

Prof. Azmi Gençten

Personal Information

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International Researcher IDs

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Education Information

Doctorate, University of Warwick, Fizik, England 1988 - 1993

Undergraduate, Ondokuz Mayıs University, Eğitim Fakültesi, Matematik ve Fen Bilimleri Eğitimi Bölümü, Turkey 1982 - 1986

Foreign Languages

English, B2 Upper Intermediate

Research Areas

Natural Sciences

Academic Titles / Tasks

Professor, Ondokuz Mayıs University, Fen-Edebiyat Fakültesi, Fizik Bölümü, 2008 - Continues

Associate Professor, Ondokuz Mayıs University, Fen-Edebiyat Fakültesi, Fizik Bölümü, 1998 - 2008

Ondokuz Mayıs University, Eğitim Fakültesi, Matematik ve Fen Bilimleri Eğitimi Bölümü, 1993 - 1998

Research Assistant, Ondokuz Mayıs University, Eğitim Fakültesi, Matematik ve Fen Bilimleri Eğitimi Bölümü, 1987 - 1993

Academic and Administrative Experience

Ondokuz Mayıs University, 2008 - 2009

Courses

ATOM VE MOLEKÜL FİZİĞİ I, Undergraduate, 2017 - 2018, 2016 - 2017, 2015 - 2016, 2014 - 2015, 2013 - 2014, 2012 - 2013, 2011 - 2012, 2010 - 2011, 2009 - 2010

FİZİK I, Undergraduate, 2017 - 2018, 2016 - 2017, 2015 - 2016, 2014 - 2015, 2013 - 2014, 2012 - 2013, 2010 - 2011

ATOM VE MOLEKÜL FİZİĞİ II, Undergraduate, 2017 - 2018, 2016 - 2017, 2015 - 2016, 2014 - 2015, 2013 - 2014, 2012 - 2013, 2011 - 2012, 2010 - 2011, 2009 - 2010

FİZİK II, Undergraduate, 2017 - 2018, 2016 - 2017, 2015 - 2016, 2014 - 2015, 2013 - 2014, 2012 - 2013, 2011 - 2012,

2010 - 2011

NÜKLEER MAGNETİK REZONANS I, Postgraduate, 2017 - 2018, 2010 - 2011, 2009 - 2010

BİYOFİZİK, Undergraduate, 2016 - 2017, 2015 - 2016, 2014 - 2015, 2013 - 2014, 2012 - 2013, 2011 - 2012, 2010 - 2011, 2009 - 2010

MANYETİK REZONANS KUANTUM BİLGİ TEORİSİ I, Doctorate, 2015 - 2016, 2011 - 2012

FİZİK LAB II, Undergraduate, 2015 - 2016

MANYETİK REZONANS KUANTUM BİLGİ TEORİSİ II, Doctorate, 2015 - 2016, 2012 - 2013

FİZİK LAB I, Undergraduate, 2015 - 2016

KUANTUM BİLGİ TEORİSİ, Postgraduate, 2014 - 2015, 2012 - 2013, 2011 - 2012, 2009 - 2010

