

# Yaryna Lytvynenko

Institute of Magnetism of National  
Academy of Sciences and the Ministry  
of Education and Science of Ukraine  
36-b Akad. Vernadskogo blvd.,  
Kyiv 03142, Ukraine  
E-mail: yarina.litvinenko@gmail.com

Scopus ID

Researcher ID

Google Scholar

ORCID

## CURRENT POSITION

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**Institute of Magnetism NAS and MES of Ukraine**  
Senior Research Scientist

Kyiv, Ukraine  
May 2019 - Present

**Research interests:** Investigation of spin-dynamics and material properties of magnetic thin films and multilayers for spintronic application as well as magnetic nanostructures for self-controlled hyperthermia. This includes the fabrication and experimental characterization of magnetic and transport properties of a variety of thin film magnetic materials.

**Expertise** in e-beam evaporation and sputter deposition, photolithography, packaging, vibrating sample magnetometry, magneto-optical Kerr effect, X-ray diffraction, transmission electron microscopy, transport, and magnetotransport measurements.

## EDUCATION

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**Sumy State University**  
**Candidate of Physical and Mathematical Sciences (PhD);**  
Physics of Instruments, Elements and Systems  
*Thesis:* Physical Processes in Device Structures with Perpendicular  
Magnetic Anisotropy  
*Advisors:* Dr. Vitaliy V. Bibyk and Dr. Thomas Hauet (University  
of Lorraine)

Sumy,  
Ukraine  
2016

**Sumy State University**  
**M.S.** (with distinction), Electronic Instruments and Devices  
(Researcher)

Sumy  
2011

**Sumy State University**  
**B.S.** (with distinction), Electronic Instruments and Devices

Sumy  
2010

## RESEARCH EXPERIENCE

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**Sumy State University,**

Sumy, Ukraine

Department of Nanoelectronics Senior Research Scientist	July 2017 – April 2019
<b>University of Delaware</b> <b>Fulbright Scholar/Visiting Researcher;</b> Host: Prof. John Q. Xiao <i>Project:</i> Magnetic dynamics in ultrathin heavy metal/ferromagnet multilayers.	Newark, DE, USA October 2017 – June 2018
<b>Bielefeld University,</b> <b>Visiting Researcher;</b> Host: Dr. Markus Meinert <i>Project:</i> Magnetization direction dependence of spin-orbit torques in heavy metal / ferromagnetic / metal oxide thin film heterostructures.	Bielefeld, Germany July - August 2017
<b>Institute of Physics of Slovak Academy of Science</b> <b>Visiting Researcher;</b> Host: Prof. Dr. Eva Majkova <i>Project:</i> Exfoliation, deposition and characterization of graphene thin films for sensor applications	Bratislava, Slovakia February – June 2015
<b>University of Lorraine; Jean Lamour Institute</b> <b>Visiting Student Researcher;</b> Host: Dr. Thomas Hauet <i>Project:</i> Magnetic tunnel junctions based on textured Co/Ni multilayers or epitaxial Fe/MgO with perpendicular anisotropy.	Nancy, France January – July 2014 May – August 2013
<b>Sumy State University, Department of Applied Physics,</b> <b>PhD student</b> <i>Project:</i> Structural, magnetic and magnetotransport characterization of multilayers and magnetic tunnel junctions with perpendicular anisotropy	Sumy, Ukraine 2011 - 2014

## **AWARDS AND COMPETITIVE SCHOLARSHIPS**

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<b>Fulbright Research and Development Award</b> U.S. Department of State's Bureau of Educational and Cultural Affairs, USA	2017/2018
<b>Scholarship of German Academic Exchange Service</b> DAAD, Germany	2017
<b>Scholarship of the National Scholarship Programme of the Slovak Republic</b> SAIA, Slovakia	2015
<b>Scientific Short-Term Scholarship for Young Researchers</b>	2014

French Embassy in Ukraine, France

**Scholarship for Study/Research in Leading Universities and  
Research Institutions Abroad** 2013/2014  
2012/2013

Ministry of Education and Science of Ukraine, Ukraine

## TEACHING EXPERIENCE

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**Teaching Assistant, Konotop Institute of Sumy State  
University** Konotop  
2015/2016

Courses: Fundamentals of digital electronics 2011/2012  
Fundamentals of optoelectronics

**Engineer, Sumy State University** Sumy

Laboratory practicum: Methods of deposition and study of thin  
film materials 2014/2015

## ADMINISTRATIVE EXPERIENCE

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Coordinator at the International Affairs Office, Sumy  
Sumy State University Sumy  
2015 - 2017

Member of Local Organizing Committee, Alushta, Ukraine  
International Conference on Nanomaterials: Applications &  
Properties (NAP-2013) 2013

Coordinator at Department of Student Learning Organization 2008 - 2011

A Staff member of the Admission Committee 2008 -2011

A Staff member at Local Test Center of External Independent  
Testing of School Graduates at Sumy State University 2010-2011

## PUBLICATIONS

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Tovstolytkin A.I., **Lytvynenko Ya.M.**, Bodnaruk A.V. et. al, Unusual magnetic and calorimetric properties of lanthanum-strontium manganite nanoparticles. J. Magn. Magn. Mat. (2019). (*In Press*).

**Ia.M. Lytvynenko**, O.V. Fedchenko, M.H. Demydenko, O.V. Pylypenko, I.M. Pazukha, L.V. Odnodvoretz, S.I. Protsenko, Thermal stability of magnetic characteristics of Co/Ag/Fe and Co/Ag/Fe<sub>20</sub>Ni<sub>80</sub> spin-valve structures, Vacuum 143, 169 (2017).

