Professor Sergey V. Gaponenko

Born in 1958 in Minsk, Belarus (Formerly USSR).

Education/degrees/titles

1980 – Diploma with honour, Physics Department of Belarussian State University, "Nonlinear optics of semiconductor doped glasses"

1984 – PhD degree (Belarussian State University), "Absorption saturation on ZnSe monocrystals and semiconductor doped glasses"

1996 – Dr. Sci. Degree (Supreme attestation committee, Belarus), "Spectroscopy of semiconductor nanocrystals and organic molecules in dielectric matrices"

2009 – Professor title (Supreme attestation committee, Belarus)

2014 – Full member of the National Academy of Sciences of Belarus.

Employment history

Years		Position, Institution
1980-1983	-	PhD student, Institute of Physics of the Academy of Sciences of Belarus
1983-1986	-	Junior researcher, Institute of Physics of the Academy of Sciences of Belarus
1986-1988	-	Researcher, Institute of Physics of the Academy of Sciences of Belarus
1988-1997	-	Scientific secretary and principal investigator, Institute of Physics of the Academy of Sciences of Belarus
1997-1999	-	Vice-director, Institute of Molecular and Atomic Physics of the National Academy of Sciences of Belarus
1999-2000	-	Active director, State scientific institution "Institute of Molecular and Atomic Physics of the National Academy of Sciences of Belarus"
2000-2007	-	Director, State scientific institution "Institute of Molecular and Atomic Physics of the National Academy of Sciences of Belarus"
2007-2014	-	Head of the laboratory, State scientific institution "The B.I.Stepanov Institute of Physics of the National Academy of Sciences of Belarus"
2014-present	·	Chief investigator and research director of the laboratory, State scientific institution "The B.I.Stepanov Institute of Physics of the National Academy of Sciences of Belarus"

Present position/obligations: Head of the Laboratory of Nanooptics at the B.I.Stepanov Institute of Physics of the National Academy of Sciences of Belarus; Chairman of the Association "Lasers and Optics" (since 2007), Chairman of the Scientific Council of the

Belarusian Republican Foundation for Fundamental Research (since 2014), Chairman of the Council awarding PhD and Habilitation degrees in optoelectronics (since 2014).

Research interests and achievements in photophysics of nanostructures including:

- Propagation of light waves in complex media including photonic crystals
- Controlling radiative lifetimes and light—matter interaction at nanoscale
- Semiconductor nanocrystals (quantum dots) including nonlinear optics
- Plasmonic nanosensors for environmental and biomedical applications
- Novel luminescence materials
- Electric field effects on optical properties of semiconductor nanostructures
- Raman scatering in mesoscopic structures
- Application of nanostructures in optoelectronics
- Colloidal nanophotonics

Publications: Total number exceeds 230 papers including 160 papers in international peer-reviewed journals. Coeditor of 12 books on physics of nanostructrues and photonics (published by SPIE, World Scientific, Springer, and Kluwer), author of the 2 books published by Cambridge University and co-author of the book published by Springer Verlag in 2004. More than 60 invited talks at the international conferences and special seminar lectures at research centers. Guest editor of the Optics Express Issue on Colloidal Nanophotonics (2016).

Citations – 6075 (Google Scholar), 4500 (Scopus), 3200 (Web of sicence), Hirsch factor – 27.

Fellowships: Guest scientist at the Universities in Germany (Kaiserslautern, 5 months, Karlsruhe, 3 months, Dortmund, 1 month) and USA (Arizona, 1 month) in the period of 1990-2001, visiting professor in University Technological Troyes (France, 2012), Nanyang Technological University (2014-2016, Singapore), City University of Hong Kong (2017)

Chairing of scientific conferences/events

2002 - SPIE Symposium Chair “Novel Photonic Materials” (Minsk)

2002 - NATO Advanced Studies Institute Co-Director “Towards the first silicon laser” (Trento, Italy)