SAĞLIK FİZİĞİ, Undergraduate, 2014 - 2015, 2013 - 2014, 2012 - 2013

Biyofizik, Undergraduate, 2011 - 2012

Modern Fizik, Undergraduate, 2010 - 2011, 2009 - 2010

Genel Fizik, Undergraduate, 2009 - 2010

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Quantum coherence resourced by the strong nuclear quadrupolar interaction**
Cakmak S., Gençten A., ALTINTAŞ F.
PHYSICA SCRIPTA, no.10, 2023 (SCI-Expanded)
- II. **Algorithmic quantum heat engines**
Kose E., Cakmak S., Gençten A., Kominis I. K., Mustecaplioglu O. E.
PHYSICAL REVIEW E, vol.100, no.1, 2019 (SCI-Expanded)
- III. **Construction of Two-Ququart Quantum Entanglement by Using Magnetic Resonance Selective Pulse Sequences**
Karakas M. D., Gençten A.
ZEITSCHRIFT FÜR NATURFORSCHUNG SECTION A-A JOURNAL OF PHYSICAL SCIENCES, vol.73, no.10, pp.911-918, 2018 (SCI-Expanded)
- IV. **Irreversible work and internal friction in a quantum Otto cycle of a single arbitrary spin**
Cakmak S., Altintas F., Gençten A., Mustecaplioglu O. E.
EUROPEAN PHYSICAL JOURNAL D, vol.71, no.3, 2017 (SCI-Expanded)
- V. **Construction of four-qubit quantum entanglement for SI ($S=3/2$, $I=3/2$) spin system**
Gün A., Cakmak S., Gençten A.
QUANTUM INFORMATION PROCESSING, vol.12, no.1, pp.205-215, 2013 (SCI-Expanded)
- VI. **THREE-QUBIT QUANTUM ENTANGLEMENT FOR SI ($S = 3/2$, $I = 1/2$) SPIN SYSTEM**
Gun A., Gençten A.
INTERNATIONAL JOURNAL OF QUANTUM INFORMATION, vol.9, no.7-8, pp.1635-1642, 2011 (SCI-Expanded)
- VII. **CONSTRUCTION AND APPLICATION OF FOUR-QUBIT SWAP LOGIC GATE IN NMR QUANTUM COMPUTING**
Gun A., Saka I., Gençten A.
INTERNATIONAL JOURNAL OF QUANTUM INFORMATION, vol.9, no.2, pp.779-790, 2011 (SCI-Expanded)
- VIII. **Spectral editing with 2D E-HMQC NMR spectroscopy for CD_n groups: A theoretical study**
Şaka I., Gümüş S., Gençten A.
Indian Journal of Pure and Applied Physics, vol.48, no.9, pp.626-631, 2010 (SCI-Expanded)
- IX. **A Complete Product Operator Theory for IS ($I=1$, $S=1$) Spin System and Application to 3D HMQC-COSY NMR Experiment**
Saka I., Gümüş S., Gençten A.
ZEITSCHRIFT FÜR NATURFORSCHUNG SECTION A-A JOURNAL OF PHYSICAL SCIENCES, vol.64, no.5-6, pp.377-386, 2009 (SCI-Expanded)
- X. **A theoretical investigation of 2D MAXY-JRES NMR spectroscopy of CD_nCD_m groups**
Saka I., Gençten A.

ZEITSCHRIFT FUR NATURFORSCHUNG SECTION A-A JOURNAL OF PHYSICAL SCIENCES, vol.63, no.5-6, pp.339-350, 2008 (SCI-Expanded)

