ITISE 2021

PROGRAM

19th-21th July, 2021
Gran Canaria (SPAIN)

ITISE 2021 Short Program

Monday, July 19th, 2021		
9:00	**REGISTRATION DESK** *(start at 9:00h but it is opened during all the conference)*	
	All **Sessions A: face-to-face sessions**.	All **Sessions B** will be held on-line
9:00-10:00	**Session A.1: Advanced econometric methods. Part. I.**	**Session B.1: Forecasting performance evaluation**
10:00- 11:30	**Session A.2: Applications in Time Series Part. I**	**Session B.2: Applications in Time Series**
11:30-12:00	**COFFEE BREAK**	
12:00-13:00	**Session A.P1: Opening & Plenary Lecture. Prof. Martin Wagner, University of Klagenfurt Chief Economic Advisor at the Bank of Slovenia**	
13:00-14:00	**Session A.3: Data preprocessing methods**	**Session B.3: New Developments on Time-Series Modelling for Financial Data**
14:00-16:00	**REST BREAK**	
16:00-17:10	**Session A.4: Econometric Forecasting**	**Session B.4: Time Series for Natural Hazard Monitoring**
17:15-18:15	**Session A.P2: Plenary Lecture. Prof. Luigi Grossi, University of Padova, Italy**	
18:15-19:45	**Session A.5: Time series analysis with computational intelligence**	**Session B.5: Nonparametric and functional methods**
19:45- 20:30	**Session A.6: Nonstationarity**	**Session B.6: Forecasting electricity load and prices**

NOTES:

All **Sessions A** will be held in Hotel Lopesan Villa del Conde Resort. They are **face-to-face sessions**, and they will also be shared /on-line by Zoom. The **plenary lecture** are in **Session A.**

- All **Sessions B** will be held on-line (virtual) using Zoom.

Tuesday, July 20th, 2021		
8:30	**REGISTRATION DESK** ***(start at 8:30h but it is opened during all the conference)***	
8:30-10:30	**Session A.7: Forecasting performance evaluation**	**Session B.7: Data preprocessing methods**
10:30-11:00	**COFFEE BREAK**	
11:00-12:00	**Session A.P3: Plenary Lecture.** **Prof. Christian H. Weiß,** **University in Hamburg, Germany**	
12:00- 13:15	**Session A.8: COVID-19: Modelling Miss-reported data and Economic Impact**	**Session B.8: Energy forecasting. Power Systems, Renewable Energies and Smart Grids.**
13:15-14:15	**Session A.P4: Plenary Lecture.** **Prof. Anthony C. Boucouvalas** **University of Peloponnese, Greece**	
14:15-16:00	**REST BREAK**	
16:00-17:10	**Session A.9: Dimension reduction techniques**	**Session B.9: Computational Intelligence methods for Time Series**
17:10-18:10	**Session A.P5: Plenary Lecture.** **Prof. Wesley S. Burr** **Trent University in Ontario, Canada**	
18:10-19:00	**Session A.10: Econometric models**	**Session B.10: Advances in hydro-meteorological time series analysis and atmospheric forecast**
19:00-20:15	**Session A.11: Forecasting in High Dimension and Complex/Big Data**	**Session B.11: Econometric Models and Forecasting**
21:00	**GALA DINNER** **Hotel Lopesan Villa del Conde Resort**	

Wednesday, July 21th, 2021		
9:00	**REGISTRATION DESK** ***(start at 9:00h but it is opened during all the conference)***	
9:00-10:05	**Session A.12: Uncertainties in forecasting processes**	**Session B.12: Adaptivity for stochastic models**
10:05- 11:30	**Session A.13: Applications in Time Series Part. II**	**Session B.13: Forecasting in High Dimension and Complex/Big Data**
11:30-12:00	**COFFEE BREAK**	
12:00-13:00	**Session A.14: Advanced mathematical model in Time Series. Part II.**	**Session B.14: Applications and Advances in Time Series.**
13:00-14:00	**Session A.P6: Plenary Lecture.** **Prof. Dr. Friedrich Schneider** **R. I. Banking and Finance, Johannes Kepler University of Linz**	
14:00-16:00	**REST BREAK**	
16:00-17:10	**Session A.15: Energy forecasting**	**Session B.15: Theoretical and Methodological Advances in High-Dimensional Time Series Analysis**
17:10-18:10	**Dr. Julien Siebert** **IESE in Kaisersautern, Germany**	
18:10-19:00	**Session A.16: Theoretical and Methodological Advances in High-Dimensional Time Series Analysis**	**Session B.16: Advanced Econometric and Macroeconomic Methods**
19:00-20:00	**Session A.17 Advanced mathematical model in Time Series. Part III.**	**Session B.17: COVID-19 and Time Series Analysis**

ITISE 2021 PROGRAM

Monday, July 19th 2021

(9:00-10:00) Session A.1: Advanced econometric methods. Part. I.

