

# CURRICULUM VITAE

## (March 2010)

### 1. PERSONEL

<b><u>SURNAME, NAME:</u></b> Demir, Durmuş Ali	<b><u>DATE OF BIRTH:</u></b> March 10, 1967	
<b><u>MARITAL STATUS:</u></b> Married, one child.	<b><u>PLACE OF BIRTH:</u></b> Silifke, İçel	
Department of Physics, İzmir Institute of Technology (IZTECH), İzmir, TR35430, Turkey		
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## GENERAL

### 2. EDUCATION

YEARS	DEGREE	UNIVERSITY	DEPARTMENT
1993 – 1995	Ph. D.	METU <sup>(1)</sup>	PHYSICS
1991 – 1993	M. Sc.	METU	PHYSICS
1986 – 1991	B. Sc. (MINOR) <sup>(2)</sup>	METU	PHYSICS
1986 – 1991	B. Sc. (MAJOR) <sup>(2)</sup>	METU	ELECTRICAL AND ELECTRONICS ENGINEERING

<sup>(1)</sup> METU : Middle East Technical University.

<sup>(2)</sup> One year of which at the English Preparatory School, METU.

### 3. ADMINISTRATIVE POSITIONS

YEARS	POSITION	INSTITUTION
2009 –	REDACTEUR	TUBITAK <sup>(3)</sup> (POPULAR BOOKS)
2006	REPRESENTATIVE OF TURKEY	CERN STRATEGY COUNCIL
2005 – 2007	ADVISOR	TUBITAK-TBAG
2005 – 2007	DEAN	FACULTY OF SCIENCE, IZTECH
2004 – 2010	CHAIRPERSON	DEPARTMENT OF PHYSICS, IZTECH

<sup>(3)</sup> TUBITAK: Turkish Scientific and Technological Research Council

### 4. AFFILIATIONS

YEARS	POSITION	INSTITUTION
2007 – 2008	Visiting Researcher	Deutsches Elektronen Synchrotron (DESY), Hamburg, Germany
<b>2003 –</b>	<b>Professor</b>	<b>İzmir Institute of Technology (IZTECH)</b>
2000 – 2003	Research Associate	Theoretical Physics Institute, University of Minnesota, USA
1998 – 2000	Research Associate	International Centre for Theoretical Physics, Trieste, Italy
1997	Habilitation Degree	Middle East Technical University (METU)
1996 – 1997	Research Associate	Department of Physics and Astronomy, University of Pennsylvania, USA
1991 – 1996 (1996 – 2000, on leave)	RA/Instructor	Department of Physics, METU

## 5. HONORS AND AWARDS

NAME	INSTITUTION	YEAR
Friedrich Wilhelm Bessel Research Prize	Alexander von Humboldt Foundation	2006
TUBITAK Young Scientist Prize	TUBITAK	2005
TUBA <sup>(5)</sup> Young Scientist Prize	Turkish Academy of Sciences	2004
SIMAVI Prize (Natural Sciences)	TGC <sup>(6)</sup>	2001
PARLAR Found. Young Scientist Prize	METU	1997
Doctoral Fellowship	TUBITAK	1995

<sup>(4)</sup> TUBA: The Turkish Academy of Sciences

<sup>(5)</sup> TGC: The Turkish Journalists' Chamber

## 6. MEMBERSHIP TO ACADEMIES

ACADEMY	YEAR
TWAS – the Academy of Sciences for the Developing World	2009

## 7. MEMBERSHIP TO PROFESSIONAL SOCIETIES

INSTITUTION	YEAR
APS – American Physical Society	2009
EPS – European Physical Society	2009
CMS – Compact Muon Solenoid Experiment - Large Hadron Collider Complex	2005
TFD – Turkish Physical Society	1997

## 8. EDITORIAL BOARD MEMBERSHIP

<b>PUBLISHER</b>	<b>JOURNAL</b>	<b>YEAR</b>
Bentham Science Publishers Ltd.	The Open Journal of Nuclear and Particle Physics	2008

## 9. JOURNALS REFEREED

Physical Review Letters
Physics Letters B
Physical Review D
International Journal of Modern Physics D
Journal of High Energy Physics
Europhysics Letters
International Journal of Theoretical Physics
European Physical Journal C
Turkish Journal of Physics

