

VOLODYMYR B. KOMAN

EDUCATION

- Oct/2015 –current *SNSF PostDoc*, Massachusetts Institute of Technology (MIT),
Advisor: Michael S. Strano.
- Oct/2011 – May/2015 *Ph. D.*, Nanophotonics and Metrology Laboratory (NAM), Swiss Federal Institute of Technology (EPFL),
in the frame of NRP 64 program “Opportunities and Risks of Nanomaterials”.
Thesis Advisor: Olivier J.F. Martin.
- Sep/2009 – Jul/2011 *Master of Science*, Erasmus Mundus Program in Photonics,
Ghent University, *with the greatest distinction*.
- Sep/2005 – Jun/2009 *Bachelor in Applied Physics*, Optics Specialization,
Ivan Franko National University of Lviv, *with honors*.

WORK EXPERIENCE

- 2014 Teaching assistant for the course Optics Laboratories, EPFL.
- 2012 – 2014 Teaching assistant for the course Ingnieurie optique, EPFL.
- 2012 – 2014 Teaching assistant for the course Advanced Optics, EPFL.
- 2010 Summer Internship at Semiconductor Components Group, University of Twente, July – September.
- 2008 – 2009 Secretary at SPIE Student Chapter, Ivan Franko National University of Lviv.
- 2008 – 2009 Summer Internship at Laboratory of Optoelectronics, Ivan Franko National University of Lviv,
June – August both years.

SCHOLARSHIPS/AWARDS

- 2015 Early.PostDoc Mobility fellowship, Swiss National Science Foundation.
- 2014 Selected to represent EPFL at GYSS 2014 with “Future with “green” nanomaterials” project.
- 2013 Best Poster Award at Photonics Day 2013, EPFL.
- 2011 Best Performance Award at Erasmus Mundus Master in Photonics.
- 2009 – 2011 Erasmus Mundus Master in Photonics Scholarship.
- 2009 SPIE Officer Travel Grant.
- 2009 President of Ukraine Scholarship.

PUBLICATIONS

Submitted

14. M.H. Wong, J. Giraldo, S. Kwak, **V.B. Koman**, P. Liu, R. Sinclair, G. Bisker, T. Lew, M.S. Strano, *Nitroaromatic detection and infrared communication from wild-type plants using plant nanobionics*, second round of review at Nature Materials.
13. Y. Son, D. Kozawa, A.T. Liu, **V.B. Koman**, Q.H. Wang, M.S.Strano, *MoS₂-passivated bilayer phosphorene and black phosphorus phototransistors*, submitted to 2D Materilas.
12. N.R. von Moos, **V.B. Koman**, C. Santschi, O.J.F. Martin, P. Bowen, L. Maurizi and V.I. Slaveykova, *The non-invasive continuous monitoring of sub-toxic oxidative stress triggered by nano-TiO₂ in Chlamydomonas reinhardtii* submitted to RCS Advances.
11. **V.B. Koman**, C. Santschi and O.J.F. Martin, *Maximal absorption regime in random media*, submitted to Energy Express: Optics Express.

2016

10. **V.B. Koman**, N.R. von Moos, C. Santschi, V.I. Slaveykova and O.J.F. Martin, *New insights in ROS dynamics: multi-layered microfluidic chip for ecotoxicological studies on aquatic microorganisms*, Nanotoxicology 21, pp.1-10 (2016), doi: 10.3109/17435390.2016.1144826.

2015

9. **V.B. Koman**, C. Santschi and O.J.F. Martin, *Novel multiplexed optical biosensors: highly sensitive, non-invasive and kinetics measurements*, Biomedical Optics Express 6(7), pp. 2353-2365 (2015), doi: 10.1364/BOE.6.002353.