Chairman: Dr. Karlis Gutans

Randomly spaced time series and change points **(Ref: *180*)**
Michal Pesta

Revisiting structural breaks in the terms of trade of primary commodities (1900–2020) - Markov switching models and finite mixture distributions **(Ref: *202*)**
Armand Taranco and Vincent Geronimi

Unemployment and COVID-19 Impact in Greece: A Vector Autoregression (VAR) Data Analysis **(Ref: *219*)**
Christos Katris

ECB monetary policy and commodity prices **(Ref: *223*)**
Shahriar Aliyev and Evzen Kocenda

(9:00-10:00) Session B.1: Forecasting performance evaluation.

Chairman: Dr. Anna Denkowska and Dr. Håvard Hungnes

Optimal combination forecast for Bitcoin dollars time series **(Ref: *142*)**
Marwan Abdul Hameed Ashour and Iman Amer Hameed Aldahhan

Improving the Accuracy and Time Interval of Predicting Ambient Parameters Applied to Dynamic Line Rating **(Ref: *224*)**
Milenko Kabović, Anka Kabović, Slavica Boštjančič Rakas and Valentina Timčenko

Predicting the exchange rate path — the importance of using up-to-date observations in the forecasts **(Ref: *251*)**
Håvard Hungnes

(10:00- 11:30) Session A.2: Applications in Time Series (Part. I)

Chairman: Dr. Michal Pesta

Seismic signals in Radon time series (on-line) **(Ref: *74*)**

Peter Bossew and Miroslaw Janik

Features and applications of Truncated Fractional Lévy Motion with correlation effects **(Ref: *107*)**

Fabian Manke, Marcelo Baquero-Ruiz, Ivo Furno, Ambrogio Fasoli and Paolo Ricci

Calendar adjustments of retail time-series **(Ref: *146*)**

Josip Arneric, Anita Ceh Casni and Kosjenka Dumancic

Efficiency and performace evaluation in multi-period systems **(Ref: *179*)**

Josef Jablonsky

Implications of the SARS-Cov-2 pandemic for mortality forecasting: case study for the Czech Republic and Spain **(Ref: *183*)**

Ondřej Šimpach and Marie Šimpachová Pechrová

Time series from non-diffusive transport processes of suprathermal ions in turbulent plasmas **(Ref: *64*)**

Marcelo Baquero-Ruiz, Fabian Manke, Ivo Furno, Ambrogio Fasoli and Paolo Ricci

---

(10:00- 11:30) Session B.2: Applications in Time Series

Chairman: Robert-Nicoud Stephan

Probabilistic Forecasting for Oil Producing Wells using Seq2seq Augmented Model **(Ref: *198*)**

Hadeel Afifi, Mohamed Elmahdy, Motaz El Saban and Mervat Abu-Elkheir

Short-term forecasting of meteorological variables based on state space modeling **(Ref: *232*)**

Fernanda Catarina Pereira, A. Manuela Gonçalves and Marco Costa

Predicting the Window Opening State in an Office to Improve Indoor Air Quality **(Ref: *244*)**

Hao Nguyen, Anda Ionescu, Olivier Ramalho and Evelyne Gehin

Cyclic behavior of fumarole, detected by direct temperature monitoring of the ground (long, mid and short-term variations) **(Ref: *263*)**

Iole S. Diliberto

A Novel Approach for Classification and Forecasting of Time Series in Particle Accelerators **(Ref: *286*)**
Sichen Li, Mélissa Zacharias, Jochem Snuverink, Jaime Coello de Portugal, Fernando Perez-Cruz, Davide Reggiani and Andreas Adelmann

---

(12:00-13:00) Opening Ceremony. Plenary Talk (face-to-face):

Prof. Martin Wagner

University of Klagenfurt

Chief Economic Advisor at the Bank of Slovenia.

Testing Linear Cointegration Against Smooth Transition Cointegration
Martin Wagner and Oliver Stypka

(13:00-14:00) Session A.3: Data preprocessing methods

Chairman: Dr. Marcelo Baquero and Dr. Taranco Armand

Business Days Time Series Weekly Trend and Seasonality **(Ref: *15*)**
Karlis Gutans

Host scaling and AIRBNB listing competition **(Ref: *186*)**
Ruggero Sainaghi and Rodolfo Baggio

STL decomposition of time series can benefit forecasting done by statistical methods but not by machine learning ones **(Ref: *216*)**
Zuokun Ouyang, Philippe Ravier and Meryem Jabloun

From Permutations to Horizontal Visibility Patterns of Periodic Series **(Ref: *234*)**
Francisco Javier Muñoz Ortega and Juan Carlos Nuño