2008 - NATO Advanced Research Workshop Co-Director “Extreme Photonics and Applications” (Ottawa, Canada)

2017 – NATO Advanced Study Institute “Quantum Nano-Photonics” (Erice, Italy) – to be held, July 2017)

Scientific awards

2006 – Best paper Award, EU Network of Excellence in Nanophotonics

2007 – Award for achievements in nanophotonics (Natl Academy of Sciences of Belarus)

2011 – Award “Top cited scientist” (Natl Academy of Sciences of Belarus)

2014 – Joint Award of the Academies of Sciences of Ukraine, Belarus and Moldova for achievements in nano-optoelectronics

Teaching experience:

More than 20 supervised PhD students.

Lectureship at Belarussian State University (Minsk, Belarus) since 2002 (courses on Optics of condenced matter, Nanophotonics, Optics of Nanostrutures); lecture courses on Nanophotonics at Nanyang Technical University (Singapore) as a visiting professor in 2014-2015, this University enters the list of top 10 worldwide University ranking in electronics and material science; lectureship at City University of Hong Kong (2017, number 4 in universities ranking below 50 years).

Main publications

Books

S.V.Gaponenko, Introduction to Nanophotonics, Cambridge University Press 2010.

S.V.Gaponenko "Optical Properties of Semiconductor Nanocrystals", Cambridge Uni. Press, 1998. – Translated in China, 2003.

S.V.Gaponenko, H. Kalt, U. Woggon. Semiconductor Quantum Structures. Part 2. Optical Properties. – Springer Verlag, Berlin 2004.

Edited volumes

	Title	Publisher/Year	All Editors
1.	Physics, Chemistry and Application of Nanostructures	World Scientific: Singapore 1997	Borisenko V.E. Filonov A.B., Gaponenko S.V., Gurin V.S.
2.	Physics, Chemistry and Application of Nanostructures	World Scientific: Singapore 1999	Borisenko V.E. Filonov A.B. , Gaponenko S.V., Gurin V.S.
3.	Physics, Chemistry and Application of Nanostructures	World Scientific: Singapore 2001	Borisenko V.E. , Gaponenko S.V., Gurin V.S.
4.	Physics, Chemistry and Application of Nanostructures	Singapore: World Scientific 2003	Borisenko V.E. Gaponenko S.V., Gurin V.S.
5.	Towards the First Silicon Laser	Kluwer Academic Publ.: Dordrecht, Boston, 2003	Pavesi L. Dal Negro L. Gaponenko S.V.,
6.	Physics, Chemistry and Application of Nanostructures	World Scientific: Singapore 2005	Borisenko V.E. Gurin V.S.
7.	Physics, Chemistry and Application of Nanostructures.	World Scientific: Singapore 2007	Borisenko V.E. Gaponenko S.V., Gurin V.S.
8.	Novel Photonic Materials	SPIE Proceedings (USA) 2007	O. A. Aktsipetrov; Gaponenko S.V., V. M. Shalaev; N. I. Zheludev
9.	Physics, Chemistry and Application of Nanostructures.	World Scientific: Singapore, 2009	Borisenko V.E. , Gaponenko S.V., Gurin V.S.

10.	Extreme Photonics and Applications	Springer Science. 2009	T.J. Hall., Gaponenko S.V.,
11.	Physics, Chemistry and Application of Nanostructures.	World Scientific: Singapore, 2011	Borisenko V.E. Gaponenko S.V., Gurin V.S., C.H.Kam
12.	Physics, Chemistry and Application of Nanostructures.	World Scientific: Singapore, 2013	Borisenko V.E. Gaponenko S.V., Gurin V.S., C.H.Kam
13.	Physics, Chemistry and Application of Nanostructures.	World Scientific: Singapore, 2015	Borisenko V.E. Gaponenko S.V., Gurin V.S., C.H.Kam

Selected papers

Kulakovich O., Strekal N., Yaroshevich A., Maskevich S., Gaponenko S., Nabiev I., (2002). Enhanced luminescence of CdSe quantum dots on gold colloids. *Nano Letters*, *2*(12), 1449-1452. - **500+ citations**.

