD at Kaunas polytechnic institute (KPI) in 1979-1988. He is a Professor at the Kaunas University of Technology (KTU), head of the group for synthesis and investigation of functional materials. Have supervised 7 PhD students, currently supervising 3 PhD dissertations. His research focuses on design and synthesis of organic photoconductors, especially in the areas of xerography, photovoltaic, and organic light emitting diodes. Due to the intense cooperation with national and international Universities as well as with well-known corporations (“Imation“, “BASF SE“, “Samsung Electronics“, “trinamiX GmbH”) the group has been successful in creating several classes of novel organic charge generation and transporting materials and this work is reflected in over fifty international (USA, Europe, Japan, China) patents. He has published 108 journal papers in regard to these technologies. Current research is focused on the dye-sensitized solar cells and perovskite solar cells.

In detail:

Date of birth:	February 8, 1962
Place of birth:	Bijotai (Šilalė district), Lithuania
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Professional Address:	Department of Organic Chemistry Faculty of Chemical Technology Kaunas University of technology Radvilenu pl. 19, Kaunas, LT-50254, Lithuania Phone: 370 68645226

Professional experience:

2006-	Full professor, Kaunas University of Technology
1995-2006	Associate professor, Kaunas University of Technology
1994-1995	Senior lecture, Kaunas University of Technology
1994	Visiting researcher, Bayreuth University (Germany)
1989-2003	Senior fellow, Kaunas polytechnic institute/Kaunas University of Technology
1984-1985	Senior engineer, Kaunas polytechnic institute

Education:

2008 Habilitation procedure, Kaunas University of Technology
1985-1988 PhD Student, Kaunas polytechnic institute
1979-1984 Diploma engineer chemist technologist

Other activities:

2013-2016 Member of the EU Framework Programme for Research and Innovation expert panel at the the Division of Nanotechnologies, Advanced Materials, Biotechnology and Advanced Manufacturing and Processing.
2011-2016 Member of the Lithuanian Council of Science
2010- Expert of the Lithuanian Academy of Sciences
2009- Member of the Natural and Technical Sciences expert panel at the Lithuanian Council of Science
1995- Member of the Council of the Faculty of Chemical Technology

Awards and scholarships:

2016 Science - Business Partnership award from Kaunas University of Technology
2008 Gold medal award from World Intellectual Property Organization (WIPO)
2006 Winer of Lithuanian science prize
1996 Young scientist scholarship from Lithuanian Academy of Sciences

Selected research projects (2010-):

- “Development of hole conductors for solid state dye sensitized solar cells “R&D cooperation agreement between Kaunas University of Technology / supervisor prof. V. Getautis, funding of trinamiX GmbH (Germany), 2016-2017.
- „Meso-superstructured Hybrid Solar Cells (MESO). FP7-NMP-NMP-2013-SMALL-7 (contract No. 604032) supervisor from Lithuanian side prof. Vytautas Getautis, 2014-2017.
- “Development of hole conductors for solid state dye sensitized solar cells “R&D cooperation agreement between Kaunas University of Technology / supervisor prof. V. Getautis, funding of BASF SE (Germany), 2011-2015.
- “Organic colorants and multifunctional materials for energy saving and renewable energy technologies (Photomolecules)”, Project No. VP1-3.1-ŠMM-07-K-01-078, supervisor prof. Vytautas Getautis, funded of EU Structural Funds under measure VP1-3.1-ŠMM-07-K “Support to Research Activities of Scientists and Other Researchers“, 2013-2016.
- “Chemical functionalization of thermally activated delayed fluorescence organic emitters”, project PPS-230000-1930, supervisor prof. Getautis Vytautas, funding of Vilnius University (2014-2015).

Supervisor, finalized PhD projects:

- 2014 Daiva Tomkutė-Lukšienė, „Synthesis and Properties of Hole Transporting and Light Emitting Materials Possessing Diphenylamino and Carbazolyl Moieties”.
- 2013 Simona Urnikaitė, „Synthesis and Properties of Hydrazone-based Charge Generation and Transporting Materials”.
- 2009 Jolanta Stumbraitė, “Synthesis and Properties of 1-Phenyl-1,2,3,4-tetrahydroquinoline-, Indolo[3,2-b]carbazole-based Electroactive Materials and Their Synthons”.
- 2007 Tadas Malinauskas, ”Charge Transporting Materials and Emitters Based on 2,3-Epoxypropyl Derivatives of Hydrazones, Carbazole and 1,4,5,8-Naphthalenetetracarboxylic diimide”.
- 2005 Ingrida Vilionskienė, “Synthesis of Hydrazone-, Azine- and Antraquinone-based Charge transporting Molecular Glasses”.
- 2001 Osvaldas Paliulis, “Synthesis of Hole Transporting Amorphous 9-Alkylcarbazol-3,6-diyls, N,N,N',N'-Tetrasubstituted Phenylendiamines and Hydrazone-based Dimers”.
- 1994 Marytė Daškevičienė, “Design and Synthesis of Organic Photoconductors with Alkoxy Groups Obtained from 1-(Carbazol-9-yl)-2,3-epoxypropane”.

