

# Prof. İSMET YURDUŞEN

## Personal Information

Office Phone: [+90 312 297 7864](tel:+903122977864)

Email: [yurdusen@hacettepe.edu.tr](mailto:yurdusen@hacettepe.edu.tr)

Web: <https://aes.hacettepe.edu.tr/yurdusen>

## International Researcher IDs

ORCID: 0000-0003-1320-0303

Publons / Web Of Science ResearcherID: G-9128-2013

ScopusID: 15051371500

Yoksis Researcher ID: 50531

## Education Information

Doctorate, Middle East Technical University, Graduate School Of Natural And Applied Sciences, Fizik, Turkey 1999 - 2004

Postgraduate, Middle East Technical University, Graduate School Of Natural And Applied Sciences, Fizik, Turkey 1997 - 1999

Undergraduate, Middle East Technical University, Fen Edebiyat Fakültesi, Fizik, Turkey 1992 - 1997

## Foreign Languages

French, A1 Beginner

English, C1 Advanced

## Dissertations

Doctorate, PROLONGATION STRUCTURES, BÄCKLUND TRANSFORMATIONS AND PAINLEVE ANALYSIS OF NONLINEAR EVOLUTION EQUATIONS, Middle East Technical University, Graduate School Of Natural And Applied Sciences, Graduate School Of Natural And Applied Sciences, 2004

Postgraduate, THE PROLONGATION STRUCTURES OF NONLINEAR EVOLUTION EQUATIONS, Middle East Technical University, Graduate School Of Natural And Applied Sciences, Graduate School Of Natural And Applied Sciences, 1999

## Research Areas

Mathematics, Differential Equations, Dynamic Systems and Ergodic Theory, Physics, General Physics, Mathematical Methods in Physics, Natural Sciences

## Academic Titles / Tasks

Professor, Hacettepe University, Fen Fakültesi, Matematik Bölümü, 2022 - Continues

Associate Professor, Hacettepe University, Fen Fakültesi, Matematik Bölümü, 2015 - 2022

Associate Professor, Université de Montreal, Centre de Recherches Mathématiques, 2017 - 2018

Assistant Professor, Hacettepe University, Fen Fakültesi, Matematik Bölümü, 2012 - 2015

Lecturer PhD, Hacettepe University, Fen Fakültesi, Matematik Bölümü, 2010 - 2012

Lecturer PhD, Université de Montreal, Centre de Recherches Mathématiques, 2005 - 2009

Research Assistant, Middle East Technical University, Faculty Of Arts And Sciences, Department Of Physics, 1997 - 2004

## Academic and Administrative Experience

Deputy Head of Department, Hacettepe University, Fen Fakültesi, Matematik Bölümü, 2021 - Continues

Deputy Head of Department, Hacettepe University, Fen Fakültesi, Matematik Bölümü, 2018 - 2018

Fakülte Kurulu Üyesi, Hacettepe University, Fen Fakültesi, Matematik Bölümü, 2013 - 2016

## Advising Theses

Yurduşen İ., Yayla O., Combinatorial solutions for consensus algorithms and blockchain sharding, Doctorate, M.SALEH(Student), 2021

Yurduşen İ., Kürkcüoğlu S., Chaos in BFSS and ABJM matrix models, Postgraduate, C.TAŞCI(Student), 2021

Yurduşen İ., Kürkcüoğlu S., CHAOS IN YANG-MILLS MATRIX MODELS, Postgraduate, K.BAŞKAN(Student), 2019

Yurduşen İ., Turan İ., EXPLORING EXTRA DIMENSIONS THROUGH RARE PROCESSES, Postgraduate, K.ŞİMŞEK(Student), 2019