(13:00-14:00) Session B.3: New Developments on Time-Series Modelling for Financial Data

Chairman: Dr. Hector Pomares

Anomaly and Fraud Detection in Credit Card Transactions Using the ARIMA Model **(Ref: *72*)**

Giulia Moschini, Régis Houssou, Jérôme Bovay and Stephan Robert-Nicoud

Self-Organization of Investors' Expectations in Stock and Financial Markets **(Ref: *166*)**

Inga Ivanova

Financial Time Series: Market analysis techniques based on Matrix Profiles **(Ref: *176*)**

Eoin Cartwright, Martin Crane and Heather Ruskin

Linkages and systemic risk in the European insurance sector **(Ref: *246*)**

Anna Denkowska and Stanisław Wanat

(16:00-17:10) Session A.4: Econometric Forecasting

Chairman: Dr. Christos Katris

MEM or/and logARMA: Investigation of predictive performance for realized volatility **(Ref: *19*)**

Stanislav Anatolyev

Realized Volatility Models and the role of High-frequency Estimators **(Ref: *75*)**

Ioannis Papantonis, Elias Tzavalis, Leonidas Rompolis and Orestis Agapitos

Long-term Lithuanian Electricity Market Price Forecasting Model Based on ARIMAX Time Series Analysis **(Ref: *108*)**

Mindaugas Cesnavicius

Predicting housing prices. A long term housing price path for Spanish regions **(Ref: *139*)**

Paloma Taltavull de La Paz

(16:00-17:10) Session B.4: Time Series for Natural Hazard Monitoring

---

Chairman: Dr. Qianyun Wen

The use of TIR time series satellite for thermal anomalies detection on natural and urban areas **(Ref: *167*)**

Malvina Silvestri, Federico Rabuffi, Massimo Musacchio, Sergio Teggi and Maria Fabrizia Buongiorno

Machine based algorithm for characterizing and precursory monitoring of landslides. **(Ref: *230*)**

Anuradha Priyadarshana and Sourav Das

Forecasting flood-related emergency phone calls **(Ref: *237*)**

Héctor Aguilera, Carolina Guardiola-Albert, Julio Garrote, Ignacio Gutiérrez-Pérez, Daniel Vázquez Tarrío and Andrés Díez-Herrero

---

(17:15-18:15) Plenary Talk (face-to-face): Prof. Luigi Grossi

University of Padova, Italy

Electricity price forecasting. Machine learning models and intra-day market regressors

Silvia Golia, Luigi Grossi and Matteo Pelagatti

(18:15-19:45) Session A.5: Time series analysis with computational intelligence

Chairman: Dr. Stanislav Anatolyev and Dr. Vassilis Kaburlasos

Photo-voltaic power 24-hour statistical predictions using PDE models of stepwise evolved Polynomial networks with the sum PDE partition and L-transform substitution **(Ref: *17*)**

Ladislav Zjavka and Vaclav Snasel

Do agricultural exports to China boost the American countries Economy? **(Ref: *138*)**

Nadia Urriola, Theodore Murindahabi, Juan José Sacco, Abdul Samad and Xiangzheng Deng

China's Exchange Rate Volatility and Repression: The Contradictory Development of RMB Internationalization **(Ref: *231*)**

Xiangqing Lu and Roengchai Tansuchat

Does AutoML outperform Naive forecasting? **(Ref: *241*)**

Gian Marco Paldino, Jacopo De Stefani, Fabrizio De Caro and Gianluca Bontempi

Time Series of Distributions Forecasting in Agricultural Applications: An Intervals' Numbers Approach* **(Ref: *203*)**
Eleni Vrochidou, Christos Bazinas, Chris Lytridis and Vassilis Kaburlasos

F4: An all-purpose tool for multivariate time series classification **(Ref: *209*)**
Ángel López-Oriona and José A. Vilar

(18:15-19:30) Session B.5: Nonparametric and functional methods

---

Chairman: Dr. Johannes Korte

A-T plane: design, applications & analytical representations **(Ref: *35*)**
Mariusz Tarnopolski

A Mathematical Investigation of a Continuous Covariance Function fitting with discrete Covariances of an AR Process **(Ref: *67*)**
Johannes Korte, Till Schubert, Jan Martin Brockmann and Wolf-Dieter Schuh

Estimation of Fractional ARIMA Process with Stable Innovations: A Monte Carlo Study **(Ref: *148*)**
Mor Ndongo, Abdou Kâ Diongue, Aliou Diop and Ouagnina Hili

Window-Net: An Efficient, Effective Time Series Forecasting **(Ref: *222*)**
Jeongwon Kim and Jun-Geol Baek