8. **V.B. Koman**, C. Santschi, N.R. von Moos, V.I. Slaveykova and O.J.F. Martin, *Portable oxidative stress sensor: Dynamic and non-invasive measurements of extracellular H₂O₂ released by algae*, *Biosensors and Bioelectronics* 68, pp. 245–252 (2015), doi:10.1016/j.bios.2014.12.044.
- 7.* **V.B. Koman**, C. Santschi and O.J.F. Martin, *Multiscattering-enhanced absorption spectroscopy*, *Analytical chemistry* 87 (3), pp. 1536–1543 (2015), doi: 10.1021/ac502267q.
- 2014**
- 6.** O. Lopez Sanchez, E. Alarcon Llado, **V. Koman**, A. Foncuberta i Morral, A. Radenovic and A. Kis, *Light Generation and Harvesting in a Van der Waals Heterostructure*, *ACS Nano* 8 (3), pp. 3042–3048 (2014), doi: 10.1021/nn500480u.
- 2013**
- 5.*** **V. Koman**, G. Suarez, Ch. Santschi, V.J. Cadarso, J. Brugger, N. von Moos, V.I. Slaveykova and O.J.F. Martin, *A portable microfluidic-based biosensor for extracellular H₂O₂ measurements*, *Proc. SPIE 8572, Advanced Biomedical and Clinical Diagnostic Systems XI*, pp. 857281–8 (2013), doi:10.1117/12.2008329.
- 2010**
4. I. Polovynko, S. Rykhlyuk, **V. Koman** and V. Davydov, *Pleochroism in Potassium Cobalt Sulfate Hexahydrate Crystals*, *Ukrainian Journal of Physics* 55, pp.175–180 (2010).
- 2009**
3. I. Polovynko, S. Rykhlyuk, **V. Koman** and I. Karbovnyk, *Modification of the optical spectra of mixed K₂Co_xNi_{1-x}(SO₄)₂·6H₂O crystals*, *Journal of Applied Spectroscopy* 311, pp.4704–4707 (2009), doi: 10.1007/s10812-009-9140-z.
2. I. Polovynko, S. Rykhlyuk, I. Karbovnyk, **V. Koman**, M. Piccini and M. C. Guidi, *A new method of growing K₂Co_xNi_{1-x}(SO₄)₂·6H₂O (x=0; 0.4; 0.8; 1) mixed crystals and their spectral investigation*, *Journal of Crystal Growth* 76, pp.116–120 (2009), doi: 10.1016/j.jcrysgro.2009.09.006.
1. I. Polovynko, S. Rykhlyuk and **V. Koman**, *Investigation of optical absorption spectra of K₂Mg_xNi_{1-x}(SO₄)₂·6H₂O crystals*, *Electrical Engineering* 60, pp.163–167 (2009).

NEWS HIGHLIGHTS

- * Chemical & Engineering News, 93, 2, p.24 (2015): “Polymer Beads Improve Detection Limits Of Absorption Spectroscopy”.
- ** EPFL News 24/04/2014: “The magic of Molybdenite: solar cells and light-emitting diodes”.
- *** Le Nouvelliste, p.18, 8/4/2013: “Les nanoparticules stressent les cellules, mais elles ne les tuent pas forcément”.

