

# Curriculum vitae



## Personal information

**Ilina (Rubashkina) Marina**,  
married, no children, female

Date of birth: 31 July 1989

Address: Shevchenko, 2, corp. "E",  
Taganrog, Rostov Region, Russian  
Federation, 347922

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## 1. Education

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### • Basic

September 2006 – September 2016 | Southern Federal University, Russia  
<http://sfedu.ru/international/>

- Institute of Nanotechnology, Electronics and Electronic Equipment Engineering
- Master speciality: «Nanotechnology», 2012
- Master's degree of Nanotechnology. Topic: «Development of techniques and standard samples of nanodiagnostics to determine the parameters of oriented filamentary structures by atomic force microscopy and nanoindentation»
- Degree with honour, 2012
- PhD Speciality: «Solid-state electronics, radio-electronic components, micro-and nanoelectronics, devices based on quantum effects», 2016

### • Additional

September 2007 – October 2011 | Taganrog Interregional Chamber of Commerce and Industry, Russia [www.ticci.ru/index.htm](http://www.ticci.ru/index.htm)

- Programme: «Continuous search for perspective employees among university students»

5 July – 30 July 2010

| Institute of International Communication in collaboration with the Heinrich-Heine University, Germany  
[www.iik-duesseldorf.de](http://www.iik-duesseldorf.de)

- Language courses
- DAAD (German Academic Exchange Service) scholarship for further academic study and training in Germany

25 April – 25 May 2011

| National Research University of Electronic Technology, Russia [www.miet.ru](http://www.miet.ru)

- Advanced training
- Topic: «Probe research methods of nanostructures»

16 April – 11 May 2012

Southern Federal University, Russia

- Undergraduate practice
- Topic: «Development of techniques determining the parameters of oriented filamentary structures by scanning probe microscopy»

## 2. Work experience

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July 2015 - now

Southern Federal University, Institute of Nanotechnology, Electronics and Electronic Equipment Engineering

- Assistant of Department of Nanotechnology and Microsystems,
- Teaching practical training:
  - "Modeling of the technological processes of micro- and nanoelectronics"
  - "Condensed Matter Physics"
  - "Materials of electronic equipment"

January 2014 - now

Southern Federal University, Institute of Nanotechnology, Electronics and Electronic Equipment Engineering

- Junior Researcher of Department of Nanotechnology and Microsystems
- Research work:
  - Study the properties of oriented filamentary structures in particular vertically aligned carbon nanotubes by scanning probe microscopy
  - Study of the electrical properties of vertically aligned carbon nanotubes by scanning tunnel microscopy
  - Study of resistive switching effects in vertically aligned carbon nanotubes by scanning tunnel microscopy
  - Study of the mechanical properties of vertically aligned carbon nanotubes by nanoindentation
  - Development and certification of new measurement techniques of vertically aligned carbon nanotubes parameters by scanning probe microscopy
  - Research and development of nanoelectronic devices based on vertically aligned carbon nanotubes

September 2011 – December 2013

Southern Federal University, Research and educational centre «Nanotechnologies»

- Engineer of laboratory «Probe nanotechnologies»
- Was taught of equipment operation:
  - Scanning probe NanoLaboratory Ntegra, NT-MDT Co.
    - AFM (contact, semicontact, non-contact mode) in air and liquid;
    - Lateral Force Microscopy, Phase Imaging, Force Modulation;
    - AFM Lithography;
    - STM;
    - Magnetic Force Microscopy;
    - Electrostatic Force Microscopy;
    - Scanning Capacitance Microscopy;
    - Kelvin Probe Microscopy;
    - Spreading Resistance Imaging.
  - Scanning probe Microscope Solver P47-PRO, NT-MDT Co.