(19:45- 20:30) Session A.6: Nonstationarity

Chairman: Dr. Ladislav Zjavka and Dr. Paloma Taltavull de La Paz

Kernel Two-Sample and Independence Tests for Non-Stationary Random Processes **(Ref: *23*)**
Felix Laumann, Julius von Kugelgen and Mauricio Barahona

Urban growth in the long-term: Belgium, 1880-1970 **(Ref: *33*)**
Rafael González-Val, Arturo Ramos and Samuel Standaert

A time series analysis of foreclosures rates in Spain **(Ref: *34*)**
Rafael González-Val and Miriam Marcén

(19:30- 20:30) Session B.6: Forecasting electricity load and prices

---

Chairman: Dr. Aitor Ciarreta

Forecasting Electricity Prices Using Bid Data **(Ref: *69*)**
Aitor Ciarreta, Blanca Martínez-Gonzalo and Shahriyar Nasirov

Probabilistic forecasting of seasonal time series Combining clustering and classification for forecasting **(Ref: *135*)**
Colin Leverger, Thomas Guyet, Simon Malinowski, Vincent Lemaire, Alexis Bondu, Laurence Roze, Alexandre Termier and Régis Marguerie

Analysis and Forecasting of Electricity Consumption in Multiple Scales for Long Term Planning **(Ref: *250*)**
Qianyun Wen, Yang Liu and Junjie Qu

Tuesday, July 20th, 2021

(8:30-10:30) Session A.7: Forecasting performance evaluation .

Chairman: Dr. Erik Christian Montes Schutte and Dr. Zermani Sara

Learning Curves: a novel approach for robustness improvement of load forecasting **(Ref: *76*)**
Chiara Giola, Piero Danti and Sandro Magnani

Machine Learning for Very Short-term Solar Irradiance Forecasting in French Guiana **(Ref: *118*)**
Sara Zermani, Maha Salloum, Jérémy Macaire and Laurent Linguet

Semiparametric Block Bootstrap Prediction Intervals for Parsimonious Autoregression **(Ref: *137*)**
Jing Li

Fuzzy prediction intervals using credibility distributions **(Ref: *165*)**
Abel Rubio, Enriqueta Vercher and Jose D. Bermúdez

Does Family Matter? Venture Capital Cross-fund Cash Flows **(Ref: *178*)**
Huizhu Sun, Roman Kräussl and Kalle Rinne

An Improved Forecasting and Detection of Structural Breaks in Time series using Fuzzy Techniques **(Ref: *249*)**
Phuong Truong and Vilém Novák

Enhanced Day-Ahead PV Power Forecast: Dataset Clustering for an Effective Artificial Neural Network Training (on-line) **(Ref: *271*)**
Andrea Matteri, Emanuele Ogliari and Alfredo Nespoli

(8:30-10:30) Session B.7: Data preprocessing methods

Chairman: Dr. Hector Pomares

Learning Universal Representations Using Multivariate Time Series of Various Dimensions Through Segmentation Analysis **(Ref: *119*)**
Eunbi Choi, Minghui Gong and Chunping Li

Factors affecting transport sector CO2 emissions in Eastern European countries: An LMDI decomposition analysis **(Ref: *200*)**
Souhir Abbes

Forecasting and Analysis Tools for Regional Industries Dynamics **(Ref: *227*)**
Valeriy Semenychev and Anastasiya Korobetskaya

An Optimization-based Method for Combining Forecasts **(Ref: *208*)**
Brad Johnson and Nikolaos Sahinidis

A hypothesis test for the goodness-of-fit of the marginal distribution of a time series with application to stablecoin data **(Ref: *265*)**
Mark Levene

(11:00-12:00) Plenary Talk (virtual/on-line): Prof. Christian H. Weiß

University in Hamburg, Germany

On PMF-Forecasting for Count Processes

Annika Homburg, Christian Weiß, Layth Alwan, Gabriel Frahm and Rainer Göb

---

(12:00- 13:15) Session A.8: COVID-19: Modelling Miss-reported data and Economic Impact

Chairman: Dr. Alejandra Cabaña and Dr. Argimiro Arratia

Age-stratified hospitalisation rates to estimate COVID-19 under-reporting **(Ref: *130*)**
Daniel Herrera Espósito, Paola Bermolen and María Inés Fariello

Count time series and estimation of under-reported cases of CoVID-19 **(Ref: *173*)**
Alejandra Cabaña, Argimiro Arratia, Amanda Fernández-Fontelo, David Moriña and Pere Puig

Bayesian Synthetic Likelihood Estimation for Underreported Time Series: Covid-19 Incidence in Spain **(Ref: *174*)**
David Moriña, Amanda Fernández-Fontelo, Alejandra Cabaña, Argimiro Arratia and Pedro Puig

tsIntegerAR package: an R package for integer-valued time series analysis **(Ref: *190*)**
Jordi Tur, Amanda Fernández-Fontelo, Alejandra Cabaña, Argimiro Arratia, Pedro Puig and David Moriña

Analyzing Volatility Spillovers Among Oil, Stock, and Gold Markets in COVID-19 Situation **(Ref: *238*)**
Todsapon Panya, Woraphon Yamaka Yamaka and Roengchai Tansuchat

---

(12:00- 13:15) Session B.8: Energy forecasting. Power Systems, Renewable Energies and Smart Grids.