## Jury Memberships

Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, September, 2021

Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, August, 2021

Doctorate, Doctorate, Orta Doğu Teknik Üniversitesi, August, 2021

Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, July, 2021

Doctorate, Doctorate, Eskişehir Teknik Üniversitesi, January, 2021

Post Graduate, Post Graduate, Ankara Üniversitesi, January, 2020

Doctorate, Doctorate, Orta Doğu Teknik Üniversitesi, December, 2019

Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, July, 2019

Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, July, 2019

Doctorate, Doctorate, Orta Doğu Teknik Üniversitesi, August, 2018

PhD Thesis Monitoring Committee Member, PhD Thesis Monitoring Committee Member, Orta Doğu Teknik Üniversitesi, February, 2018

PhD Thesis Monitoring Committee Member, PhD Thesis Monitoring Committee Member, Orta Doğu Teknik Üniversitesi, January, 2018

Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, June, 2017

Doctorate, Doctorate, Hacettepe Üniversitesi, October, 2016

Doctorate, Doctorate, Orta Doğu Teknik Üniversitesi, October, 2016

Post Graduate, Post Graduate, Hacettepe Üniversitesi, May, 2016

Post Graduate, Post Graduate, Ankara Üniversitesi, June, 2015

PhD Thesis Monitoring Committee Member, PhD Thesis Monitoring Committee Member, Orta Doğu Teknik Üniversitesi, June, 2015

Post Graduate, Post Graduate, Hacettepe Üniversitesi, February, 2015

Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, September, 2014

Doctorate, Doctorate, Hacettepe Üniversitesi, May, 2014

Post Graduate, Post Graduate, Ankara Üniversitesi, June, 2013

Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, August, 2012

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

- I. **Symmetrization of the product of Hermitian operators**  
YURDUŞEN İ., TUNCER O. O.  
COMPUTER PHYSICS COMMUNICATIONS, vol.274, 2022 (SCI-Expanded)
- II. **Doubly Exotic Nth-Order Superintegrable Classical Systems Separating in Cartesian Coordinates**  
YURDUŞEN İ., Mauricio Escobar-Ruiz A., Palma Y Meza Montoya I.  
SYMMETRY INTEGRABILITY AND GEOMETRY-METHODS AND APPLICATIONS, vol.18, 2022 (SCI-Expanded)
- III. **Explicit examples of constant curvature surfaces in the supersymmetric CP2 sigma model**  
YURDUŞEN İ.  
TURKISH JOURNAL OF MATHEMATICS, vol.46, no.6, pp.2485-2499, 2022 (SCI-Expanded)
- IV. **Superintegrable systems with spin and second-order tensor and pseudo-tensor integrals of motion**  
YURDUŞEN İ., TUNCER O. O., Winternitz P.  
JOURNAL OF PHYSICS A-MATHEMATICAL AND THEORETICAL, vol.54, no.30, 2021 (SCI-Expanded)
- V. **Extended dynamical symmetries of Landau levels in higher dimensions**  
KÜRKCÜOĞLU S., Unal G., YURDUŞEN İ.  
JOURNAL OF HIGH ENERGY PHYSICS, vol.2020, no.2, 2020 (SCI-Expanded)
- VI. **Nth-Order superintegrable systems separating in polar coordinates**  
Yurduşen İ.  
Geometry, Integrability and Quantization, vol.21, pp.334-348, 2020 (SCI-Expanded)
- VII. **Fourth-order superintegrable systems separating in polar coordinates. II. Standard potentials**  
Escobar-Ruiz A. M., Lopez Vieyra J. C., WINTERNITZ P., Yurdusen I.  
JOURNAL OF PHYSICS A-MATHEMATICAL AND THEORETICAL, vol.51, no.45, 2018 (SCI-Expanded)
- VIII. **General Nth-order superintegrable systems separating in polar coordinates**  
Escobar-Ruiz A. M., Winternitz P., Yurdusen I.  
JOURNAL OF PHYSICS A-MATHEMATICAL AND THEORETICAL, vol.51, no.40, 2018 (SCI-Expanded)
- IX. **Holomorphic solutions of the susy Grassmannian sigma-model and gauge invariance**  
HUSSIN V., LAFRANCE M., Yurdusen I., Zakrzewski W. J.  
JOURNAL OF PHYSICS A-MATHEMATICAL AND THEORETICAL, vol.51, no.18, 2018 (SCI-Expanded)
- X. **Constant curvature surfaces of the supersymmetric sigma model**  
DELISLE L., HUSSIN V., YURDUŞEN İ., Zakrzewski W. J.  
JOURNAL OF MATHEMATICAL PHYSICS, vol.56, no.2, 2015 (SCI-Expanded)
- XI. **Second-Order Integrals for Systems in E-2 Involving Spin**  
Yurdusen I.  
ADVANCES IN MATHEMATICAL PHYSICS, 2015 (SCI-Expanded)
- XII. **Superintegrable systems with spin and second-order integrals of motion**  
DESILETS J., WINTERNITZ P., YURDUŞEN İ.  
JOURNAL OF PHYSICS A-MATHEMATICAL AND THEORETICAL, vol.45, no.47, 2012 (SCI-Expanded)
- XIII. **Canonical surfaces associated with projectors in Grassmannian sigma models**  
Hussin V., Yurdusen İ., Zakrzewski W. J.  
JOURNAL OF MATHEMATICAL PHYSICS, vol.51, no.10, 2010 (SCI-Expanded)
- XIV. **Integrable and superintegrable systems with spin in three-dimensional Euclidean space**  
Winternitz P., Yurdusen İ.  
JOURNAL OF PHYSICS A-MATHEMATICAL AND THEORETICAL, vol.42, no.38, 2009 (SCI-Expanded)
- XV. **On analytic descriptions of two-dimensional surfaces associated with the CPN-1 sigma model**  
Grundland A. M., Yurdusen İ.  
JOURNAL OF PHYSICS A-MATHEMATICAL AND THEORETICAL, vol.42, no.17, 2009 (SCI-Expanded)
- XVI. **SURFACES OBTAINED FROM CPN (-) (1) SIGMA MODELS**  
Grundland A. M., Yurdusen İ.  
INTERNATIONAL JOURNAL OF MODERN PHYSICS A, vol.23, no.32, pp.5137-5157, 2008 (SCI-Expanded)
- XVII. **Conformally parametrized surfaces associated with CPN(-1) sigma models**