### 3. Scientific interests

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- scanning tunnel microscopy
- atomic force microscopy
- carbon nanotubes
- oriented filamentary structures
- memristor devices
- devices with vertically aligned carbon nanotubes
- material science
- nanoelectronics
- nanotechnology

### 4. Progress

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- Russian President Scholarship for graduate students studying in programs corresponding to the priority areas of modernization and technological development of the Russian economy, 2014/2015;
- Russian Government Scholarship for graduate students studying in educational programs corresponding to the priority areas of modernization and technological development of the Russian economy, 2013/2014 and 2015/2016;
- Scholarship Endowment Fund "Education and Science of the Southern Federal District" 2009, 2011, 2012, 2014;
- Winner of the competition "Best young scientist of the Southern Federal University - graduate student," 2014;
- Diploma for 2nd place of the contest research among the students', postgraduates', young scientists' research works in the VI All-Russian intellectual forum - Nanotechnology Olympiad (Moscow State University), 2012;
- Winner Youth Science and Innovation Competition "U.M.N.I.K", 2012;
- Diploma for 2nd place for the report in the subsection «Microelectronics, Microsystems and Nanotechnology» of Eighth Annual Scientific Conference of students and graduate students of basic departments of the Southern Research Center of Russian Academy of Sciences, 2012;
- Diploma for 2nd place for the report at the Scientific Conference of Students and Young Scientists "Technical cybernetics, electronics and control systems", 2012;
- Diploma of the winner for the report in the section «Engineering Sciences» of Annual Scientific Conference of students and graduate students of basic departments of the Southern Research Center of Russian Academy of Sciences, 2011;
- Diploma of the Southern Federal University for the best work of students in the technical sciences in 2009/2010 academic year;

### 5. Main publications

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- *O.A. Ageev, Yu.F. Blinov, O.I. Ilin, B.G. Konoplev, M.V. Rubashkina, V.A. Smirnov, A.A. Fedotov* **Study of the Resistive Switching of Vertically Aligned Carbon Nanotubes by Scanning Tunneling Microscopy** // *Physics of the Solid State*, 2015, Vol. 57, No. 4, pp. 825–831.

- *O.A. Ageev, S.V. Balakirev, Al.V. Bykov, E.Yu. Gusev, A.A. Fedotov, J.Y. Jityaeva, O.I. Il'in, M.V. Il'ina, A.S. Kolomiitsev, B.G. Konoplev, S.U. Krasnoborodko, V.V. Polyakov, V.A. Smirnov, M.S. Solodovnik, E.G. Zamburg.* **Development of new metamaterials for advanced element base of micro- and nanoelectronics, and microsystem devices.** Chapter In: *Advanced Materials – Manufacturing, Physics, Mechanics and Applications.* Parinov, I.A., Chang, Sh.-H., Topolov, V.Yu. (Eds.). Springer International Publishing Switzerland, 2016. 702 p. – pp. 563-580
- *O.A. Ageev, Yu.F. Blinov, O.I. Il'in, A.S. Kolomiitsev, B.G. Konoplev, M.V. Rubashkina, V.A. Smirnov, A.A. Fedotov.* **Memristor Effect on Bundles of Vertically Aligned Carbon Nanotubes Tested by Scanning Tunnel Microscopy** // *Technical Physics*, 2013, Vol. 58, No. 12, pp. 1831–1836.
- *O.A. Ageev, O.I. Il'in, M.V. Rubashkina, V.A. Smirnov, O.G. Tsukanova, A.A. Fedotov* **Determination of the Electrical Resistivity of Vertically Aligned Carbon Nanotubes by Scanning Probe Microscopy** // *Technical Physics*, 2015, Vol. 60, No. 7, pp. 1044–1050
- *O.A. Ageev, Al.V. Bykov, A.S. Kolomiitsev, B.G. Konoplev, M.V. Rubashkina, V.A. Smirnov, O.G. Tsukanova* **Study of Modification Methods of Probes for Critical-Dimension Atomic-Force Microscopy by the Deposition of Carbon Nanotubes** // *Semiconductors*, 2015, Vol. 49, No. 13, pp. 1743–1748
- *O.A. Ageev, Yu. F. Blinov, M.V. Il'ina, O.I. Il'in, V.A. Smirnov, O.G. Tsukanova* **Study of Adhesion of Vertically Aligned Carbon Nanotubes to a Substrate by Atomic-Force Microscopy** // *Physics of the Solid State*, 2016, Vol. 58, No. 2, pp. 309–314.
- *O.A. Ageev, O.I. Ilin, A.S. Kolomiitsev, M.V. Rubashkina, V.A. Smirnov, A.A. Fedotov* **Investigation of Effect of Geometrical Parameters of Vertically Aligned Carbon Nanotubes on their Mechanical Properties** // *Advanced Materials Research*, V. 894, 2014, pp 355-359
- *Ageev O.A., Ilin O.I., Kolomiitsev A.S., Konoplev B.G., Rubashkina M.V., Smirnov V.A., Fedotov A.A.* **Development of a technique for determining Young's modulus of vertically aligned carbon nanotubes using the nanoindentation method** // *Nanotechnologies in Russia*, 2012, V. 7, N. 1-2, p. 47-53
- *O.A. Ageev, B.G. Konoplev, M.V. Rubashkina, V.A. Smirnov, A.V. Rukomoikin, M.S. Solodovnik* **Studying the Effect of Geometric Parameters of Oriented GaAs Nanowhiskers on Young's Modulus Using Atomic Force Microscopy** // *Nanotechnologies in Russia*, 2013, V. 8, N. 1-2, p. 23-28
- *V.V. Kushnir, M.V. Rubashkina, A.M. Svetlichnyi, O.B. Spiridonov* **The formation of submicron structures on the surface of amorphous silicon films by nanosecond pulsed radiation of a laser line generator** // *Nanotechnologies in Russia*, 2012, V. 7, Numbers 9-10, p. 457-462