Chairman: Dr. Brad Johnson and Dr. Kevin Forbes

Modelling and forecasting Saudi Arabia's oil exports **(Ref: *145*)**
Muhammad Javid

Prediction models of electricity demand with high-frequency data for Uruguay **(Ref: *204*)**
Bibiana Lanzilotta and Silvia Rodríguez-Collazo

Impact of Temperature Modelling over the Spanish Electric Consumption Forecasts **(Ref: *266*)**
Eduardo Caro and Jesús Juan Ruiz

Quantifying Uncertainty for Predicting Renewable Energy Time Series Data using Machine Learning **(Ref: *192*)**
Phil Aupke, Andreas Kassler and Andreas Theocharis

Expected Meteorological Conditions, Expected Renewable Energy Generation, and the Demand for System Operator Coordinated Electricity: Evidence from Great Britain **(Ref: *239*)**
Kevin Forbes

(13:15-14:15) Plenary Talk (virtual/on-line): Prof. Anthony C. Boucouvalas

University of Peloponnese, Greece

Predicting Earthquakes in 2021: 20 Earthquakes in 21

(16:00-17:10) Session A.9: Dimension reduction techniques

Chairman: Dr. Matus Maciak

Sparse structures with LASSO through Principal Components: forecasting GDP components in the short-run **(Ref: *66*)**
Saulius Jokubaitis, Dmitrij Celov and Remigijus Leipus

A data-driven method to identify frequency boundaries in multichannel data **(Ref: *134*)**
Michael X Cohen

Combinatorial topological dynamical systems: a direct tool for reconstructing and analysing non-linear dynamics from data **(Ref: *175*)**
Marian Mrozek

Forecasting the COVID-19 recession and recovery for Canada and US using Machine Learning and Deep Learning Methods **(Ref: *258*)**
Shafiullah Qureshi, Ba M Chu and Fanny S. Demers

(16:00-17:10) Session B.9: Computational Intelligence methods for Time Series

---

Chairman: Dr. Johannes Lohwasser

Using Learned Health Indicators and Deep Sequence Models to Predict Industrial Machine Health **(Ref: *229*)**
Ido Amihai, Arzam Muzaffar Kotriwala, Diego Pareschi, Moncef Chioua and Ralf Gitzel

An Advanced Markov Switching Approach for the Modeling of Consultation Rate Data **(Ref: *240*)**
Emmanouil-Nektarios Kalligeris, Alex Karagrigoriou and Christina Parpoula

On detecting changes in hurricane intensities through time-switched hypothesis testing **(Ref: *172*)**
Moinak Bhaduri, Taoyanran Sun and Yun-Ting Sun

Unit root test combination via random forests **(Ref: *36*)**
Luca Nocciola, Daniel Ollech and Karsten Webel

Non-statistical method for analysis, forecasting and mining time series **(Ref: *136*)**
Vilem Novak and Irina Perfilieva

(17:10-18:10) Plenary Talk (virtual/on-line): Prof. Wesley S. Burr

Trent University in Ontario, Canada

Assessing Statistical Performance of Time SeriesInterpolators

Wesley Burr and Sophie Castel

(18:10-19:00) Session A.10: Econometric models

Chairman: Dr. Mike Cohen

Analysis and Evaluation of Employment in the Water Transport System of the Republic of Croatia **(Ref: *16*)**

Drago Pupavac, Ljudevit Krpan and Robert Maršanić

Market Premia for Renewables in Germany: The Effect on Electricity Prices **(Ref: *71*)**

Manuel Frondel

Panel Data Changepoint Estimation via Regularization **(Ref: *184*)**

Matúš Maciak

(18:10-19:00) Session B.10: Advances in hydro-meteorological time series analysis and atmospheric forecast

Chairman: Dr. Ido Amihai and Dr. Miguel Ángel Ruiz Reina

Forecast-based Financing for Food Security Interventions in Niger **(Ref: *218*)**

Asher Siebert, Remi Cousin, Souha Ouni, Audrey Vadillo, Daniel Osgood, Rija Faniriantsoa, Mariama Nouhou, Katiellou Lawan, Liman Diallo and Kaouge Boubacar

Ensemble precipitation estimation using FRB and SEM **(Ref: *270*)**

O. Burak Akgun and Elcin Kentel

(19:00-20:15) Session A.11: Forecasting in High Dimension and Complex/Big Data

Chairman: Dr. Diego J Pedregal and Dr. Svatopluk Kapounek

New methods for the identification of Structural Time Series Models **(Ref: *70*)**
Diego José Pedregal

