

## Prof. HAMZA POLAT

### Personal Information

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### Education Information

Doctorate, Inonu University, Fen Bilimleri Enstitüsü, Fizik (Dr), Turkey 1985 - 1987

Postgraduate, Hacettepe University, Mühendislik Fakültesi, Fizik Mühendisliği Bölümü, Turkey 1980 - 1982

Undergraduate, Hacettepe University, Mühendislik Fakültesi, Fizik Mühendisliği Bölümü, Turkey 1974 - 1979

### Dissertations

Doctorate, Magnetik Alanda Basit Antiferromagnetik Ising Spin Sistemlerinin Kritik Sıcaklık İle Değişimi, Inonu University, Fen Bilimleri Enstitüsü, Fizik (Dr), 1987

Postgraduate, Püskürtme Yöntemi ile CdS Filmlerinin Elde Edilmesi, Hacettepe University, Mühendislik Fakültesi, Fizik Mühendisliği Bölümü, 1982

### Academic Titles / Tasks

Professor, Dokuz Eylül University, Fen Fakültesi, Fizik Bölümü, 1997 - Continues

Associate Professor, Dokuz Eylül University, Fen Fakültesi, Fizik Bölümü, 1997 - 2003

Assistant Professor, Bolu Abant İzzet Baysal University, Faculty Of Arts And Sciences, 1994 - 1997

### Academic and Administrative Experience

Dokuz Eylül University, 2009 - Continues

Dokuz Eylül University, 2012 - 2015

Dokuz Eylül University, 2011 - 2014

### Courses

#### Postgraduate

İstatistik Mekanik-I, Postgraduate, 2013 - 2014

İstatistik Mekanik, Postgraduate, 2012 - 2013

Fizikte Stokastik Süreçler, Postgraduate, 2012 - 2013

#### Undergraduate

Termal Fizik, Undergraduate, 2013 - 2014

## Supervised Theses

- POLAT H., Kuantum Monte Carlo yönteminin spin sistemlerine genel uygulaması, Doctorate, U.KANBUR(Student), 2021
- POLAT H., The Kronig - Penney model extended to arbitrary potentials via numerical matrix mechanics, Postgraduate, S.ÖZER(Student), 2018
- POLAT H., Zamanla değişen boyuna alan altındaki ising modeli için etkin-alan teorisi ve monte-carlo simulasyonu, Doctorate, E.VATANSEVER(Student), 2016
- POLAT H., Ising-tipi nanomanyetik malzemelerin histeretik yanıt karakteristikleri, Doctorate, B.OZAN(Student), 2015
- POLAT H., Donmuş düzensizlik etkileri içeren Ising modelinde kritik olayların geliştirilmiş etkin alan teorisi ile analizi, Doctorate, Y.YÜKSEL(Student), 2013
- POLAT H., Ferrimanyetik karma Ising sistemlerinde karşılama ve kritik sıcaklıkların Monte Carlo incelemesi, Doctorate, E.KIŞ(Student), 2012
- POLAT H., Discrete quantum walk model and its applications., Doctorate, M.GÖNÜLOL(Student), 2011
- POLAT H., Dış magnetik alanın varlığındaki spin-1 Blume-Emery-Griffiths modelin magnetik özellikleri, Postgraduate, Y.YÜKSEL(Student), 2008
- POLAT H., Manyetik alanda spin-s ising model: bir efektif alan teorisi ve analizi, Postgraduate, Y.CANPOLAT(Student), 2007
- POLAT H., Ising sisteminde kümesel değişim yöntemi, Postgraduate, C.AKYÜZ(Student), 2003
- POLAT H., 2 ising sistemlerinin faz diyagramları, Postgraduate, Ü.AKINCI(Student), 2002
- POLAT H., Phase diagrams of the spin-1/2 ising system on two dimensional lattices, Postgraduate, Ü.AKINCI(Student), 2002

## Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Thermal properties of rung-disordered two-leg quantum spin ladders: Quantum Monte Carlo study**  
Kanbur U., POLAT H., VATANSEVER E.  
PHYSICAL REVIEW E, vol.102, no.4, 2020 (SCI-Expanded)
- II. **Universality in the three-dimensional random bond quantum Heisenberg antiferromagnet**  
Kanbur U., Vatansever E., POLAT H.  
PHYSICAL REVIEW B, vol.102, no.6, 2020 (SCI-Expanded)
- III. **Nonequilibrium dynamics of a mixed spin-1/2 and spin-3/2 Ising ferrimagnetic system with a time dependent oscillating magnetic field source**  
VATANSEVER E., POLAT H.  
JOURNAL OF MAGNETISM AND MAGNETIC MATERIALS, vol.392, pp.42-49, 2015 (SCI-Expanded)
- IV. **Non-equilibrium phase transition properties of disordered binary ferromagnetic alloy**  
VATANSEVER E., AKINCI Ü., POLAT H.  
JOURNAL OF MAGNETISM AND MAGNETIC MATERIALS, vol.389, pp.40-47, 2015 (SCI-Expanded)
- V. **Dynamic phase transitions in a ferromagnetic thin film system: A Monte Carlo simulation study**  
VATANSEVER E., POLAT H.  
THIN SOLID FILMS, vol.589, pp.778-782, 2015 (SCI-Expanded)
- VI. **Magnetic response of a disordered binary ferromagnetic alloy to an oscillating magnetic field**  
VATANSEVER E., POLAT H.  
PHYSICS LETTERS A, vol.379, pp.1568-1575, 2015 (SCI-Expanded)
- VII. **Dynamic hysteretic features of Ising-type thin films**  
Aktas B. O., AKINCI Ü., POLAT H.  
PHYSICAL REVIEW E, vol.90, no.1, 2014 (SCI-Expanded)
- VIII. **Critical phenomena in dynamical Ising-typed thin films by effective-field theory**  
Aktas B. O., AKINCI Ü., POLAT H.  
THIN SOLID FILMS, vol.562, pp.680-691, 2014 (SCI-Expanded)
- IX. **Non-equilibrium dynamics of a ferrimagnetic core-shell nanocubic particle**  
VATANSEVER E., POLAT H.

- PHYSICA A-STATISTICAL MECHANICS AND ITS APPLICATIONS, vol.394, pp.82-89, 2014 (SCI-Expanded)
- X. **Time dependent magnetic field effects on the +/- J Ising model**  
VATANSEVER E., AKINCI Ü., POLAT H.  
JOURNAL OF MAGNETISM AND MAGNETIC MATERIALS, vol.344, pp.89-95, 2013 (SCI-Expanded)
- XI. **Monte Carlo investigation of a spherical ferrimagnetic core-shell nanoparticle under a time dependent magnetic field**  
VATANSEVER E., POLAT H.  
JOURNAL OF MAGNETISM AND MAGNETIC MATERIALS, vol.343, pp.221-227, 2013 (SCI-Expanded)
- XII. **Investigation of critical phenomena and magnetism in amorphous Ising nanowire in the presence of transverse fields**  
YÜKSEL Y., AKINCI Ü., POLAT H.  
PHYSICA A-STATISTICAL MECHANICS AND ITS APPLICATIONS, vol.392, no.10, pp.2347-2358, 2013 (SCI-Expanded)
- XIII. **Nonequilibrium dynamics of a spin-3/2 Blume-Capel model with quenched random crystal field**  
VATANSEVER E., POLAT H.  
JOURNAL OF MAGNETISM AND MAGNETIC MATERIALS, vol.332, pp.28-37, 2013 (SCI-Expanded)
- XIV. **Investigation of oscillation frequency and disorder induced dynamic phase transitions in a quenched-bond diluted Ising ferromagnet**  
VATANSEVER E., AKINCI Ü., YÜKSEL Y., POLAT H.  
JOURNAL OF MAGNETISM AND MAGNETIC MATERIALS, vol.329, pp.14-23, 2013 (SCI-Expanded)
- XV. **Investigation of bond dilution effects on the magnetic properties of a cylindrical Ising nanowire**  
YÜKSEL Y., AKINCI Ü., POLAT H.  
PHYSICA STATUS SOLIDI B-BASIC SOLID STATE PHYSICS, vol.250, no.1, pp.196-206, 2013 (SCI-Expanded)
- XVI. **Effective field investigation of dynamic phase transitions for site diluted Ising ferromagnets driven by a periodically oscillating magnetic field**  
AKINCI Ü., YÜKSEL Y., VATANSEVER E., POLAT H.  
PHYSICA A-STATISTICAL MECHANICS AND ITS APPLICATIONS, vol.391, no.23, pp.5810-5817, 2012 (SCI-Expanded)
- XVII. **Dynamic phase transition properties and hysteretic behavior of a ferrimagnetic core-shell nanoparticle in the presence of a time dependent magnetic field**  
YÜKSEL Y., VATANSEVER E., POLAT H.  
JOURNAL OF PHYSICS-CONDENSED MATTER, vol.24, no.43, 2012 (SCI-Expanded)
- XVIII. **Nonequilibrium phase transitions and stationary-state solutions of a three-dimensional random-field Ising model under a time-dependent periodic external field**  
YÜKSEL Y., VATANSEVER E., AKINCI Ü., POLAT H.  
PHYSICAL REVIEW E, vol.85, no.5, 2012 (SCI-Expanded)
- XIX. **Critical behavior and phase diagrams of a spin-1 Blume-Capel model with random crystal field interactions: An effective field theory analysis**  
YÜKSEL Y., AKINCI Ü., POLAT H.  
PHYSICA A-STATISTICAL MECHANICS AND ITS APPLICATIONS, vol.391, no.9, pp.2819-2832, 2012 (SCI-Expanded)
- XX. **Random field effects on the phase diagrams of spin-1/2 Ising model on a honeycomb lattice**  
YÜKSEL Y., AKINCI Ü., POLAT H.  
PHYSICA A-STATISTICAL MECHANICS AND ITS APPLICATIONS, vol.391, no.3, pp.415-422, 2012 (SCI-Expanded)
- XXI. **Thermal and magnetic properties of a ferrimagnetic nanoparticle with spin-3/2 core and spin-1 shell structure**  
YÜKSEL Y., AYDINER E., POLAT H.  
JOURNAL OF MAGNETISM AND MAGNETIC MATERIALS, vol.323, no.23, pp.3168-3175, 2011 (SCI-Expanded)
- XXII. **Effective-field-theory analysis of the three-dimensional random-field Ising model on isometric lattices**  
AKINCI Ü., YÜKSEL Y., POLAT H.  
PHYSICAL REVIEW E, vol.83, no.6, 2011 (SCI-Expanded)

