THE UNIVERSITY *of* **WISCONSIN** **MADISON**

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Theoretical Nuclear Physics

Department of Physics
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CURRICULUM VITAE

PERSONAL INFORMATION

Born: Istanbul, December 26, 1975   Marital Status: Single
Nationality: Turkish   Gender: Female

EDUCATION

Ph.D. in Physics, Middle East Technical University, 2004.

M.S. in Physics, Middle East Technical University, 2000.

B.S. in Physics, Ege University, 1998, *Valedictorian of the Faculty of Science.*

CURRENT ACADEMIC POSITION

Research Associate   Since 2005
University of Wisconsin-Madison
Department of Physics

I am currently working as a Research Associate with the Nuclear Theory group of Prof. Baha Balantekin. We conduct research at the intersection of Neutrino Astrophysics, Nuclear Physics and Mathematical Physics.

PREVIOUS ACADEMIC POSITIONS

Assistant Professor   2004-2005
Izmir University of Economics
Department of Mathematics

I worked in the Mathematics Department of Izmir University of Economics which is located in the West cost of Turkey. I acquired a considerable amount of teaching experience during this time.

Visiting Scholar   2002-2004
University of Wisconsin-Madison
Department of Physics

During my Ph.D., I was awarded a fellowship which allowed me to visit the Nuclear Theory Group of University of Wisconsin-Madison. I conducted a substantial part of my Ph.D. research during this visit under the supervision of Prof. Baha Balantekin.

Teaching Assistant   1998-2002
Middle East Technical University
Department of Physics

I worked as a Teaching Assistant during part of my graduate studies which contributed to my teaching background.

TEACHING EXPERIENCE

University of Wisconsin-Madison   Spring 2007
Department of Physics   Faculty Assistant

•**Phys 104**: I taught discussion, problem solving and laboratory hours of this course which is the second semester of a non-calculus introductory physics course covering Electromagnetism, Optics and Modern Physics.

Izmir University of Economics   2004-2005
Department of Mathematics   Assistant Professor

•**Math 102 Calculus II:** I taught three different sections of this course for Business and Economics students. The course covers integration techniques and differential equations with applications to business and economics.

•**Math 100 Discrete Mathematics:** I taught three sections of this course for Computer Science students. The course covers a diverse array of topics such as Boolean logic, sets, relations and functions, linear algebra, matrices, combinatorics and recurrence relations.

•**Math 103 Fundamentals of Mathematics:** This course is designed to introduce the first year mathematics majors to elemental mathematical concepts and to familiarize them with the essential proof techniques. The first part of the course covers logic and proof techniques and the second part includes the applications of these techniques to basic theorems of set theory, number theory and graph theory.

Middle East Technical University   1998-2002
Department of Physics   Teaching Assistant

As a Teaching Assistant, I was responsible for problem solving hours of the following courses. I also assisted in homework and exam preparation and grading.

•**Phys 209 Mathematical Methods in Physics I**: Ordinary differential equations, boundary value problems and characteristic functions, Fourier transformations, partial differential equations.

•**Phys 210 Mathematical Methods in Physics II**: Vectorial analysis, orthogonal curvilinear coordinates, complex valued functions and residue techniques.

Additional Teaching Experience

• During my undergraduate years, I briefly worked with a charity group dedicated to bring the homeless and abused children back to school. I tutored homeless children during this time.
• During my undergraduate years, I participated in a optional program offered by my university which was designed to teach the participants the basics of educational theory. I attended several lectures about student psychology and measurement theory in education.

SCHOLARSHIPS AND FELLOWSHIPS

Domestic Post-Doctoral Research Fellowship from Scientific and Technical Research Council of Turkey (TÜBİTAK), 2004.

Integrated Ph.D. Program Fellowship from Scientific and Technical Research Council of Turkey (TÜBİTAK), 2001.

Undergraduate Scholarship from Turkish Physics Foundation, 1995.

REFEREEING

International Journal of Modern Physics E (World Scientific).

LIST OF PUBLICATIONS

1. Satoru Odake, Yamac Pehlivan, Ryu Sasaki, "Interpolation of SUSY Quantum Mechanics," Submitted to J. Phys. A, [arXiv:0707.0314].

2. A. B. Balantekin and Y. Pehlivan, "Solutions of Nuclear Pairing," Submitted to Phys. Rev. Lett.

3. A. B. Balantekin and Y. Pehlivan, "Supersymmetry and Nuclear Pairing," J. Phys. G: Nucl. Part. Phys. 34 (2007) 1783-1787, [arXiv:0705.1318].