Now- and Backcasting Initial Claims with High-Dimensional Daily Internet Search-Volume Data **(Ref: *129*)**
Erik Christian Montes Schütte, Daniel Borup and David Rapach

Measuring COVID19 Induced Economic Policy Uncertainty using Natural Language Processing for Canada and US **(Ref: *259*)**
Shafiullah Qureshi, Ba Chu, Fanny Demers and Michel Demers

If You Like It, GAN It. Probabilistic Multivariate Times Series Forecast With GAN **(Ref: *170*)**
Alireza Koochali, Andreas Dengel and Sheraz Ahmed

Variability of scaling exponents in short-term memory fMRI time series **(Ref: *196*)**
Anna Ceglarek, Jeremi Ochab, Marcin Wątorek and Paweł Oswiecimka

Time–Frequency Analysis of Cryptocurrency Attention **(Ref: *255*)**
Jarko Fidrmuc, Svatopluk Kapounek and Zuzana Kučerová

(19:00-20:15) Session B.11: Econometric Models and Forecasting

---

Chairman: Dr. Luca Nocciola

Back to the Present: Learning about the Euro Area through a Now-casting Model **(Ref: *25*)**
Michele Modugno, Danilo Cascaldi-Garcia, Thiago Ferreira and Domenico Giannone

Cycles and uncertainty: aplications in the tourist accommodation market **(Ref: *65*)**
Miguel Ángel Ruiz Reina

Rényi transfer entropy estimators for market data. **(Ref: *193*)**
Zlata Tabachova, Petr Jizba and Hynek Lavicka

Forecasting the spread of the COVID-19 pandemic based on the communication of coronavirus sceptics **(Ref: *110*)**
László Kovács, Melinda Magyar and Dávid Burka

IPAT and STIRPAT modelling revisited: the role of CO2 emissions, population and technology for a growing affluence **(Ref: *122*)**
Johannes Lohwasser and Axel Schaffer

Investigating the asymmetric comovement between Coffee and Cocoa Prices in the International Markets **(Ref: *189*)**

Gideon Ampofo, Jinhua Cheng, Daniel Asante and Kailei Liu

Wednesday, July 21th, 2021

(9:00-10:05) Session A.12: Uncertainties in forecasting processes

Chairman: Dr. Ignacio Rojas

SARIMA-LSTM for sales forecasting **(Ref: *77*)**
Albert Lechner and Steve R. Gunn

Asymptotic Expansions for Market Risk Assessment: Evidence in Commodity, Energy, Metals and Mining Indices **(Ref: *127*)**
Daniel Velásquez, Andrés Mora-Valencia and Javier Perote

Forecasting Aggregate Household Consumption and Aggregate Income: A Simulation-Based Model Selection Approach **(Ref: *225*)**
Adusei Jumah and Robert M. Kunst

A Forecast Fusion Algorithm in Hypercomplex Systems with Random Transmission Delays under Properness Conditions **(Ref: *279*)**
Rosa Fernández-Alcalá, Jesús Navarro-Moreno and Juan Carlos Ruiz-Molina

(9:00-10:00) Session B.12: Adaptivity for stochastic models

Chairman: Dr. Mark Levene and Dr. Richard Staňa

The least-squares residuals to assess the stochasticity of measurements: example: Terrestrial Laser Scanner and surface modelling **(Ref: *80*)**
Gaël Kermarrec, Niklas Schild and Hartmann Jan

On the Family of Covariance Functions Based on ARMA-Models **(Ref: *78*)**
Till Schubert, Jan Martin Brockmann, Johannes Korte and Wolf-Dieter Schuh

On the Introduction of Diffusion Uncertainty in Telecommunications' Market Forecasting **(Ref: *191*)**
Nikolaos Kanellos, Dimitrios Katsianis and Dimitrios Varoutas

(10:05- 11:30) Session A.13: Applications in Time Series Part. II

Chairman: Dr. Javier Perote and Dr. Robert Kunst

Flow and density estimation in Grenoble using real data **(Ref: *197*)**
Martin Rodriguez-Vega, Carlos Canudas-de-Wit and Hassen Fourati

Comparing Epidemiology SIR with Regression, Arima, and Prophet in forecasting Covid-19 **(Ref: *21*)**
Pedro Furtado

The Impact of the Hungarian Retail Debt Program **(Ref: *168*)**
Bianka Biró, Dávid Tran, András Stark and András Bebes

Sectoral Productivity Differentials and Real Effective Exchange Rate Dynamic in Developed and Emerging Economies **(Ref: *150*)**
Yaya Seydou Camara