- XXIII. **Effects of the bond dilution on the phase diagrams of a spin-1 transverse Ising model with crystal field interaction on a honeycomb lattice**  
AKINCI Ü, YÜKSEL Y, POLAT H.  
PHYSICA A-STATISTICAL MECHANICS AND ITS APPLICATIONS, vol.390, no.4, pp.541-552, 2011 (SCI-Expanded)
- XXIV. **An introduced effective-field theory study of spin-1 transverse Ising model with crystal field anisotropy in a longitudinal magnetic field**  
YÜKSEL Y, POLAT H.  
JOURNAL OF MAGNETISM AND MAGNETIC MATERIALS, vol.322, no.24, pp.3907-3916, 2010 (SCI-Expanded)
- XXV. **Dependence on dilution of critical and compensation temperatures of a two-dimensional mixed spin-1/2 and spin-1 system**  
AYDINER E, YÜKSEL Y, KIS ÇAM E, POLAT H.  
JOURNAL OF MAGNETISM AND MAGNETIC MATERIALS, vol.321, no.19, pp.3193-3197, 2009 (SCI-Expanded)
- XXVI. **An introduced effective-field approximation and Monte Carlo study of a spin-1 Blume-Capel model on a square lattice**  
YÜKSEL Y, AKINCI Ü, POLAT H.  
PHYSICA SCRIPTA, vol.79, no.4, 2009 (SCI-Expanded)
- XXVII. **The magnetic properties of spin-1/2 and spin-1 Ising models in an applied magnetic field by introducing the effective-field approximation**  
Canpolat Y, Torguersuel A, POLAT H.  
PHYSICA SCRIPTA, vol.76, no.6, pp.597-605, 2007 (SCI-Expanded)
- XXVIII. **Electron-fluid model for DC size effect under a magnetic field**  
POLAT H., Kosker D., Tomak M.  
PHYSICA STATUS SOLIDI A-APPLIED RESEARCH, vol.158, no.1, pp.161-168, 1996 (SCI-Expanded)

### **Papers Published in Refereed Scientific Meetings**

- I. **Hysteretic features of the dynamical Ising type thin films**  
AKINCI Ü, POLAT H.  
20. İstatistik Fizik Günleri, Turkey, 27 - 29 June 2013
- II. **Magnetic and Thermodynamic Properties of the Spin 1 Ising Ferromagnetic Systems**  
POLAT H., AKINCI Ü, SÖKMEN İ.  
10.İstatistik Fizik Günleri, Turkey, 3 - 04 July 2003
- III. **Phase Diagrams Of Spin S S Ising Systems**  
POLAT H., AKINCI Ü, SÖKMEN İ.  
Türk Fizik Derneği 21. Fizik kongresi (TFD-21), Turkey, 11 - 14 September 2002
- IV. **SPIN CORRELATION FUNCTIONS AND PHASE DIAGRAMS OF THE SPIN 1/2 ISING SYSTEMS**  
POLAT H., AKINCI Ü, ERZİN S., SOKMEN I.  
9. İstatik Fizik Günleri, İstanbul, Turkey, 8 - 12 July 2002
- V. **Spin Correlation Functions and Phase Diagrams of the Spin Ising Systems**  
POLAT H., AKINCI Ü, SÖKMEN İ.  
9.İstatistik Fizik Günleri, Turkey, 4 - 05 July 2002
- VI. **Determination Phase Diagrams of the Two Dimensional Ising Lattices in a Magnetic Field Using by Differential Operator Technique**  
AKINCI Ü, POLAT H.  
8.İstatistik Fizik Günleri, Turkey, 5 - 06 July 2001

### **Supported Projects**

POLAT H., Project Supported by Higher Education Institutions, Ising-Tipi Nanomanyetik Malzemelerin Histeretik Yanıt

Karakteristikleri, 2013 - 2013

POLAT H., Project Supported by Higher Education Institutions, Saf ve Karma Spin Sistemlerinin Termal ve Manyetik Özelliklerinin Monte Carlo Simülasyon Tekniđi, Geliştirilmiş Etkin Alan Teorisi ve Genetik Algoritmaları ile Karşılaştırmalı Analizi, 2009 - 2011

## **Metrics**

Publication: 34

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H-Index (Scopus): 16