Teaching:

- BSc level courses P390B010 Instrumental Analysis, P390B102 Basic Dyes Chemistry, P390B315 Color Science.
- MSc level courses P390M001 Spectral Analysis, P390M327 Spectroscopy of Organic Compounds, P390M107 Chemistry of Color Application, P390M112 Methods of Spectroscopic Analysis of Biomolecules.
- PhD level courses P390D331 Color Chemistry, P390D334 Modern Course in Spectroscopy.

Selected publications, corresponding author (2010-)

1. Daskeviciene, M.; Paek, S.; Wang, Z.; Malinauskas, T.; Jokubauskaite, G.; Rakstys, R.; Cho, K.T.; Magomedov, A.; Jankauskas, V.; Ahmad, S.; Snaith, H.J.; **Getautis, V.**; Nazeeruddin M.K. Carbazole-based Enamine: Low-cost and Efficient Hole Transporting Material for Perovskite Solar Cells // *Nano Energy* 2017, <http://dx.doi.org/10.1016/j.nanoen.2017.01.015>.
2. Matsui, T.; Petrikytė, I.; Malinauskas, T.; Domanski, K.; Daškevičienė, M.; Steponaitis, M.; Gratia, P.; Tress, W.; Correa-Baena, J.P.; Abate, A.; Hagfeldt, A.; Grätzel, M.; Nazeeruddin, M. K.; **Getautis, V.**; Saliba, M. Additive-free transparent triarylamine-based polymeric hole-transport materials for stable Perovskite solar cells // *ChemSusChem* 2016, vol. 9, iss. 18, spec. iss. SI, p. 2567-2571.
3. Malinauskas, T.; Saliba, M.; Matsui, T.; Daškevičienė, M.; Urnikaitė, S.; Gratia, P.; Send, R.; Wonneberger, H.; Bruder, I.; Grätzel, M.; **Getautis, V.**; Nazeeruddin, M.K. Branched methoxydiphenylamine-substituted fluorene derivatives as hole transporting materials for high-performance perovskite solar cells // *Energy & Environmental Science*. 2016, vol. 9, iss. 5, p. 1681-1686.