CONFERENCES

- 2014**
15. **V. Koman**, Ch. Santschi, O.J.F. Martin, *Measuring the optical absorption of 10 nm gold nanoparticles using multiscattering-enhanced absorption spectroscopy in a dielectric metamaterials*, *META 14*, Singapore, May 20–25 2014, p. E25 (oral presentation).
14. N. von Moos, **V. Koman**, Ch. Santschi, O.J.F. Martin, V.I. Slaveykova, *Interactions between nanoparticles and aquatic microorganisms and their toxic effects at the cellular and subcellular level*, *SETAC Europe 24th Annual Meeting in Basel*, May 11–15 2014, p. WE178 (poster presentation).
13. O. Lopez Sanchez, E. Alarcon Llado, **V. Koman**, A. Foncuberta i Morral, A. Radenovic and A. Kis, *Light Generation and Harvesting in a Van der Waals Heterostructure*, *Bulletin of the American Physical Society*, Denver, USA, March 3–7 2014, p. L51 (oral presentation).
- 2013**
12. **V. Koman**, Ch. Santschi, G. Suárez, O.J.F. Martin, *A portable platform for oxidative stress measurements*, *Frontiers 2013 Symposium*, Lausanne, Switzerland, June 21–22 2013, p. 14 (poster presentation).
11. **V. Koman**, G. Suárez, Ch. Santschi, V.J. Cadarso, J. Brugger, N. von Moos, V.I. Slaveykova, O.J.F. Martin, *A portable microfluidic-based biophotonic sensor for extracellular H₂O₂ measurements*, *Proc. SPIE 8572 2013*, San Francisco, USA, February 5 2013, p. 8572181–7 (oral presentation).
- 2012**
10. **V. Koman**, G. Suarez, Ch. Santschi, V.J. Cadarso, J. Brugger and O.J.F. Martin, *A microfluidic probe for optical detection of extracellular H₂O₂*, *Annual meeting of the Swiss Society for Biomedical Engineering*, Lausanne, Switzerland, August 27–28 2012, p. 20 (poster presentation).
9. **V. Koman**, G. Suarez, Ch. Santschi, V.J. Cadarso, J. Brugger, V.I. Slaveykova and O.J.F. Martin, *Optical detection of extracellular H₂O₂ using multiscattering matrices*, *Gordon Research Conference on Bioanalytical Sensors*, Newport, USA, June 17–22 2012, p. 13 (poster presentation).
- 2009**
8. I. Polovynko, S. Rykhlyuk, **V. Koman**, D. Klimchuk, *Tutton salts crystals K₂Fe(SO₄)₂·6H₂O as sensors for ionized radiation*, *Computers in electronics: science research*, Chynadiovo, Ukraine, September 17–20 2009, p. 99 (oral presentation).

- 2008
7. **V. Koman**, I. Polovynko, S. Rykhlyuk, *Optical investigation of Tutton salts mixed crystals*, Proc. SPIE 7212 2009, San Jose, USA, January 26–28 2009, p. 43, (poster presentation).
 6. **V. Koman**, I. Polovynko, S. Rykhlyuk, *Optical investigation of Tutton salts mixed crystals*, IX Polish-Ukrainian Meeting and XXIX International School on Ferroelectrics physics, Kraków, Poland, September 14–18, 2008, p.9 (poster presentation).
 5. I. Polovynko, S. Rykhlyuk, I. Karbovnyk, **V. Koman**, M. Piccinini, M. Cestelli Guidi, *Optical spectra investigation of $K_2\text{CoxNi}_{1-x}(\text{SO}_4)_2 \cdot 6\text{H}_2\text{O}$ ($x = 0, 1; 0, 4; 0, 8; 1$) mixed crystals*, XIV-th International Seminar on Physics and Chemistry of Solids ISPCS'08, Lviv, Ukraine, June 1–4, 2008, p. 29 (oral presentation).
 4. **V. Koman**, S. Rykhlyuk, *Optical absorbance in $K_2\text{CoxZn}_{1-x}(\text{SO}_4)_2 \cdot 6\text{H}_2\text{O}$ ($x = 0, 1; 0, 2; 0, 3; 0, 5; 0, 6; 0, 7; 1$) crystals*, International conference of students and young scientists in theoretical and experimental physics HEUREKA- 2008, Lviv, Ukraine, May 19–21 2008, p. D5 (oral presentation).
 3. I. Polovynko, S. Rykhlyuk, I. Karbovnyk, **V. Koman**, *Isomorphous replacement influence on optical properties of $K_2\text{CoxNi}_{1-x}(\text{SO}_4)_2 \cdot 6\text{H}_2\text{O}$ ($x = 0; 0, 4; 0, 8; 1$) crystals*, Recent problems in electrotechnics, Lviv, Ukraine, January 31 2008, p. 51–52, (oral presentation).
- 2007
2. **V. Koman**, *The dependence of metal nano-clusters' surface energy on its size and structure*, International conference of students and young scientists in theoretical and experimental physics HEUREKA-2007, Lviv, Ukraine, May 22–24, 2007, p. D47 (oral presentation).
- 2006
1. **V. Koman**, *Research of solar photoelements on the basis of semiconductor heterostructures AlGaAs-GaAs*, International conference of students and young scientists in theoretical and experimental physics HEUREKA-2006, Lviv, Ukraine, May 15–17, 2006, p. B60 (oral presentation).

LANGUAGES

- Ukrainian Mother tongue
- English Fluent
- Russian Fluent
- French Conversational
- Polish Conversational