

VOLUME

46

ISSUE

5

YEAR

2022

ISSN 1300-0101 • E-ISSN 1303-6122

TURKISH JOURNAL OF  
PHYSICS

<http://journals.tubitak.gov.tr/physics/>



Published by the Scientific and  
Technological Research Council of Turkey

**TÜBİTAK**

# TURKISH JOURNAL OF PHYSICS

Editor-in-Chief

**Alikram NUHBALAOĞLU**

TUBITAK Research Institute for Fundamental Sciences, Turkey

Associate Editor in Chief

**Muhammed Miraç SERİM**

Atılım University, Turkey

**VOLUME 46 • ISSUE 5 • 2022**

ISSN 1300-0101 • E-ISSN 1303-6122

## SCOPE

- The Turkish Journal of Physics is published electronically 6 times a year by the Scientific and Technological Research Council of Turkey (TÜBİTAK).
- The Journal accepts English-language manuscripts and contribution is open to researchers of all nationalities.
- The Journal covers experimental and theoretical results in various branches of physics and astronomy such as atomic and molecular physics, optics, condensed matter physics, nuclear physics, particle physics, statistical physics, astrophysics, mathematical physics, field theory, gravity, cosmology as well as interdisciplinary topics related to physics.
- The Journal welcomes publications of the following types: research articles, review articles (by invitation only), focus issue articles devoted to advances in frontier areas of physics as well as special issues with high-quality conference proceedings.

## EDITORIAL BOARD

- Abdulmecit TURUT, İstanbul Medeniyet University, Turkey
- Adem TEKİN, İstanbul Technical University, Turkey
- Ali COŞKUN, University of Fribourg, Switzerland
- Ali MOSTAFAZADEH, Koç University, Turkey
- Cevdet COŞKUN, Giresun University, Turkey
- Ceyhun BULUTAY, Bilkent University, Turkey
- Emre ERDEM, Sabancı University, Turkey
- Emre GÜR, Atatürk University, Turkey
- Ersin GÖĞÜŞ, Sabancı University, Turkey
- Isao TANAKA, Kyoto University, Japan
- Kazem AZİZİ, Doğuş University, Turkey
- Kemal ÖZDOĞAN, Yıldız Technical University, Turkey
- Nihat BERKER, Kadir Has University, Turkey
- Oğuz GÜLSEREN, Bilkent University, Turkey
- Özgür AKARSU, İstanbul Technical University, Turkey
- Özgür MÜSTEÇAPLIOĞLU, Koç University, Turkey
- Samir MATHUR, Ohio State University, U.S.A.
- Savaş BERBER, Gebze Technical University, Turkey
- Selçuk BİLİR, İstanbul University, Turkey
- Subir SARKAR, University of Oxford, United Kingdom
- Tansu DAYLAN, Massachusetts Institute of Technology, U.S.A.
- Uğur SERİNCAN, Eskişehir Technical University, Turkey
- Vahid KARIMIPOUR, Sharif University of Technology, Iran
- Yıldırım AYDOĞDU, Gazi University, Turkey

## ABSTRACTED

- Emerging Sources Citation Index
- Scopus
- Academic Search Complete
- Inspec

# CONTENTS

Variational field equations of a Majorana neutrino coupled to Einstein's theory of general relativity . . . .	162
<b>Tekin DERELİ, Yorgo ŞENİKOĞLU</b>	