Forecasting European Tourism after the Post-COVID-19 crisis **(Ref: *273*)**
Lucie Plzakova and Egon Smeral

Time series prediction platform for Deep Learning **(Ref: *264*)**
Pawel Morkisz and Kyle Kranen

(10:00- 11:30) Session B.13: Forecasting in High Dimension and Complex/Big Data

---

Chairman: Dr. Kermarrec Gael and Dr. Till Schubert

Network security situation awareness forecasting based on neural networks **(Ref: *247*)**
Richard Staňa, Patrik Pekarčík, Andrej Gajdoš and Pavol Sokol

Discrete-Time Autoregressive Models for irregularly observed time series. **(Ref: *212*)**
Felipe Elorrieta, Susana Eyheramendy, Wilfredo Palma and Cesar Ojeda

An irregularly observed first-order autoregressive moving average model **(Ref: *214*)**
Cesar Ojeda, Felipe Elorrieta, Wilfredo Palma and Susana Eyheramendy

Chlorophyll-a Content Sensor Time Series Data Analysis: A Novel Forecasting Model for Aquaculture Industry **(Ref: *267*)**
Elias Eze, Sam Kirby, John Attridge and Tahmina Ajmal

(12:00-13:00) Session A.14: Advanced mathematical model in Time Series. Part II.

Chairman: Dr. Egon Smeral and Dr. Juan Flores

A Trainable Reconciliation Method for Hierarchical Time-Series **(Ref: *32*)**
Davide Burba and Trista Chen

Automatic Hierarchical Time Series Forecasting using Gaussian Processes **(Ref: *206*)**
Luis Roque, Carlos Soares and Luis Torgo

Pipeline Trees - An Auxiliary Tool in theCreation of Time Series Pipelines **(Ref: *141*)**
Juan Flores, Ronny Fuentes, Joseph McLaughlin, Kyra Novitzky, Stephanie Schofield, Alec Springel and Seth Tal

Fracture life forecasting of steels based on the P92 standard using nonlinear machine learning techniques **(Ref: *268*)**
Roberto Fernandez Martinez, Pello Jimbert, Jose Ignacio Barbero and Lorena M. Callejo

---

(12:00-) Session B.14: Applications and Advances in Time Series.

Chairman: Dr. Ignacio Rojas

European Exchange Economies with CRRA Utility **(Ref: *31*)**
Per B Solibakke

A Vector Integer-Valued Long Memory Model for High Frequency Transaction Data **(Ref: *199*)**
Shahiduzzaman Quoreshi

A novel approach to the estimation of expected shortfall **(Ref: *269*)**
Yuzhi Cai

Benchmarking of traditional and Deep Learning time series modelling techniques for prediction of rainfall in United Arab Emirates **(Ref: *126*)**
Dwijendra Nath Dwivedi, Badri Narayanan Gopalakrishnan and Adhithya Balasubramanian

Growing Cumulative Activity of Major Tropical Cyclones **(Ref: *140*)**
Yuri Katz and Alain Biem

A new tool to determine the hydrometeorological time series pattern at regional scale **(Ref: *213*)**
Alina Barbulescu, Florin Postolache and Cristian Stefan Dumitriu

Time series based solar flares forecasting **(Ref: *217*)**
Irina Knyazeva, Arseny Khakhalin and Nikolay Makarenko

Utah Air Quality Prediction using Neural Networks **(Ref: *243*)**
Israt Jahan, Sayeed Sajal and Kendall Nygard

Anomaly and Fraud Detection in Credit Card Transactions Using the ARIMA Model **(Ref: *29*)**

Giulia Moschini Giulia Moschini, Régis Houssou and Jérôme Bovay

Modeling of the differentiation of Scots pine thickness and height increment reactions to climatic factors using the analytical and neural model **(Ref: *73*)**

Jarosław Socha and Luiza Tyminska Czabanska

Forecasting cross-border malaria case number: towards an early warning system to support malaria elimination plans **(Ref: *109*)**

Thomas Schincariol, Emmanuel Roux, Sylvaine Jégo, Thibault Catry, Florian Girond, Vincent Herbreteau, Raphael Saldanha and Émilie Mosnier

Continuous production of concrete mix control based on the "concrete family" concept **(Ref: *116*)**

Jozef Jasiczak, Marcin Kanoniczak and Lukasz Smaga

Individual Preferences for COVID-19 Vaccination in China **(Ref: *117*)**

Anli Leng and Jian Wang

Finding the Key Factors for Customer Acquisition and Retention in Telecommunication Industry using Deep Learning **(Ref: *253*)**

Israt Jahan, Sayeed Sajal and Kendall Nygard

New criteria for an optimal choice of reinsurance for non-life insurance companies **(Ref: *2*)**