Chigrin, D. N., Lavrinenko, A. V., Yarotsky, D. A., & Gaponenko, S. V. (1999). Observation of total omnidirectional reflection from a one-dimensional dielectric lattice. *Applied Physics A: 68*(1), 25-28. -**300+ citations.**

Petrov, E. P., Bogomolov, V. N., Kalosha, I. I., & Gaponenko, S. V. (1998). Spontaneous emission of organic molecules embedded in a photonic crystal. *Physical Review Letters*, *81*(1), 77-80. - **300+ citations**

Artemyev M., Bibik A., Gurinovich L., Gaponenko S., Woggon, U. (1999). Evolution from individual to collective electron states in a dense quantum dot ensemble. *Physical Review B*, *60*(3), 1504-1507. – **150+ citations**

Gaponenko, S. V. (2002). Effects of photon density of states on Raman scattering in mesoscopic structures. *Physical Review B*, *65*(14), 140303(R).

Ermolenko, M.V., Buganov, O.V., Tikhomirov, S.A., Stankevich, V.V., Gaponenko, S.V. and Shulenkov, A.S., 2010. Ultrafast all-optical modulator for 1.5 um controlled by Ti: Al2O3 laser. *Applied Physics Letters*, *97*(7), p.3113.

Guzatov, D.V., Vaschenko, S.V., Stankevich, V.V., Lunevich, A.Y., Glukhov, Y.F. and Gaponenko, S.V., 2012. Plasmonic enhancement of molecular fluorescence near silver nanoparticles: theory, modeling, and experiment. *The Journal of Physical Chemistry C*, *116*(19), pp.10723-10733.

Achtstein, A.W., Prudnikau, A.V., Ermolenko, M.V., Gurinovich, L.I., Gaponenko, S.V., Woggon, U., Baranov, A.V., Leonov, M.Y., Rukhlenko, I.D., Fedorov, A.V. and Artemyev, M.V., 2014. Electroabsorption by 0D, 1D, and 2D nanocrystals: A comparative study of CdSe colloidal quantum dots, nanorods, and nanoplatelets. *ACS nano*, *8*(8), pp.7678-7686.

S Ya Prislopski, IM Tiginyanu, L Ghimpu, E Monaico, L Sirbu, SV Gaponenko. Retroreflection of light from nanoporous InP: correlation with high absorption. *Applied Physics A* 2014, v. 117, p.467-470.

S. V. Zhukovsky, T. Ozel, E. Mutlugun, N. Gaponik, A. Eychmuller, A. V. Lavrinenko, H. V. Demir, and S. V. Gaponenko. Hyperbolic metamaterials based on quantum-dot plasmon-resonator anocomposites. – Optics Express. 2014, V. 22, p. 18290—18298.

S.Gaponenko, H.V. Demir, C.Seassal, and U.Woggon. Colloidal nanophotonics: the emerging technology platform // Optics Express. – V. 24, No. 2. – P. A430–A434. – 2016.

V.V.Sergentu, S.Ya.Prislopski, E.V.Monaico, V.V.Ursaki, S.V.Gaponenko, I.M.Tiginyanu. Anomalous retroreflection from nanoporous materials as backscattering by ‘dark’ and ‘bright’ modes. // J. Optics. 2016, v. 18, No 12.

O.S.Kulakovich, E.V.Shabunya-Klyachkovskaya, A.S.Matsukovich, K.Rasool, Kh. A. Mahmoud, and S.V.Gaponenko. Nanoplasmonic Raman detection of bromate in water // Optics Express. – V. 24, No. 2. – P. A174–A179. – 2016.

Scholar Google page:
https://scholar.google.com/citations?user=W9Zpu3gAAAAJ&hl=en&oi=ao

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