**Ia. Lytvynenko**, C. Deranlot, S. Andrieu, T. Hauet, Magnetic tunnel junctions with perpendicular anisotropy Co/Ni multilayer electrodes, J. Appl. Phys. 117, 053906 (2015).

**Ia. Lytvynenko**, T. Hauet, F. Moutaigne, V.V. Bibyk, S. Andrieu, Time scales of bias voltage effects in Fe/MgO-based magnetic tunnel junctions with voltage-dependent perpendicular anisotropy, J. Magn. Magn. Mat. 396, 333 (2015).

S. Vorobiov, **Ia. Lytvynenko**, T. Hauet, M. Hehn, D.O. Derecha, A.M. Chornous, The effect of annealing on magnetic properties of Co/Gd multilayer, *Vacuum* 120, 9 (2015).

**Ia. Lytvynenko**, I.M. Pazukha, V.V. Bibyk, The effect of Co or Ag addition on magnetotransport and magnetic properties of Ni<sub>80</sub>Fe<sub>20</sub> thin films, *Vacuum* 116, 31 (2015).

D. Louis, **Ia. Lytvynenko**, T. Hauet, D. Lacour, M. Hehn, S. Andrieu, F. Montaigne, Interfaces anisotropy in single crystal V/Fe/V trilayer, *J. Magn. Magn. Mat.* 372, 233 (2014).

**Ia.M. Lytvynenko**, I.M. Pazukha, V.V. Bibyk, Structural, magnetic and magnetoresistive properties of ternary film Ni-Fe-Co alloy, *Journal of Nano- and Electronic Physics* 6, 02014 (2014). (Ukr.)

S.I. Vorobiov, **Ia.M. Lytvynenko**, I.O. Shpetnyi, O.V. Shutylieva, A.M. Chornous, Magnetic and magnetoresistance properties of films of the ferromagnetic metals, *Metallofizika i Noveishie Tekhnologii* 37 (8), 1049 (2015). (Ukr.)

**Ia.M. Lytvynenko**, I.M. Pazukha, O.V. Pylypenko, V.V. Bibyk, Structural-phase state, magnetoresistive and magnetic properties of permalloy films, *Metallofizika i Noveishie Tekhnologii* 37 (10), 1377 (2015). (Ukr.)

## CONFERENCE PRESENTATIONS

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A.I. Tovstolytkin, **Ya.M. Lytvynenko**, A.V. Bodnaruk et al., Magnetic nanostructures for self-controlled hyperthermia and remote temperature sensing. Proc. of the IEEE 9th International Conference on “Nanomaterials: Applications & Properties” (NAP2019), Odesa, September 15-20, 2019.

Polek T.I., Zamorskyi V.O., Vasylenko P.S., Dukhota L.I., **Lytvynenko Ya.M.**, Tovstolytkin A.I., Pogorilyi A.M., Thickness dependences of electrical and magnetic characteristics of manganese perovskite thin films. Proc. of International Conference “Functional Materials for Innovative Energy – FMIE-2019”, Kyiv, May 13-15, 2019.

**Ya. Lytvynenko**, Magnetic anisotropy control via oxygen plasma irradiation and magnetization dynamics in Pt/CoFeB/MgO system, Proc. of XVII International Freik Conference on Physics and Technology of Thin Films and Nanosystems (ICPTTFN-XVII), Ivano-Frankivsk, May 20-25, 2019.

**Ia.M. Lytvynenko**, V.V. Bibyk, T. Hauet, The spin-valve systems based on Co/Ni multilayers with perpendicular magnetic anisotropy for spintronic application, Proc. of the 1st Ukrainian scientific and technical conference “Actual problems of automation and instrumentation”, Kharkiv, 2014. (Ukr.)

**Ia.M. Lytvynenko**, T. Hauet, A. Rajanikanth, F. Montaigne, V.V. Bibyk, S. Andrieu, Electric field effect on magnetic anisotropy of V/Fe/MgO/Fe/Co epitaxial tunnel junction, Materials of International Conference of Students and Young Scientists in Theoretical and Experimental Physics “HEUREKA-2014”, Lviv, 2014.

**Ia.M. Lytvynenko**, T. Hauet, A. Rajanikanth, F. Montaigne, V.V. Bibyk, S. Andrieu, Time dependence of resistance of single-crystal magnetic tunnel junctions with MgO barrier, Abstract book of Summer school and International research and practice conference “Nanotechnology and Nanomaterials - NANO-2014”, Yaremche/Lviv, 2014.

**Ya.M. Lytvynenko**, V.V. Bibyk, The structure and magnetoresistive properties of polycrystalline film alloy based on FeNi and Co, Materials of International research and practice conference “Nanotechnology and Nanomaterials, NANO – 2013”, Bukovel, 2013.

**Ia.M. Lytvynenko**, I.M. Pazukha, H. Shirzadfar, V.V. Bibyk, Influence of annealing temperature on the phase state of thin films alloy based on Fe<sub>20</sub>Ni<sub>80</sub> and Co, Materials of the 4th International Young Scientists Conference “Optics and High Technology Material Science - SPO 2013”, Kyiv, 2013.

I.O. Shpetnyi, **Ya.M. Lytvynenko**, O.V. Pylypenko, I.Yu. Protsenko, S.A. Nepijko, G. Schönhense, Magnetic properties investigation of nanoparticles ensembles based on solid solutions with FePt oxide shell, Book of abstracts of International Conference of Students and Young Scientists in Theoretical and Experimental Physics “HEUREKA-2012”, Lviv, 2012.

## **LANGUAGES**

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**English** – upper-intermediate (B2)

**Ukrainian** - native