DR. NÓRA KATALIN SÁNDOR

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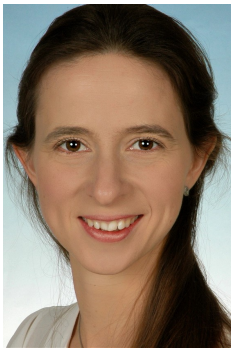

EXPERIENCE

Postdoctoral research fellow

Laboratory of Quantum Physics, University of Strasbourg

Jan. 2015 – Ongoing Strasbourg, France

Projects:

- Laser-control of atomic states via Rydberg molecular states
  *Proposed a **new experimental method** to control the interaction of ground-state atoms. The method was successfully implemented by an experimental team shortly after being published*
- Application of machine learning in describing cavity-assisted charge-transport
  Set up an algorithm based on Gaussian Process Regression to explore new parameter ranges hard to calculate with nonlinear Green-function method

Parental leave:

- Aug. 2016 – May 2017
- July 2018 – May 2019

Research fellow

Wigner Research Center for Physics of the Hungarian Academy of Sciences

Mar. 2014–Dec. 2014 Budapest, Hungary

Project:

- Resonant dipole-dipole interaction in a two-dimensional waveguide newline *Found angular-dependence of the interaction between dipoles in a cavity*

Apr. 2014–Sep. 2014 **Visiting researcher** at **Nano-Atomoptics Group, University of Tübingen, Germany** **Project:**

- Time-resolved measurements of Rydberg-populations
  *Proposed a **novel measurement scheme** for state-selective all-optical detection of Rydberg atoms, participated in the proof-of-principle experiments*

Assistant research fellow

Wigner Research Center for Physics of the Hungarian Academy of Sciences

Sep. 2008–Febr. 2014 Budapest, Hungary

Project:

- Coherent control of atoms by frequency-modulated laser pulses (see PhD thesis)
  Carried out increasingly independent research under the supervision of Dr. Gagik Djotyan. Proposed several interaction schemes for preparing ground-state atoms in given quantum states using frequency-modulated laser pulses.

EDUCATION

Ph.D. in Physics

in the Doctoral Programme in Quantum Optics and Quantum Information, University of Pécs

Sep. 2008–Sep. 2013 Pécs, Hungary

Classification: 'summa cum laude'
Title of the thesis: "Coherent control of atomic quantum states using frequency-chirped laser pulses"

Diplom (Univ.) in Physics-Engineering.

Budapest University of Technology and Economics, Hungary

Sep. 2003–Jun. 2008 Budapest, Hungary

Classification: 'Excellent'
Title of the diploma thesis: "Optical phase-information writing in the quantum states of double-lambda systems"

General qualification for university entrance

Protestant Gymnasium, Pápa, Hungary

Sep. 1999–Jun. 2003 Pápa,Hungary

Average: 5.0/5

LANGUAGES

Hungarian	●●●●●
English	●●●●●
French	●●●○○
German	●●●○○

PROGRAMMING SKILLS

Python	●●●●○
Numpy, Scipy,Pandas	●●●●○
Scikit-learn,Plotly	●●●○○
Tensorflow	●○○○○
Matlab,Octave	●●●●○
Latex	●●●●○
C++	●○○○○
fortran	●●●○○
Wolfram Mathematica	●●●●○

SCHOLARSHIPS AND AWARDS

Marie Sklodowska-Curie Individual Fellowship

Jun. 2017–May 2020

Paused between July 2018 – May 2019 for parental leave

‘Teach@Tübingen fellowship’

Teaching&Research scholarship given by University of Tübingen

Apr. 2014–Sep. 2014

Jedlik Ányos’ Scholarship’

Hungarian state scholarship aiming for applying the results of scientific research in education

Jun. 2013–Dec. 2014

Paused for the duration of the ‘Teach@Tübingen fellowship’

VOLUNTARY WORK

Active member of Saint Ignatius Jesuit College

Jun. 2017–May 2020 Budapest, Hungary

Projects:

- Found-raising for summer-camp for disadvantaged children
- Co-organizing an all-year educational program for talented high-school students