4. Petrikytė, I.; Zimmermann, I.; Rakštys, K.; Daškevičienė, M.; Malinauskas, T.; Jankauskas, V.; **Getautis, V.**; Nazeeruddin, M.K. Efficiency enhancement of perovskite solar cells via incorporation of phenylethenyl side arms into indolocarbazole-based hole transporting materials // *Nanoscale*. 2016, vol. 8, iss. 16, p. 8530-8535.
5. Magomedov, A.; Urnikaitė, S.; Paliulis, O.; Jankauskas, V.; **Getautis, V.** "Click-chemistry" inspired synthesis of hydrazone-based molecular glasses // *RSC Advances* 2016, vol. 6, iss. 11, p. 8701-8704.
6. Braukyla, T.; Sakai, N.; Daškevičienė, M.; Jankauskas, V.; Kamarauskas, E.; Malinauskas, T.; Snaith, H.J.; **Getautis, V.** Synthesis and investigation of the V-shaped Tröger's base derivatives as hole-transporting materials // *Chemistry-An Asian journal* 2016, vol. 11, iss. 14, p. 2049-2056.
7. Kolesničenko, A.; Malinauskas, T.; Kasparavičius, E.; Send, R.; Gaidelis, V.; Jankauskas, V.; Wonneberger, H.; Bruder, I.; **Getautis, V.** Investigation of a dendrimer-like arrangement of hydrazone fragments for the application as hole transporting materials // *Tetrahedron* 2015, vol. 71, iss. 42, p. 8162-8171.
8. Gratia, P.; Magomedov, A.; Malinauskas, T.; Daškevičienė, M.; Abate, A.; Ahmad, S.; Grätzel, M.; **Getautis, V.**; Nazeeruddin, M.K. Methoxydiphenylamine-substituted carbazole twin derivative: an efficient hole-transporting material for Perovskite solar cells // *Angewandte Chemie - International Edition* 2015, vol. 54, iss. 39, spec. iss SI, p. 11409-11413.
9. Urnikaitė, S.; Daškevičienė, M.; Send, R.; Wonneberger, H.; Šačkus, A.; Bruder, I.; **Getautis, V.** Organic dyes containing a hydrazone moiety as auxiliary donor for solid-state DSSC applications // *Dyes and Pigments* 2015, vol. 114, p. 175-183.
10. Daškevičienė, M.; Bubnienė, G.; Malinauskas, T.; Jankauskas, V.; Gaidelis, V.; Paulauskas, V.; **Getautis, V.** 1,3-Diphenylethenylcarbazolyl-based monomer for cross-linked hole transporting layers // *Molecules* 2015, vol. 20, iss. 5, p. 9124-9138.
11. Urnikaitė, S.; Malinauskas, T.; Bruder, I.; Send, R.; Gaidelis, V.; Sens, R.; **Getautis, V.** Organic dyes with hydrazone moieties: a study of correlation between structure and performance in the solid-state dye-sensitized solar cells // *The Journal of Physical Chemistry C* 2014, Vol. 118, iss. 15, p. 7832-7843.
12. Rakštys, K.; Solovjova, J.; Malinauskas, T.; Bruder, I.; Send, R.; Šačkus, A.; Sens, R.; **Getautis, V.** A structural study of 1-phenyl-1,2,3,4-tetrahydroquinoline-based dyes for solid-state DSSC applications // *Dyes and pigments* 2014, Vol. 104, p. 211-219.
13. Malinauskas, T.; Daškevičienė, M.; Bubnienė, G.; Petrikytė, I.; Raišys, S.; Kazlauskas, K.; Gaidelis, V.; Jankauskas, V.; Maldžius, R.; Juršėnas, S.; **Getautis, V.** Phenylethenyl-substituted triphenylamines: efficient, easily obtainable, and inexpensive hole-transporting materials // *Chemistry-A European journal* 2013, vol. 19, iss. 44, p. 15044-15056.
14. Urnikaitė, S.; Malinauskas, T.; Gaidelis, V.; Bruder, I.; Send, R.; Sens, R.; **Getautis, V.** Simple and inexpensive organic dyes with hydrazone moiety as π -conjugation bridge for solid-state dye-sensitized solar cells // *Chemistry-An Asian Journal* 2013, vol. 8, iss. 3, p. 538-541.
15. Urnikaitė, S.; Malinauskas, T.; Gaidelis, V.; Jankauskas, V.; **Getautis, V.** Air-stable, narrow-band-gap ambipolar C60 fullerene-hydrazone hybrid materials // *Chemistry-An Asian Journal* 2012, Vol. 7, iss. 3, p. 614-620.
16. Bubnienė, G. Daškevičienė, M.; Pukalskas, A.; Jankauskas, V.; **Getautis, V.** 1,3-Bisdiphenylethenyl-substituted carbazolyl derivatives as charge transporting materials // *Molecules* 2012, Vol. 17, no. 12, p. 14846-14857.
17. Ardaravičienė, J.; Barvainienė, B.; Malinauskas, T.; Jankauskas, V.; Arlauskas, K.; **Getautis, V.**

- Symmetrical azine-based polymers possessing 1-phenyl-1,2,3,4-tetrahydroquinoline moieties as materials for optoelectronics // *Reactive & Functional Polymers* 2011, Vol. 71, iss. 10, p. 1016-1022.
18. Tomkutė-Lukšienė, D.; Malinauskas, T.; Daškevičienė, M.; Gaidelis, V.; Maldzius, R.; Sidaravičius, J. **Getautis, V.** Synthesis of the hole-transporting molecular glasses possessing pendant 3,6-dibromocarbazolyl moieties // *Synthetic Metals* 2011, Vol. 161, iss. 13-14, p. 1177-1185.
 19. Malinauskas, T.; Daškevičienė, M.; Kazlauskas, K.; Su, H.C.; Gražulevičius, J.V.; Juršėnas, S.; Wu, C.C.; **Getautis, V.** Multifunctional red phosphorescent bis-cyclometallated iridium complexes based on 2-phenyl-1,2,3-benzotriazole ligand and carbazolyl moieties // *Tetrahedron* 2011, vol. 67, iss. 10, p. 1852-1861.
 20. Malinauskas, T.; Tomkutė-Lukšienė, D.; Daškevičienė, M.; Jankauskas, V.; Juška, G.; Gaidelis, V.; Arlauskas, K.; **Getautis, V.** One small step in synthesis, a big leap in charge mobility: diphenylethenyl substituted triphenylamines // *Chemical Communications* 2011, Vol. 47, iss. 27, p. 7770-7772.
 21. Urnikaitė, S.; Malinauskas, T.; Gaidelis, V.; Maldzius, R.; Jankauskas, V.; Getautis, V. Solution processable C-60 fullerene-hydrazone dyads for optoelectronics // *Carbon* 2011, vol. 49, iss. 1, p. 320-325.
 22. Bubnienė, G.; Malinauskas, T.; Daškevičienė, M.; Jankauskas, V.; **Getautis, V.** Easily functionalizable carbazole based building blocks with extended conjugated systems for optoelectronic applications // *Tetrahedron* 2010, vol. 66, iss. 17, p. 3199-3206.

