CONGRESS BOOK

KARADENİZ 8. ULUSLARARASI UYGULAMALI BİLİMLER KONGRESİ

ORDU
5 - 6 MART 2022

KARADENİZ
8. ULUSLARARASI UYGULAMALI BİLİMLER KONGRESİ

BLACK SEA SUMMIT

8th INTERNATIONAL APPLIED SCIENCES CONGRESS

Issued: 15. 03. 2022

ISBN : 978-625-7341-93-6

EUROASIA JOURNAL OF SOCIAL SCIENCES

EUROASIA JOURNAL OF MATHEMATICS-ENGINEERING NATURAL & MEDICAL SCIENCES

SOCRATES JOURNAL

INTERNATIONAL JOURNAL OF SOCIAL SCIENCES USBILIM

ULUSLARARASI BİLİMLER AKADEMİSİ DERNEĞİ UBAK

BLACK SEA SUMMIT
8th INTERNATIONAL APPLIED SCIENCES CONGRESS
MARCH 5- 6, 2022
ORDU

Edited By

DR. GÜLTEKİN GÜRÇAY

KHORRAM MANAFİDİZAJİ

Issued: 15.03.2022

ISBN: **978-625-7341-93-6**

CONGRESS ID

BLACK SEA SUMMIT
8TH INTERNATIONAL APPLIED SCIENCES CONGRESS

DATE – PLACE

MARCH 5- 6, 2022
ORDU

ORGANIIZATION

UBAK International Sciences Academy

CONGRESS ORGANIZING BOARD

Head of Organizing Board: Dr Gültekin Gürçay
Organizing Committee Member: Prof. Dr. Hülya Çiçek Kanbur
Organizing Committee Member: Dr. Leman Kuzu
Organizing Committee Member: Editor of the USE Journal
Organizing Committee Member: Editor of the EuroAsia Journal
Organizing Committee Member: Editor of UBAK Publishing house.
General Coordinator: Amaneh Manafidizaji

EVALUATION PROCESS

All applications have undergone a double-blind peer review process.

PARTICIPATING COUNTRIES

Turkey –India- Nigeria – Malaysia – Kazakhstan - China

PRESENTATION

Oral presentation

LANGUAGES

Turkish, English, Russian, Persian, Arabic

Scientific & Review Committee

Meeting ID: 845 7289 4181
Passcode: 50322

BLACK SEA SUMMIT
8th INTERNATIONAL SOCIAL SCIENCES CONGRESS
8th INTERNATIONAL APPLIED SCIENCES CONGRESS
March 5 - 6, 2022
ORDU

CONGRESS PROGRAM
Online (with Video Conference) Presentation

Meeting ID: 845 7289 4181
Passcode: 50322

BLACK SEA SUMMIT
8th INTERNATIONAL SOCIAL SCIENCES CONGRESS
8th INTERNATIONAL APPLIED SCIENCES CONGRESS
March 5- 6, 2022
ORDU

Meeting ID: 845 7289 4181
Passcode: 50322

IMPORTANT, PLEASE READ CAREFULLY

- To be able to make a meeting online, login via https://zoom.us/join site, enter ID instead of "Meeting ID
- or Personal Link Name" and solidify the session.
- The Zoom application is free and no need to create an account.
- The Zoom application can be used without registration.
- The application works on tablets, phones and PCs.
- Speakers must be connected to the session **10 minutes before** the presentation time.
- All congress participants can connect live and listen to all sessions.
- During the session, your camera should be turned on **at least** %70 of session period
- Moderator is responsible for the presentation and scientific discussion (question-answer) section of the session.