- XI. **A theoretical application of MAXY NMR for CD_n groups**
Saka I., Gençten A.
ZEITSCHRIFT FUR NATURFORSCHUNG SECTION A-A JOURNAL OF PHYSICAL SCIENCES, vol.62, no.5-6, pp.259-264, 2007 (SCI-Expanded)
- XII. **Product operator theory of 2D MAXY-HMQC NMR spectroscopy for CD_n groups**
Saka I., Gençten A.
JOURNAL OF MOLECULAR STRUCTURE, vol.834, pp.521-524, 2007 (SCI-Expanded)
- XIII. **A complete product operator theory for IS (I = (1)/(2), S=1) spin system and application to DEPT-HMQC NMR experiment**
Gençten A., Saka I.
MOLECULAR PHYSICS, vol.104, no.18, pp.2983-2989, 2006 (SCI-Expanded)
- XIV. **Product operator descriptions of INEPT and RINEPT NMR spectroscopies for IS_n (I=1/2, S=3/2) spin systems**
Tokatli A., Gençten A., Sahin M., Tezel O., Bahçeli S.
JOURNAL OF MAGNETIC RESONANCE, vol.169, no.1, pp.68-72, 2004 (SCI-Expanded)
- XV. **A theoretical investigation of distortionless enhancement by polarization transfer and subspectral editing with a multiple quantum trap NMR spectroscopy for CX_n groups**
Tezel O., Gençten A., Tokatli A., Sahin M., Bahçeli S.
ACTA PHYSICA POLONICA A, vol.104, no.5, pp.503-511, 2003 (SCI-Expanded)
- XVI. **Subspectral editing with a multiple quantum trap of IS_n spin systems by using product operator theory**
Sahin M., Tokatli A., Bahçeli S., Gençten A.
ACTA PHYSICA POLONICA A, vol.104, no.1, pp.73-80, 2003 (SCI-Expanded)
- XVII. **A theoretical application of 3D J-resolved NMR spectroscopy for IS_nK_m (I=1/2, S=1/2 and 1, K=3/2) spin systems**
Saka I., Tezel O., Gençten A.
ZEITSCHRIFT FUR NATURFORSCHUNG SECTION A-A JOURNAL OF PHYSICAL SCIENCES, vol.58, no.2-3, pp.139-143, 2003 (SCI-Expanded)
- XVIII. **Product operator theory for spin-5/2 nuclei: Application to 2D J-resolved NMR spectroscopy**
Tokatli A., Gençten A., Bahçeli S.
SPECTROSCOPY LETTERS, vol.36, no.5-6, pp.449-459, 2003 (SCI-Expanded)
- XIX. **Product operator theory for spin-3/2 nuclei and application to 2D J-resolved NMR spectroscopy**
Gençten A., Tezel Ö., Bahçeli S.
Chemical Physics Letters, vol.351, no.1-2, pp.109-114, 2002 (SCI-Expanded)
- XX. **A theoretical investigation of 3D J-resolved NMR spectroscopy for IS_nK_m (I = 1/2, S = 1/2 and 1, K = 1) spin systems**
Gençten A., Tezel Ö.
Spectroscopy Letters, vol.34, no.3, pp.317-324, 2001 (SCI-Expanded)
- XXI. **A product operator theory of ¹³C spin-echo J-modulation NMR spectroscopy for CD_n (n = 1,2,3) groups**
Gençten A., Tezel Ö.
Spectroscopy Letters, vol.34, no.4, pp.505-511, 2001 (SCI-Expanded)
- XXII. **A theoretical application of SEMUT NMR spectroscopy to deuterated compounds**
Gençten A., Tezel Ö., Köroğlu A.
Applied Magnetic Resonance, vol.20, no.1-2, pp.265-273, 2001 (SCI-Expanded)
- XXIII. **ESR of gamma irradiated (NH₄)₂C₂O₄.H₂O and K₂C₂O₄.H₂O single crystals**
Tezel O., Köroğlu A., Gençten A., Celik F.
Indian Journal of Pure and Applied Physics, vol.37, no.2, pp.122-126, 1999 (SCI-Expanded)
- XXIV. **Electron paramagnetic resonance of Cu²⁺ doped Na₂HAsO₄·7H₂O single crystals**

Köksal F., Kartal I., Gençten A.

Zeitschrift fur Naturforschung - Section A Journal of Physical Sciences, vol.53, no.9, pp.779-782, 1998 (SCI-Expanded)

- XXV. **A product operator theory of 2D DEPT J-resolved NMR spectroscopy for $I_S n$ spin system ($I=1/2$, $S=1$)**

Gençten A., Özdoğan T., Köksal F.

Spectroscopy Letters, vol.31, no.5, pp.981-987, 1998 (SCI-Expanded)

- XXVI. **A product operator description of 2D-J resolved NMR spectroscopy for $I_S n$ spin system ($I=1/2$, $S=1$)**

Gençten A., Köksal F.

Spectroscopy Letters, vol.30, no.1, pp.71-78, 1997 (SCI-Expanded)