Selected patents and patent applications (2010-):

1. Gratia, P.; Nazeeruddin, M.K.; Grätzel, M.; **Getautis, V.**; Magomedov, A.; Malinauskas, T.; Daškevičienė, M. WO2016139570 A1. Small molecule hole transporting material for optoelectronic and photoelectrochemical devices / Applicants: Ecole Polytechnique Fed de Lausanne (EPFL); Kaunas Univ of Tech (KTU). 2016-09-09.
2. Send, R.; Bruder, I.; Wonneberger, H.; Agari, M.; **Getautis, V.**; Daškevičienė, M.; Malinauskas, T. WO 2015161989 A1. Hole-transport materials for organic solar cells or organic optical sensors: international patent application / Applicant: BASF SE (DE). 2015-10-29.
3. Yamato, H.; Nakamichi, S.; Takahashi, R.; Yamamoto, H.; Send, R.; Wonneberger, H.; Bruder, I.; **Getautis, V.**; Rakštys, K.; Malinauskas, T. US2016155575 (A1). Methine dyes with large organic counter anion for dye sensitized solar cells: international patent application / Applicant: BASF SE (DE). 2016-06-02.
4. Bruder, I.; Send, R.; Urnikaitė, S.; Malinauskas, T.; Daškevičienė, M.; **Getautis, V.** US2016126022 A1. Organic dyes comprising a hydrazone moiety and their use in dye-sensitized solar cells: international patent application / Applicant: BASF SE (DE). 2016-05-05.
5. Send, R.; Bruder, I.; Wonneberger, H.; Agari, M.; **Getautis, V.**; Daškevičienė, M.; Malinauskas, T. EP 2937399 A1. Hole-transport materials for organic solar cells or organic optical sensors: European patent application / Applicant: BASF SE. 2015-10.
6. Bruder, I.; Sens, R.; Send, R.; Wonneberger, H.; Bergmann, H.; **Getautis, V.**; Daškevičienė, M.; Malinauskas, T.; Tomkutė-Lukšienė, D. CN 104603099 A. New spiro compounds and their use in organic electronics applications and devices: patent application / Applicant: BASF SE. 2015-05-06.
7. Bruder, I.; Sens, R.; Send, R.; Wonneberger, H.; Bergmann, H.; **Getautis, V.**; Daškevičienė, M.;

- Malinauskas, T.; Tomkutė-Lukšienė, D. KR 20150047623 A. New spiro compounds and their use in organic electronics applications and devices: patent application / Applicant: BASF SE (DE). 2015-05-04.
8. Bruder, I.; Send, R.; Urnikaitė, S.; Malinauskas, T.; Daškevičienė, M.; **Getautis, V.** CN 104411775 A. Organic dyes comprising hydrazone moiety and use in dye-sensitized solar cells thereof: patent application / Applicant: BASF SE. 2015-03-11.
 9. Yamato, H.; Nakamichi, S.; Takahashi, R.; Yamamoto, H.; Send, R.; Wonneberger, H.; Bruder, I.; **Getautis, V.**; Rakštys, K.; Malinauskas, T.; Tomkutė-Lukšienė, D. WO 2015011638 A1. Methine dyes with large organic counter anion for dye sensitized solar cells: international patent application / Applicant: BASF SE (DE). 2015-01-29.
 10. Bruder, I.; Sens, R.; Send, R.; Wonneberger, H.; Bergmann, H.; **Getautis, V.**; Daškevičienė, M.; Malinauskas, T.; Tomkutė-Lukšienė, D. WO 2014037847 A3. New spiro compounds and their use in organic electronics applications and devices: international patent application / Applicant: BASF SE, Ludwigshafen (DE). 2014-03-13.
 11. Bruder, I.; Sens, R.; Send, R.; Wonneberger, H.; Bergmann, H.; **Getautis, V.**; Daškevičienė, M.; Malinauskas, T.; Tomkutė-Lukšienė, D. US 20140066656 A1. Spiro compounds and their use in organic electronics applications and devices: United States patent application / Applicant: BASF SE, Ludwigshafen (DE). 2014-03-06.
 12. Bruder, I.; Send, R.; Urnikaitė, S.; Malinauskas, T.; Daškevičienė, M.; **Getautis, V.** WO 2014006544 A2. Organic dyes comprising a hydrazone moiety and their use in dye-sensitized solar cells: international patent application / Applicant: BASF SE (DE). 2014-01-09.
 13. Bruder, I.; Send, R.; Urnikaitė, S.; Malinauskas, T.; Daškevičienė, M.; **Getautis, V.** US 20140012002 A1. Organic dyes comprising a hydrazone moiety and their use in dye-sensitized solar cells: United States patent application / Applicant: BASF SE (DE). 2014-01-09.

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January 15, 2017