4. A. B. Balantekin, J. H. de Jesus and Y. Pehlivan, "Spectra and Symmetry in Nuclear Pairing," Phys. Rev. C 75, 064304 (2007), [arXiv:nucl-th/0702059].

5. A. B. Balantekin and Y. Pehlivan, "Neutrino-Neutrino Interactions and Flavor Mixing in Dense Matter," J. Phys. G: Nucl. Part. Phys. **34**, 47-65 (2007), [arXiv:astro-ph/0607527].

6. A. B. Balantekin, T. Dereli and Y. Pehlivan, "Solutions of the Gaudin Equation and Gaudin Algebras," J. Phys. A **38**, 5697 (2005), [arXiv:math-ph/0505071].

7. A. B. Balantekin, T. Dereli and Y. Pehlivan, "Exactly Solvable Pairing Model Using an Extension of Richardson-Gaudin Approach," Int. J. Mod. Phys. E **14**, 47 (2005), [arXiv:nucl-th/0505023].

8. A. B. Balantekin, T. Dereli and Y. Pehlivan, "An Exactly Solvable Model of Interacting Bosons," J. Phys. G **30**, 1225 (2004), [arXiv:nucl-th/0407006].

INVITED TALKS

1. *Exactly Solvable Pairing Model Using an Extension of Richardson-Gaudin Approach*, invited talk at the International Workshop on Blueprints for the Nucleus, From First Principles to Collective Motion, Feza Gursey Institute Istanbul, May 2004.

2. *Calogero-Sutherland Models and a q-Deformed Gaudin Algebra*, invited talk at the Statistical Physics Days, Istanbul Technical University, Istanbul, June 2004.

3. *A New Approach to Gaudin Model*, invited talk at the Mini-workshop on Quantization, Dualities and Integrable Systems III, Middle East Technical University, Ankara, February 2004.

4. *Matrix Mechanics, Integrable Systems and Gaudin Algebras*, invited talk at Yildiz Technical University, Istanbul, September 2004.

5. *Solutions of Gaudin Equation and Gaudin Algebras*, invited talk at Izmir University of Economics, Izmir, October 2004.

CONFERENCES AND SUMMER SCHOOLS ATTENDED

1. PHENO 06 Symposium, University of Wisconsin-Madison, May 2006.

2. Workshop on Quantization, Dualities and Integrable Systems - IV, Abant Izzet Baysal University, Bolu, February 2005.

3. Statistical Physics Days, Istanbul Technical University, Istanbul, June 2004.

4. International Workshop on Blueprints for the Nucleus, From First Principles to Collective Motion, Feza Gursey Institute Istanbul, May 2004.

5. Mini-workshop on Quantization, Dualities and Integrable Systems III, Middle East Technical University, Ankara, February 2004.

6. Perspectives in Neutrino Physics, Gordon Conference on Nuclear Physics, Waterville, Maine, July 2003.

7. Workshop on Neutrino News from the Lab and the Cosmos, Fermilab, October 2002.

8. Introductory School On String Theory, the Abdus Salam International Centre for Theoretical Physics, June 2002.

9. Quantization, Integrability and Supersymmetry I, Bilkent University, Ankara, November, 2001.

10. School on String Theory, Feza Gursey Institute Istanbul, September, 2001.

11. Feza Gursey Memorial Conference II, Bosphorus University, Istanbul, August 1999.

REFERENCES

1. <u>Prof. Baha Balantekin</u> of University of Wisconsin-Madison: I worked with Prof. Balantekin since 2002, first as a Ph.D. student and later as a Postdoctoral Research Associate. He can comment on almost every aspect of my professional life. Below is his contact information.

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2. <u>Prof. Tekin Dereli</u> of Koç University: Prof. Dereli was my M.S. and Ph.D. advisor. He can comment extensively on my research.

Department of Physics	Phone: +90 (212) 338 1510
Koc University	Fax: +90 (212) 338 1559
80910 Sariyer-Istanbul,	`tdereli@ku.edu.tr`
Turkey	`http://home.ku.edu.tr/~tdereli/`

3. <u>Dr. F. Olcay Ilicasu</u> of Rowan University: Dr. Ilicasu was my colleague at the Izmir University of Economics. We taught different sections of the same Calculus course and she can comment on my teaching. Below is her contact information.

Department of Mathematics	Phone: (856) 256 4500 - 3885
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Glassboro, NJ 08028	`http://www.rowan.edu/mars/depts/math/`