

## RESUME

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## Profile

- 12 years of experience in mathematical modeling of quantum many-particle systems
- High level of expertise in scientific state-of-the-art software for large-scale simulations
- Theoretical consulting and support of nuclear physics experiments at world-leading labs
- Advanced skills of public presentation: 27 conferences and 18 invited seminars
- 81 scientific publications, 624 citations, *h*-index: 14
- International and team work experience in a multi-cultural environment

## Objective

A position with advancement potential utilizing my education and employing my skills in computational modeling, numerical analysis, scientific programming, scientific consulting and teaching.

## Education

- 2002** **Ph.D. in Nuclear Physics**, *Dr. rer. nat.* degree with Honors  
Institute for Nuclear Physics, University of Cologne, Germany
- 1997** **Candidate of Sciences in Theoretical Physics** (Ph.D. eqv.)  
National Taras Shevchenko University of Kiev, Ukraine
- 1994** **M.S. in Physics**, Diploma with Honors  
National Taras Shevchenko University of Kiev, Ukraine

## Experience

10/2006 – present Research Associate, University of Arizona, Tucson, USA

- developed and tested a new quantum many-particle approach allowing to drastically reduce the complexity of *ab-initio* large-scale computations
- programmed the new technique in FORTRAN 90, C++ and *Mathematica*
- advanced computational skills on High Performance Computing Systems with Parallel Processing (Shared Memory SGI Altix 4700, 512-core Itanium2, 1024 GB)
- reported the research results in 12 scientific papers and at 4 conferences
- taught " *Theoretical Mechanics*" course (25 students) and supervised 2 graduate students

06/2007 – 06/2007 Visiting Research Associate, Heavy Ion Nuclear Physics Lab (RIKEN), Japan

- discussed and improved the technique developed at the University of Arizona

10/2005 – 09/2006 Research Associate, Heavy Ion Research Center (GSI), Darmstadt, Germany

- adapted effective two-body interactions for large-scale many-body computations using ANTOINE software package
- performed nuclear shell model calculations on High Performance Computing System and provided theoretical support for the experiments on exotic atomic nuclei performed in Germany, France and USA
- co-authored 8 scientific articles and presented the research results at 3 conferences

01/2003 – 09/2005 Research Associate, National Superconducting Cyclotron Laboratory, Michigan State University, East Lansing, USA

- adapted large-scale iterative non-linear inversion algorithm for parametrization of effective nuclear two-body interactions for medium mass ( $A \sim 70$ ) systems
- employed new interactions for large-scale simulations of exotic nuclear dynamics, revealed specific properties of many-body correlations in neutron-rich atomic nuclei
- estimated the collective nuclear dynamics effects responsible for the enhancement of atomic dipole moments crucial for tests of parity and time reversal symmetry violations
- developed FORTRAN 90 and *Mathematica* codes
- co-authored 15 scientific papers and reported the research results at 7 conferences

08/1997 – 12/2002 Research Associate, Research Assistant, DAAD-fellow,  
Institute for Nuclear Physics, University of Cologne, Germany

- developed the concept of quasi-deuteron configurations and explained the regularities for a magnetic dipole gamma-ray strength observed in odd-odd atomic nuclei
- interpreted experimental data on collective multi-phonon excitations in atomic nuclei by performing microscopic many-nucleon shell model computations
- contributed to the development of a user-friendly interface for quantum many-particle dynamics codes (FORTRAN 77 and Perl)
- co-authored 35 scientific papers and reported research results at 6 conferences

11/1994 – 07/1997 Research and Teaching Assistant, Department of Quantum Field Theory,  
National Taras Shevchenko University of Kiev, Ukraine

- contributed to the development of an algebraic microscopic symmetry-based approach for non-axially deformed systems of strongly interacting particles
- taught "*Mathematical Methods in Physics*" course (2 semesters) and "*Practical Problems in Quantum Mechanics*" course (2 semesters)
- co-authored 4 scientific papers and reported research results at 3 conferences

### Personal Awards

• Grant of the Japan-U.S. Institute for Physics with Exotic Nuclei, (2007) • *Dr. rer. nat.* certificate with Honors, University of Cologne (2002) • NATO Grant for the NATO Advanced Studies Institute "Nuclei Far from Stability and Astrophysics", (2000) • Fellowship of German Academic Exchange Service (DAAD-fellowship Grant), (1997/98) • ISSEP Grant of the International Renaissance Foundation, No.PSU 072033, (1997) • Graduation Diploma with Honors, National Taras Shevchenko University of Kiev (1994)

### Publicity, written & verbal communication

- 20 conference talks on National and International level;
- 18 invited talks in North America, Europe and Japan;
- 7 conference poster presentations;
- 81 scientific publications (full list at <http://www.physics.arizona.edu/~lisetsky>).

- *ISI Web of Knowledge* Citation Index : 624; *h*-index: 14;
- Member of American Physical Society (since 2003)
- Member of German Physical Society (since 2001)
- Referee in scientific Journals: Nuclear Physics A, Physics Letters B, European Physics Journal A, Journal of Physics G, Acta Physica Polonica B

### Additional skills

Languages: English, German, Ukrainian, Russian.

Computer:

- Operating systems: Windows, UNIX/Linux
- Programming: FORTRAN, C, C++, HTML
- Scientific Software: large-scale quantum many-body codes ANTOINE, MFD, REDSTICK OXBASH, advanced mathematics systems *Mathematica* and *Maple*.
- Microsoft Office Software (Word, Outlook, Excel, Power Point) and Open Office

### Additional information

Other names used:

- Oleksandr Lisetskyy (Passport)
- Alexander Lisetskyi (earlier scientific publications)