HOBBYS

- cooking
- patchwork
- hiking

Sersheim, May 3, 2020

TECHNICAL SKILLS

Quantum Mechanics
Atom-and Molecular Physics
Mathematical modeling
Numerical simulation
Data analysis and interpretation
Regression
Bayesian Inference
Differential equations
Probability theory and statistics
Scientific writing
Oral presentation
Teaching
Grant Preparation

REFEREES

Prof. Guido Pupillo
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fortagh@uni-tuebingen.de
+49 7071 2976305
Auf der Morgenstelle 14
72076 Tübingen

ACADEMIC ACHIEVEMENTS

Journal Articles

[1] N Sándor, R González-Férez, PS Julienne, G Pupillo "Rydberg optical Feshbach resonances in cold gases", *Phys. Rev. A*, **96**: (3), 032719 (2017)

[2] F. Karlewski, M. Mack, J. Grimmel, N. Sándor, and J. Fortágh, "State-selective all-optical detection of Rydberg atoms", *Phys. Rev. A*, **91**: 043422 (2015)

[3] J. Grimmel, M. Mack, F. Karlewski, F. Jessen, M. Reinschmidt, N. Sándor and J. Fortágh, "Measurement and numerical calculation of Rubidium Rydberg Stark spectra", *New Journal of Physics*, **17**: 053005 (2015)

[4] N. Sandor, G. Demeter, D. Dzsotjan, and G. P. Djotyan. "Coherence creation in an optically thick medium by matched propagation of a chirped-laser-pulse pair" *Phys. Rev. A*, **89**: 033823, (2014)

[5] N. Sandor, J. S. Bakos, Zs. Sörlei, and G. P. Djotyan. "Creation of coherent superposition states in inhomogeneously broadened media with relaxation" *J. Opt. Soc. Am. B*, **28**: 2785-2796, (2011)

[6] G. P. Djotyan, N. Sandor, J. S. Bakos, and Zs. Sörlei. "An extremely robust strong-field control of atomic coherence" *Opt. Exp.*, **19**: 17493-17499, (2011)

[7] G. P. Djotyan, N. Sandor, J. S. Bakos, and Zs. Sörlei. "Optical phase information writing and storage in populations of metastable quantum states" *J. Opt. Soc. Am. B.*, **26**: 1959-1966, (2009)

Selected contributions to scientific conferences

[1] N Sándor, R González-Férez, PS Julienne, G Pupillo, " Rydberg Optical Feshbach Resonance",*poster presentation* at International Workshop on Atomic Physics, 2017, Dresden, Germany

[2] N Sándor, R González-Férez, PS Julienne, G Pupillo, " Rydberg Optical Feshbach Resonance",*oral presentation* at Correlation and Order in Rydberg Gases workshop at the Lorentz Center,2016, Leiden, The Netherlands

[3] N. Sandor, G. P. Djotyan, "Propagation of Raman-resonant frequency chirped laser pulses in a medium of lambda-atoms" *oral presentation* at SPIE Optics + Optoelectronics, 2013, Prague, Czech Republic

[4] G.P. Djotyan, N. Sandor, J.S. Bakos and Zs. Sörlei," Optical phase and image writing and storage using metastable quantum states in media with inhomogeneously broadened transition lines", *poster presentation* at SPIE & OSA Student Chapters Congress, 2009, Ashtarak, Armenia

Teaching

Preparing and leading graduate-level courses

Apr. 2014–Sep. 2014	**Programming in Mathematica**, University of Tübingen, Germany (in English)
Sep. 2012–Dec. 2012	**Programming in Mathematica**, Budapest University of Technology and Economics, Hungary (in Hungarian) Published lecture notes: L. Lóczi and N. Sándor: 'Informatics to Students of Cognitive Science' (2013)
Sep. 2013–Dec. 2013	**Coherent control of quantum systems'**, University of Pécs, Hungary (in Hungarian)

Leading practical courses

Sep. 2009–Dec. 2010	**Introduction to Mathematics**, Budapest University of Technology and Economics, Hungary (in Hungarian)
Sep. 2010–Dec. 2010	**Seminar series in probability theory**, University of Pécs, Hungary (in Hungarian)
Sep. 2008–Dec. 2009	**Mathematical methods in Physics**, University of Pécs, Hungary (in Hungarian)

Assistant Teacher

Sep. 2007–May 2008	**Calculus**, Budapest University of Technology and Economics, Hungary (in French)