TECHNICAL INFORMATION

- Make sure your computer has a microphone and is working.
- You should be able to use screen sharing feature in Zoom.
- Attendance certificates will be sent to you as pdf at the end of the congress.
- Moderator is responsible for the presentation and scientific discussion (question-answer) section of the session.
- Before you login to Zoom please indicate your name surname and hall number,

exp. H-..., S- ... NAME SURNAME

BLACK SEA SUMMIT
8th INTERNATIONAL SOCIAL SCIENCES CONGRESS
8th INTERNATIONAL APPLIED SCIENCES CONGRESS
March 5- 6, 2022
ORDU

Meeting ID: 845 7289 4181
Passcode: 50322

05. 03. 2022 10: 00 – 12:00 Meeting ID: 845 7289 4181 Passcode: 50322	
HALL: 3 SESSION: 1	MODERATOR: DR. ÖĞR.ÜYESİ VEDAT KADİR ÖZKAN
DR. ÖĞR.ÜYESİ VEDAT KADİR ÖZKAN	Marmaris Halk Plajı Kumunda Fungal Çeşitliliğin Belirlenmesi
SEVGİ ŞENGÜL AYAN	Comparing Nonlinear Optimization Techniques To Predict Dynamic Parameters Of Biological Processes In Nonlinear Differential Equation Models
FUYANG PENG DONGHONG LI	Design Of A Service-Enabled Dependable Integration Environment
ERKAN ÖZDURAN	Literatürde Rehabilitasyon Alanında Scı/Scı-E İndekslenen Dergilerde Yayınlanan Hayvan Çalışmaları: Bibliografik Bir Analiz
SERDAR YEDİER	Morphometric Comparison Of Blind And Eye Side Scales Of Scophthalmus rhombus (L., 1758) In The Middle Black Sea
FEYZİ SİNAN TOKALI	Potansiyel Biyolojik Aktif Yeni Bir Kinazolinon-Fenolik Mannich Bazı Hibridinin Sentezi
MOHD FARIDZ AHMAD MUHAMMAD AMIR ASYRAF ROSLI	Effects Of Aerobic Dance On Cardiovascular Level And Body Weight Among Women
ÖMER AYIK AHMET EMRE PAKSOY	El Bilek Patolojilerinde MRG Güvenilirliği Ve Artroskopi
MURAT TAŞKIN UĞUR KAYIK AZİZ DEMİRCİ MUHAMMET ÇAĞATAY ENGİN	Metakarp Kırıklarında İntrameduller Vida Tespiti

COMPARING NONLINEAR OPTIMIZATION TECHNIQUES TO PREDICT DYNAMIC PARAMETERS OF BIOLOGICAL PROCESSES IN NONLINEAR DIFFERENTIAL EQUATION MODELS

Sevgi ŞENGÜL AYAN

Antalya Bilim University, Department of Engineering and Natural Sciences,

0000-0003-0083-4446

ABSTRACT

The modeling of nonlinear dynamics, which has been a significant research topic for half a decade. During the development process, the modeler creates a model that is as close to the underlying real dynamics as possible. It is extremely difficult to evaluate the numerous parameters that appear in the nonlinear equations in a way that does not cause the parameter estimates of the dynamic constants to stray into regions of parameter space that produce nonphysical predictions. The use of parameter estimation and nonlinear fitting techniques in conjunction with numerical models allows for greater flexibility by allowing for a variety of experimental boundary and starting conditions. The majority of the defined methods are iterative in nature, necessitating the use of an initial estimate of the unknown parameters to be optimized before proceeding. Multi-objective optimization methods are also used to capture both the underlying dynamics and the main response. Although it is possible to estimate unknown parameters in complex nonlinear differential equation models using experimental or clinical data, doing so is extremely difficult. Consequently, we usually fix some parameter values, either based on literature or personal experience, in order to obtain only parameter estimates that are relevant from clinical or experimental data. When such prior information is not available, it is preferable to derive all of the parameter estimates from data rather than from prior information. In this study, different nonlinear optimization approaches will be compared in order to estimate different biological dynamic parameters in a nonlinear differential equation model.

Keywords : nonlinear dynamics, differential equation models, parameter estimation