- Grundland A. M., Hereman W. A., Yurdusen İ.  
JOURNAL OF PHYSICS A-MATHEMATICAL AND THEORETICAL, vol.41, no.6, 2008 (SCI-Expanded)
- XVIII. **The integrability of Pauli system in Lorentz violating background**  
Frank M., Turan I., Yurdusen İ.  
JOURNAL OF HIGH ENERGY PHYSICS, no.1, 2008 (SCI-Expanded)
- XIX. **Integrable and superintegrable systems with spin**  
Winternitz P., Yurdusen İ.  
JOURNAL OF MATHEMATICAL PHYSICS, vol.47, no.10, 2006 (SCI-Expanded)
- XX. **Integrability of Kersten-Krasil'shchik coupled KdV-mKdV equations: singularity analysis and Lax pair**  
Kalkanli A., Sakovich S., Yurdusen İ.  
JOURNAL OF MATHEMATICAL PHYSICS, vol.44, no.4, pp.1703-1708, 2003 (SCI-Expanded)
- XXI. **Prolongation algebra and Backlund transformations of Drinfeld-Sokolov system of equations**  
Karasu A., Yurdusen İ.  
INTERNATIONAL JOURNAL OF MODERN PHYSICS A, vol.16, no.26, pp.4261-4269, 2001 (SCI-Expanded)

## Articles Published in Other Journals

- I. **Impasse of the Desire**  
Yurduşen İ., Yurdusen S.  
AYNA Klinik Psikoloji Dergisi, vol.4, no.3, pp.11-23, 2017 (Peer-Reviewed Journal)

## Books & Book Chapters

- I. **Constant Curvature Holomorphic Solutions of the Supersymmetric G(2, 4) Sigma Model**  
Hussin V., Lafrance M., Yurduşen İ.  
in: Quantum Theory and Symmetries. CRM Series in Mathematical Physics., M.B. Paranjape, Richard MacKenzie, Zora Thomova, Pavel Winternitz, William Witczek-Krempa, Editor, Springer-Verlag , Montreal, pp.91-100, 2021