Articles Published in Other Journals

- I. **Three-Qutrit Topological SWAP Logic Gate for ISK ($I=1$, $S=1$, $K=1$) Spin System**
Şahin Ö., GENÇTEN A.
Journal of Applied Mathematics and Physics, vol.5, no.12, pp.2320-2325, 2017 (Peer-Reviewed Journal)
- II. **Quantum Superdense Coding for Three and Four Qubit Entangled States**
GÜN A., GENÇTEN A.
ADVANCED SCIENCE, ENGINEERING AND MEDICINE, vol.5, no.11, pp.1209-1215, 2013 (Peer-Reviewed Journal)
- III. **Quantum Simulation of 2p Electronic Hamiltonian in Molecular Ethylene by Using an NMR Quantum Computer**
TÜRKPENÇE D., GENÇTEN A.
Journal of Quantum Information Science, vol.3, no.02, pp.78-84, 2013 (Peer-Reviewed Journal)
- IV. **2D J INEPT NMR Spectroscopy for CD_n Groups A Theoretical Study**
GENÇTEN A., ŞAKA İ.
Journal of Modern Physics, vol.2, no.07, pp.719-723, 2011 (Peer-Reviewed Journal)
- V. **INEPT NMR Spectroscopy of (ND_n)-N-14 groups: product operator theory and simulation**
Türkpençe D., Sekka I., Gençten A.
TURKISH JOURNAL OF PHYSICS, vol.34, no.3, pp.139-148, 2010 (ESCI)
- VI. **2D MAXY-JRES NMR Spectroscopy of CH_nCH_m ($CA(n)CX(m)$) Groups: Product Operator Theory and Simulation**
Saka I., Gumus S., Gençten A.
TURKISH JOURNAL OF PHYSICS, vol.31, no.6, pp.347-354, 2007 (ESCI)
- VII. **A THEORETICAL INVESTIGATION OF PENDANT ^{13}C NMRSPECTROSCOPY FOR CD_n GROUPS**
GENÇTEN A., ŞAKA İ., GÜMÜŞ S.
SDÜ FEN EDEBİYAT FAKÜLTESİ FEN DERGİSİ (E-DERGİ), vol.1, no.1-2, pp.42-49, 2006 (Peer-Reviewed Journal)
- VIII. **PENDANT C-13 NMR Spectroscopy Applied to CH_n Groups**
Gençten A., Saka I., Gumus S.
TURKISH JOURNAL OF PHYSICS, vol.30, no.3, pp.149-155, 2006 (ESCI)
- IX. **A product operator formalism of 3D J-resolved NMR spectroscopy for $I_S n K m$ ($I=1/2$, $S=1/2$, $K=1/2$) spin system**
Tezel Ö., Gençten A.
Turkish Journal of Physics, vol.24, no.6, pp.759-764, 2000 (Scopus)
- X. **An examination of one component model in Zn and Ni doped $YBa_2Cu_3O_{7-\delta}$**
Gençten A.
Turkish Journal of Physics, vol.20, no.5, pp.454-458, 1996 (Scopus)
- XI. **Magic-angle spinning NMR: An experimental approach**
Gençten A.
Turkish Journal of Physics, vol.20, no.2, pp.146-152, 1996 (Scopus)

- XII. **NMR evidence for the OT structural transition in $\text{YBa}_2(\text{Cu}_{1-x}\text{M}_x)\text{O}_{7-\delta}$ ($\text{M} = \text{Co, Al and Ga}$)**
Gençten A., Dupree R., Paul D.
Physica C: Superconductivity and its applications, vol.216, no.3-4, pp.491-494, 1993 (Scopus)
- XIII. **Absence of magnetic pair breaking in Zn-doped $\text{YBa}_2\text{Cu}_3\text{O}_7$**
Walstedt R., Bell R., Schneemeyer L., Waszczak J., Warren Jr. W., Dupree R., Gençten A.
Physical Review B, vol.48, no.14, pp.10646-10649, 1993 (Scopus)
- XIV. **A ^{89}Y NMR study of substitution for copper in $\text{YBa}_2(\text{Cu}_{1-x}\text{M}_x)\text{O}_7$**
Dupree R., Gençten A., Paul D.
Physica C: Superconductivity and its applications, vol.193, no.1-2, pp.81-89, 1992 (Scopus)
- XV. **NMR evidence for common magnetic behavior in double layered superconducting cuprates**
Han Z., Dupree R., Gençten A., Liu R., Edwards P.
Physical Review Letters, vol.69, no.8, pp.1256-1259, 1992 (Scopus)