## 10.AWARDS AND PRIZES REFEREED

Fulbright Fellowships
TUBA-GEBIP Prizes
Parlar Foundation Prizes
Habilitation Exams
TUBITAK Science Prize

## 11.CONFERENCE AND WORKSHOP ORGANIZATIONS

<b>CONFERENCE</b>	<b>PLACE AND DATE</b>	<b>DUTY</b>
Ankara Physics Days	Ankara (May, 2009)	ORGANIZING COMMITTEE MEMBER
CMS Integration and Simulation Meeting – ECLIPSE 06	Antalya (March, 2006)	ORGANIZING COMMITTEE MEMBER
Izmir Physics Days – IZPHYS-01	Izmir (May, 2005)	ORGANIZING COMMITTEE MEMBER

Miniworkshop on Supersymmetry – MiniSUSY	Adana (March, 2005)	ORGANIZING MEMBER	COMMITTEE
Physics Beyond Four Dimensions -Beyond4D	ICTP (June, 2000)	ORGANIZING MEMBER	COMMITTEE
Karaburun Science Congress I, II, III, IV	Izmir (September, 2005-2009)	SCIENTIFIC ADVISORY BOARD	
International Summer School and Conference on HEP I, II, III, IV	Mugla (September, 2005-2009)	SCIENTIFIC ADVISORY BOARD	
TURKISH PHYSICAL SOCIETY – 26. INTERNATIONAL PHYSICS CONGRESS	Bodrum (September, 2009)	SCIENTIFIC ADVISORY BOARD	

## 12. ACTIVITIES ON SCIENCE POLICY IN TURKEY

TITLE OF TALK	MEETING	DATE
Particle Physics Strategy of Turkey	Turkish Atomic Energy Agency (TAEK)	Mar. 2006
	CERN Strategy Council Meeting, DESY-Zeuthen, Germany	May 2006
The Kavli Institutes: Hottest Research Topics in Science	Faculty of Science, ITECH Colloquium	Sep. 2007
	Feza Gursey Intitute, TUBITAK, Istanbul	Oct. 2006
	IZTECH Student Meeting	Apr. 2006
	Izmir Physics Days I	May 2005

## 13. RECENT TALKS

MEETING	TITLE	PLACE AND DATE
Colloquia	Fizik Arařtırmalarında Teknolojik Dönüřüm	YİBO Fen Öğretmenleri Toplantısı TÜSSİDE (Ocak, 2010)
	Talks on CERN and the LHC Experiments	Ege U. (November, 2008); DEU (December, 2008); IZTECH (February, 2009); MMO (March, 2009); Cukurova Medical Faculty (June, 2009).

	Z' Models	British University in Egypt (June, 2007)
	B Physics and CP Violation	IPM Tehran (September, 2005)
	From Large to Short Distances	Sharif Univ. of Technology (Oct., 2005)
	Physics at Short Distances	Sheffield University (October, 2004)
	Kisa Mesafelerde Fizik	Mersin University (May, 2004)
	A Journey to Short Distances	Bilkent University (December, 2003)
Seminars	Signatures of Extra U(1) at the CERN CMS Experiment	Helsinki Inst. Physics (Oct., 2009)
	Search for Extra U(1)s in Hadronic and Leptonic Events at the CMS	CERN CMS SUSY Grp. (July, 2009)
	Neutrino Masses: Present Status	Feza Gursey Inst. (Feb., 2008)
	Neutrino Masses from Supersymmetry	DESY Theory Group (Nov., 2007)
	RG Invariance in Supersymmetry	Inst. Fundamental Theory (Nov., 2005)
	Non-holomorphic SUSY Breaking	Feza Gursey Inst. (June, 2005)
	The Kavli Institutes	IZTECH (May 2005)
	The Anomaly-Free Z'	IPM Tehran (September, 2005)
	The split supersymmetry	Durham IPPP (Oct., 2004)
	Cosmological Constant vs. Higgs Mass	Sheffield University (Oct., 2004)
	Phenomenology of Extra Z Bosons	Cukurova University (March 2005)
	Conformal Invariance	Feza Gursey Inst. (February, 2004)
Conferences	An Extra SUSY U(1) at the LHC	EPS High Energy Meeting, Krakow, Poland (July, 2009)
	SUSY Search at the LHC and Astrophysical Bounds	CERN- Turkish Forum (July 2009)