## Refereed Congress / Symposium Publications in Proceedings

- I. **Higher-order superintegrable systems separating in polar coordinates**  
YURDUŞEN İ.  
32nd International Colloquium on Group Theoretical Methods in Physics (ICGTMP Group), Prague, Czech Republic, 9 - 13 July 2018, vol.1194
- II. **SUPERINTEGRABLE SYSTEMS WITH SPIN IN TWO-AND THREE-DIMENSIONAL EUCLIDEAN SPACES**  
Yurduşen İ., Winternitz P.  
SPT 2007—Symmetry and perturbation theory, Lecce, Italy, 2 - 09 June 2007, pp.215-222

## Supported Projects

- YURDUŞEN İ., Project Supported by Higher Education Institutions, Spin içeren sistemler için süperintegrallenebilirlik ve tam çözümlenebilirlik, 2017 - 2018
- YURDUŞEN İ., Project Supported by Higher Education Institutions, Kuantum süperintegrallenebilirlik ve tam çözümlenebilirlik, 2016 - 2016
- YURDUŞEN İ., Project Supported by Higher Education Institutions, 2 ve 3 boyutlu Öklid uzaylarında spin içeren sistemler için süperintegrallenebilirlik, 2015 - 2015

## Scientific Refereeing

ZEITSCHRIFT FÜR NATURFORSCHUNG SECTION A-A JOURNAL OF PHYSICAL SCIENCES, Journal Indexed in SCI-E, January 2019  
JOURNAL OF PHYSICS A-MATHEMATICAL AND THEORETICAL, SCI Journal, March 2018  
JOURNAL OF PHYSICS A-MATHEMATICAL AND THEORETICAL, SCI Journal, February 2018  
JOURNAL OF PHYSICS A-MATHEMATICAL AND THEORETICAL, SCI Journal, May 2017  
ACTA POLYTECHNICA, Journal Indexed in ESCI, February 2016  
JOURNAL OF PHYSICS A-MATHEMATICAL AND THEORETICAL, SCI Journal, July 2015  
JOURNAL OF PHYSICS A-MATHEMATICAL AND THEORETICAL, SCI Journal, March 2015  
JOURNAL OF PHYSICS A-MATHEMATICAL AND THEORETICAL, SCI Journal, September 2013  
JOURNAL OF PHYSICS A-MATHEMATICAL AND THEORETICAL, SCI Journal, December 2012  
JOURNAL OF PHYSICS A-MATHEMATICAL AND THEORETICAL, SCI Journal, July 2011  
JOURNAL OF PHYSICS A-MATHEMATICAL AND THEORETICAL, SCI Journal, June 2011

## Mobility Activity

Sabbatical Leave, Guest Researcher, Université de Montreal, Canada, 2017 - 2018  
Post Doc, Post Doc, Université de Montreal, Canada, 2006 - 2009  
Post Doc, Post Doc, Université de Montreal, Canada, 2005 - 2005

## Metrics

Publication: 25  
Citation (WoS): 200  
Citation (Scopus): 195  
H-Index (WoS): 8  
H-Index (Scopus): 7

## Congress and Symposium Activities

Group theoretical methods in physics, Invited Speaker, Montreal, Canada, 2021  
International Conference on Geometry, Integrability and Quantization, Invited Speaker, Varna, Bulgaria, 2019

## Invited Talks

Professor Pavel Winternitz and Superintegrability with Spin, Conference, Canada, July 2021  
Nth-Order Superintegrable Systems Separating in Polar Coordinates, Conference, Varna Teknik Üniversitesi, Bulgaria, June 2019

## Scholarships

CRM Postdoctoral Fellowship, University, 2006 - 2009  
Yurt dışı doktora sonrası araştırma bursu NATO-B1, NATO, 2005 - 2005

## Non Academic Experience

Universit  de Montr al Centre de Recherches Math matiques  
Montreal  niversitesi Matematik Arařtırmaları Merkezi