## **6. Research projects, grants**

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- Head of Project №16-37-00101 "Modeling and experimental studies of the resistive switching of vertically aligned carbon nanotubes for the development of advanced memory elements", Russian Foundation for Basic Research, 2016-2017.
- Executant of Project "Development and research of structural and technological solutions forming field emission elements of nanoelectronics-based films of graphene on silicon carbide by a focused ion beam" in the design of the public tasks in the field of scientific research. GR №114090340011, 2014-2016.
- Executant of Project № 14-07-31322 «Theoretical and experimental investigation of the formation and memristor properties of the titanium oxide nanostructures arrays by using probe nanotechnology, Russian Foundation for Basic Research, 2014-2015.
- Executant of Project №14-07-31162 "Study of local ion-assisted deposition of materials to form the means of probe nanodiagnostics" customer Federal State Institution Russian Foundation for Basic Research, 2014-2015.
- The responsible for the R&D "Investigation of the influence processes of polymer nanocomposite materials with carbon nanostructures on their electrical properties for functional coatings and sensing elements" № 14.A18.21.1955, 2012.
- Executant of Project "Development of methods for the design and development of advanced multi-axis integrated micro- and nanomechanical gyroscopes and accelerometers using plasma and laser technologies for surface micromachining microoptoelectromechanical systems" under the Federal Program "Research and development on priority directions of scientific-technological complex of Russia for 2014- 2020 ". GK №14.575.21.0045, 2014-2016.
- Executant of Project "The study of the formation and diagnostic nanobiochips based converged NBIKS-technologies for hybrid systems microfluidics" № 14.A18.21.1206, 2012.
- Executant of Project "Development and certification of measurement techniques of mechanical and geometrical parameters of vertically aligned carbon nanotubes by scanning probe microscopy" in collaboration with State Regional Center for Standardization, Metrology and Testing in the Rostov region. Certificates are attached, 2011.

## **7. Language skills**

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- Russian
- English
  - good level of spoken English
  - high level of technical language
- German
  - good level of spoken German
  - high level of technical language

## **8. Computer skills**

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- MathCad 15,
- MatLab 7
- CorelDraw
- OriginPro, etc

## **9. Personal qualities**

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- responsible
- fast-learning
- communicative
- purposeful
- stress-resistant
- energetic
- with high-level of motivation
- ability to work in a team