The PAMELA Anomaly and U(1)' Model	Ankara Physics Days (May, 2009)
Phenomenological Aspects of U(1)' Models	The Dark Side of the Universe (4 <sup>th</sup> Conf.), Cairo, Egypt (June, 2008)
The Higgs Sector: Phenomenology	Int. Summer School on High Energy Physics (September, 2006)
LHC: Possibilities and Expectations	DURU-FEST (June, 2006)
An Overall Look at the Universe	II. Congress of Physics Students (May, 2006)
Particle Physics Strategy of Turkey	CERN Council Strategy Meeting (May, 2006)
Electric Dipole Moments	23. Meeting of Turkish Physical Society, Mugla (September, 2005)
Supersymmetry Phenomenology	Miniworkshop on Supersymmetry, Adana (March, 2005)
Extra Dimensions	IV. Four Seas Conference, Istanbul (September, 2004)
Candidates for 'New Physics'	XI. National High Energy Meeting, Bolu (June, 2004)

#### 14.PRESS APPEARENCES

<b>PRESS AGENCY (all in Turkish)</b>	<b>TITLE</b>	<b>DATE</b>
Focus	Particle Physics in Turkey; Expectations from LHC.	May 2005
Yeni Asir Gazetesi	On the self; On science in general; Scientific attitude in Turkish society; Education in Turkish Universities.	Mar. 2006 Sept. 2006 July 2007
Anatolian Agency	About the receipt of F. W. Bessel Research Prize	June 2007
National Sky TV Station	About the LHC Experiments	Sept. 2008

## TEACHING

## 15. TEACHING EXPERIENCE

Teaching principle: Teaching method should be designed to enhance both knowledge and creativity of the students. Therefore, exam questions must be original and demand extreme creativity, and exams themselves should be of homework type to allow students to have enough time and appropriate atmosphere for critical thinking.

COURSE	TYPE	REMARKS
Freshmen Physics	Must course.	Undergrad course. Standard Class Exams
Quantum Mechanics	Must course.	Undergrad course. Homework type exams.
Modern Physics	Must course.	Undergrad course. Homework type exams.
Special Relativity	Elective course.	Undergrad course. Homework type exams.
Particle Physics	Elective course.	Undergrad course. Homework type exams.
Quantum Mechanics	Must course.	Grad course. Homework type exams.
Quantum Field Theory	Elective course.	Grad course. Homework type exams.
Mathematical Physics	Must course.	Grad course. Homework type exams.
General Relativity	Elective course.	Grad course. Homework type exams.
Analytical Mechanics	Must course.	Grad course. Homework type exams.
Classical Electrodynamics	Must course.	Grad course. Homework type exams.

## RESEARCH

### 16. RESEARCH INTERESTS

FIELD	SUBFIELDS
HIGH ENERGY	➤ <b>PHENOMENOLOGY.</b> Phenomenological studies on the ‘new



PHYSICS	<p>physics' at the atto-meter scale:</p> <p><i>a)</i> Supersymmetric field theories (Higgs search, CP violation, Flavor violation, Q balls, New gauge forces.)</p> <p><i>b)</i> Low-scale quantum gravity (New gravitational forces, Conformal invariance).</p> <p>➤ <b>EXPERIMENT.</b> Physics analysis studies within the CERN LHC – CMS Experiment. Search for new force laws in CMS data. [The web page of the U(1)' Physics Analysis Group (lead by myself) <a href="https://twiki.cern.ch/twiki/bin/view/CMS/U%281%29Prime">https://twiki.cern.ch/twiki/bin/view/CMS/U%281%29Prime</a> contains detailed information.</p> <p>➤ <b>ASTROPHYSICS/COSMOLOGY.</b> Modeling and studying:</p> <p><i>a)</i> Dark Energy in Non-Riemannian Geometries.</p> <p><i>b)</i> Radiation transport in dense, magnetized and hot stellar media (supernovae, gamma ray bursts, neutron star cooling).</p>
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## 17.COMPLETED AND ON-GOING RESEARCH PROJECTS