Refereed Congress / Symposium Publications in Proceedings

- I. **A Comparison Between Two Qubit and Two Ququart Quantum Phase Estimation**
HAMZAÇEBİ M., KURT M., GENÇTEN A.
Turkish Physical Society 39th International Physics Congress, Bodrum, 31 August - 04 September 2023, vol.5, pp.31-36
- II. **The Constructions of Up and Down Quantum Counter Circuits for Qudit Systems**
KURT M., KALTEHEİ A., ÇAKMAK S., GENÇTEN A.
Turkish Physical Society 39th International Physics Congress, Bodrum, Turkey, 31 August - 04 September 2023, vol.5, pp.37-41
- III. **CONSTRUCTION OF THE NAND GATE IN QUANTUM COMPUTING SYSTEMS USING QUANTUM FOURIER TRANSFORM**
KURT M., KALTEHEİ A., ÇAKMAK S., GENÇTEN A.
3RD INTERNATIONAL BLACK SEA MODERN SCIENTIFIC RESEARCH CONGRESS, Samsun, Turkey, 23 - 24 March 2023
- IV. **A Generalized Quantum Addition Circuit Based on Quantum Fourier Transform**
KURT M., GENÇTEN A.
TURKISH PHYSICAL SOCIETY 37TH INTERNATIONAL PHYSICS CONGRESS, Bodrum/MUĞLA, Turkey, 01 September 2021, vol.3, pp.13-17
- V. **An Investigation of Quantum Error Correction for Nine Qutrit**
SAİD H., GENÇTEN A.
4th International Conference on Physical Chemistry and Functional Materials, Elazığ, Turkey, 08 April 2021, pp.84-90
- VI. **A Simulation of Quantum Fourier Transform for Qudit Systems**
KURT M., GENÇTEN A.
4th International Conference on Physical Chemistry and Functional Materials, Elazığ, Turkey, 08 April 2021, pp.63-66
- VII. **An Investigation of SI ($S=5/2$, $I=5/2$) Spin System as Two Qudit Quantum States**
Turkyolu M., Gençten A.
35th International Physics Congress of the Turkish-Physical-Society (TPS), Bodrum, Turkey, 4 - 08 September 2019, vol.2178
- VIII. **Development of Some Two and Three Qutrit Quantum Logic Gates**
Terzi S., Gençten A.
35th International Physics Congress of the Turkish-Physical-Society (TPS), Bodrum, Turkey, 4 - 08 September 2019, vol.2178
- IX. **Multivalued Quantum Logic Circuits: Some New Suggestions and Applications**
KARAKAŞ M. D., GENÇTEN A.

1. INTERNATIONAL TECHNOLOGICAL SCIENCES AND DESIGN SYMPOSIUM, Giresun, Turkey, 27 - 29 June 2018, pp.445-452

X. **Construction of Quantum Teleportation Circuit for Qudits**

KARAKAŞ M. D., GENÇTEN A.

1. INTERNATIONAL TECHNOLOGICAL SCIENCES AND DESIGN SYMPOSIUM, Giresun, Turkey, 27 - 29 June 2018

XI. **Implementations of Some Quantum Logic Gates by Using Magnetic Resonance Selective Pulse Sequences**

GENÇTEN A., KARAKAŞ M. D.

International Conference on Physical Chemistry and Functional Materials(PCFM'18), Elazığ, Turkey, 19 - 21 June 2018

XII. **Construction and Application of SWAP Logic Gate for Two Ququart States**

GENÇTEN A., KARAKAŞ M. D.

International Conference on Physical Chemistry and Functional Materials(PCFM'18), Elazığ, Turkey, 19 - 21 June 2018

XIII. **A Single Arbitrary Driven Spin as a Quantum Otto Engine: The Role Of Internal Friction**

ÇAKMAK S., ALTINTAŞ F., MÜSTECAPLIOĞLU Ö. E., GENÇTEN A.

Kuantum Optiği ve Bilişim Toplantısı, İstanbul, Turkey, 1 - 02 February 2018

XIV. **A Generalization of Superdense Coding for Two Qudit States**

KARAKAŞ M. D., GENÇTEN A.

Turkish Physical Society 33rd International Physics Congress, Bodrum/ MUĞLA, Turkey, 6 - 10 September 2017, pp.216

XV. **Redefinition of Some Quantum Logic Gates by Using the Direct Sum Algebra**

Çorbacı S., KARAKAŞ M. D., GENÇTEN A.

Turkish Physical Society 33rd International Physics Congress, Bodrum/ MUĞLA, Turkey, 6 - 10 September 2017, pp.260

XVI. **The Analysis of Quantum Qutrit Entanglements in a Qutrit Based Hyper-Sphere in Terms of Gluing and Combining Products**

Duran V., Gençten A.

9th International Physics Conference of the Balkan-Physical-Union (BPU), İstanbul, Turkey, 24 - 27 August 2015, vol.1722

XVII. **An investigation for quantum qutrit entanglements through colour wheel compass**

Duran V., Gençten A.

International Conference on Quantum Science and Applications (ICQSA), Eskişehir, Turkey, 25 - 27 May 2016, vol.766

XVIII. **Construction of two qutrit entanglement by using magnetic resonance selective pulse sequences**

Corbaci S., Karakas M. D., Gençten A.

International Conference on Quantum Science and Applications (ICQSA), Eskişehir, Turkey, 25 - 27 May 2016, vol.766