TITLE	FUNDING/SUPPORTING INSTITUTION
DARK MATTER AT THE LHC AND IN THE HEAVENS	ITU-UYBHM <sup>(6)</sup> (April 2010 - ...)
PROPOSING A NEW MECHANISM FOR PULSAR KICKS	TUBITAK (April 2010 – ...)
SEARCH FOR NEW FORCE LAWS AT THE CERN CMS EXPERIMENT	TAEK <sup>(7)</sup> (April 2009 – ...)
SEARCH FOR NEW FORCES AT THE LHC	IZTECH (March 2009 – ...)
CP VIOLATION AND SQUARK PRODUCTION AT THE LHC	TUBITAK (May 2005 – May 2007 )
SUPERSYMMETRIC CP VIOLATION	IZTECH (Jan 2004 – March 2006)
HIGHER CURVATURE LOW-SCALE QUANTUM GRAVITY	TUBA (May 2004 – June 2007)

<sup>(6)</sup> ITU-UYBHM: Istanbul Technical University - National High Performance

Computing Center

<sup>(7)</sup> TAEK: The Turkish Atomic Energy Authority

## 18. POST-DOCTORAL STUDENTS

RESEARCHER	PROJECT TITLE	FUNDING INSTITUTION
Dr. Burak Ulas (Graduated from Çanakkale Ü.)	Dark Photons and Pulsar Kicks	TUBITAK (2010 – 2012)
Dr. Levent Selbuz (Graduated from Ankara Ü.)	Extra Forces at the LHC  <u>Publication:</u> 1) D. A. Demir, L. Everett, M. Frank, L. Selbuz, I. Turan <b>SNEUTRINO DARK MATTER: SYMMETRY PROTECTION AND COSMIC RAY ANOMALIES.</b> arXiv: 0906.3540.[HEP-PH].	TUBITAK (2009 – 2010)
Dr. Levent Solmaz (Graduated from METU)	Gauge and Flavor Breaking in Supersymmetry  <u>Publications:</u> 1) D. A. Demir, L. Solmaz, S. Solmaz, <b>LEP INDICATIONS FOR TWO LIGHT HIGGS BOSONS AND U(1)' MODEL.</b> Phys.Rev.D73:016001,2006.[HEP-PH 0512134]  2) M.A. Cakir, L. Solmaz, <b>EFFECTS OF THRESHOLD CORRECTIONS ON HIGH-SCALE FLAVOR STRUCTURES IN SUPERSYMMETRY.</b> PMC Phys A2:2,2008.[HEP-PH 0608093]	TUBITAK (2005 – 2006)

## 19. GRADUATE STUDENTS

STUDENT	THESIS TITLE	INSTITUTION
Güler Karapınar (Ph. D.)	Shift Symmetries in Supersymmetric Models	IZTECH (started in 2010)
Canan Düztürk (M. Sc.)	Conformal Transformations in Metric-Affine Gravity	IZTECH (started in 2009)
Oktay Doğangün (M. Sc.)	Mining Massive Invisibles in LHC Events	IZTECH (started in 2009)
Onur Tosun (M. Sc.)	Dark Photons and Supernova Neutrinos	IZTECH (started in 2009)
Erdem Kılıç (M. Sc.)	Gamma Ray Bursts and Dark Photons	IZTECH (started in 2009)
Hale Sert (M. Sc.)	Higgs Boson in Supersymmetry in Light of the LEP and Tevatron Bounds	IZTECH (started in 2008)
Alper Hayreter (M. Sc.)	The Family Non-Universal U(1)' Model <u>Thesis Publication:</u> A. Hayreter, <b>DILEPTON SIGNATURES OF FAMILY NON-UNIVERSAL U(1)'</b> . Phys.Lett.B649:191-196,2007. [HEP-PH 0703269]	IZTECH (finished in spring 2008; he is now a Ph. D. student at Concordia University, Canada)
Aslı Sabancı (M. Sc.)	Higgs Sector of the MSSM with General Soft Breaking <u>Thesis Publication:</u> A. Sabancı, A. Hayreter, L. Solmaz, <b>THE HIGGS BOSON MASSES IN THE MSSM WITH GENERAL SOFT BREAKING.</b> Phys. Lett., B661.154-157,2008. [ARXIV 0801.2029 [HEP-PH]]	IZTECH (finished in spring 2008; she is now a Ph. D. student at Helsinki Institute of High Energy Physics, Finland)
Hanif Tanyıldızı (M. Sc.)	Higher Curvature Gravity and Extra Dimensions <u>Thesis Publication:</u>	IZTECH (finished in summer 2007; he is now a Ph. D. student at Bogoluibov Institute,

	D. A. Demir, S. H. Tanyildizi, <b>HIGHER CURVATURE QUANTUM GRAVITY AND LARGE EXTRA DIMENSIONS.</b> Phys.Lett.B633:368-374,2006.[HEP-PH 0512078]	Dubna, Russia)
Sevdiye Mutlu (M. Sc.)	Renormalization Group Invariants  <u>Thesis Publication:</u> M.A. Cakir, S. Mutlu, L. Solmaz, <b>PHENOMENOLOGICAL ISSUES IN SUPERSYMMETRY WITH NON-HOLOMORPHIC SOFT BREAKING.</b> Phys.Rev.D71:115005,2005.[HEP-PH 0501286]	IZTECH (finished in fall 2006; she quit physics)
Beyhan Pulice (M. Sc.)	Compactification by Scalars  <u>Thesis Publication:</u> D. A. Demir, B. Pulice, <b>NON-GRAVITATING SCALARS AND SPACETIME COMPACTIFICATION.</b> Phys.Lett.B638:1-7,2006. [HEP-TH 0605071]	IZTECH (finished in fall 2006; she is now a Ph. D. student at Freiburg University, Germany )
Altan Cakir (M. Sc.)	Flavor Violation in Supersymmetry  <u>Thesis Publication:</u> 1) M.A. Cakir, S. Mutlu, L. Solmaz, <b>PHENOMENOLOGICAL ISSUES IN SUPERSYMMETRY WITH NON-HOLOMORPHIC SOFT BREAKING.</b> Phys.Rev.D71:115005,2005.[HEP-PH 0501286]  2) M.A. Cakir, D. A. Demir, L. Solmaz, <b>EFFECTS OF THRESHOLD CORRECTIONS ON HIGH-SCALE FLAVOR STRUCTURES IN SUPERSYMMETRY.</b> Phys.Rev.D (submitted; IZTECH-P/2006-7)	IZTECH (finished in summer 2006; he is now a Ph. D. student at the Institute for Experimental High Energy Physics, Karlsruhe University, Germany)
Shahida Dar (M. Sc.)	Electric Dipole Moments in Supersymmetry  <u>Thesis Publication:</u> Shahida Dar, <b>THE NEUTRON EDM IN THE SM: A REVIEW.</b> IC-00-115 (Aug 2000) 37p.[HEP-PH	ICTP (finished in 2000; she is now a Ph. D. student at Barthol Research Institute, USA)

## 20. UNDERGRADUATE PROJECT STUDENTS

STUDENTS	PROJECT TITLE	FUNDING INSTITUTE
Onur Akbal Onur Benli Mehmet Günay	INFLATION IN PALATINI FORMALISM (2009 – 2010)	TUBITAK
Onur Tosun ( <i>now at IZTECH, Turkey</i> ) Secil Gürkan ( <i>now at Koc U., Turkey</i> )	THE NEUTRON STAR CORE (2008 – 2009)	TUBITAK
Günnur Görücü ( <i>now at Goethe U., Germany</i> ) Serap Yiğen ( <i>now at Concordia U., Canada</i> )	QUANTUM TUNNELING AND SNAPTİK TRANSFER (2006 – 2008)	TUBITAK
Ozan Arslan ( <i>now at Bonn U., Germany</i> ) Tuna Demircik ( <i>now at Sabanci U., Turkey</i> ) Durmuş Karabacak ( <i>now at Oklohoma State U., USA</i> )	DARK MATTER AND ITS ALTERNATIVES (2006 – 2008)	TUBITAK

## PUBLICATIONS

Citations:

1) According to [SLAC-SPIRES](#): Total citations > 2000, h-index: 22

2) According to Web of Knowledge (1995-2008): Total citations > 1300, h-index: 18

For the full list of publications, see the Publication List.