Abderrahim El Attar

Estimation of COVID-19 dynamics in the different states of the United States during the first months of the pandemic **(Ref: *155*)**

Ignacio Rojas-Valenzuela, Olga Valenzuela, Elvira Delgado-Marquez, Fernando Rojas

Construction of regression models for time series and their application for the analysis of meteorological indicators **(Ref: *79*)**

Aleksandra Bezrukova

View the change of runoff and sediment in the Yellow River during long period based on multi-sources non-hydrological data **(Ref: *131*)**

Chaoqun Li, Xiaoyan Hu, Peng Wang, Songwei Chen and Liming Ma

Rainfall Time Series Analysis for Kala Oya Basin, Sri Lanka **(Ref: *211*)**

Attidiyage Don Shashika Iresh

Cartosat-3 Multi-View Image Matching for Urban Areas **(Ref: *215*)**
Satya Soma Sekhar Kopparthi, Santhisree B and Vinod M Bothale

Comparative analysis of statistical and analytical techniques for the study of GNSS geodetic time series **(Ref: *248*)**
Paola Barba, Belén Rosado, Javier Antonio Ramírez and Manuel Berrocoso

Analysis of different techniques and software for GNSS data processing, for the comparison of linear and non-linear time series solutions **(Ref: *260*)**
Javier Antonio Ramírez Zelaya, Belén Rosado, Paola Barba, Jorge Gárate and Manuel Berrocoso

Comparative analysis of non-linear GNSS geodetic time series filtering techniques: El Hierro volcanic process (2010-2014) **(Ref: *261*)**
Belén Rosado, Javier Antonio Ramírez-Zelaya, Paola Barba, Amós de Gil and Manuel Berrocoso

Can we predict Indian Stock Market using Machine Learning algorithms? **(Ref: *152*)**
Abhibasu Sen and Karabi Dutta Choudhury

Narrative Economics of Religion: The Witch Question **(Ref: *195*)**
Annie Tubadji

Severity of war and terrorism effects on tourism demand **(Ref: *207*)**
Ahmed Omer and Mehmet Yeşiltaş

Validity of Okun's Law in Pakistan: A Time Series Analysis **(Ref: *143*)**
Khadija Shams and Farah Arif

Modelling the Asymmetric Relationship between Financial Development and Environmental Degradation using Linear and Non-linear ARDL Model **(Ref: *164*)**
Sima Dey

The Humpty Dumpty Effect, v2.0: Online Mobile Media Diffusion and (Granger) Causal Democratic Change in 122 Countries from 1946 through 2018 **(Ref: *205*)**
Jacob Groshek and Jacob Groshek

Anomaly detection algorithm using a hybrid modelling approach for energy consumption time series **(Ref: *226*)**
Florian Rippstein, Steve Lenk, Andre Kummerow, Lucas Richter, Stefan Klaiber and Peter Bretschneider

Enhancing zero-shot time series forecasting with data augmentation **(Ref: *22*)**
Sebastian Pineda-Arango

Learning with Sentiment: Combining machine learning with news sentiment for stock market trading **(Ref: *111*)**
Svetlana Borovkova

Forecasting Turkey Electricity Prices by Alpha-Stable Autoregressive Time Series **(Ref: *28*)**
Ferit Acar Savacı and Ege Tamcı

An Adaptative Hybrid system based Neurofuzzy model for Energy Price Forecasting **(Ref: *144*)**
Souhir Ben Amor and Wolfgang Karl Härdle

Short term load forecasting using TabNet: A comparative study with traditional state-of-the-art regression models **(Ref: *228*)**

Day-Ahead Electricity Load Prediction Based On Calendar Features And Temporal Convolutional Networks **(Ref: *236*)**
Lucas Richter, Stefan Klaiber and Peter Bretschneider

Short-term forecast of electricity demand in Greece **(Ref: *115*)**
Ioannis Engonopoulos

Study of Shelf extents and melt periods and forecasting for Amery Ice Shelf using microwave space borne cross platforms by ML techniques **(Ref: *185*)**
Srisudha Seela, Basavaraju Santhisree, Anupam Das Laxman, D Chandrasekharan and Vinod Bothale

Resampling Methods for Generating Future Signal Path **(Ref: *182*)**
Atikur Khan

Inflation forecast and its determinants in a dynamic setup: evidence from India **(Ref: *125*)**
Masudul Adil and Mohammad Azeem Khan

The importance of intra-horizon risk in portfolio optimization **(Ref: *252*)**
Paulo M. M. Rodrigues

Electric load forecasting model considering the influence of distributed generation on the load curve profile **(Ref: *177*)**
Rafael G. Duarte, Reinaldo C. Souza and Ricardo B. Prada

Principal Component Analysis using Frequency Components of Multivariate Time Series **(Ref: *275*)**
Raanju Sundararajan

COVID-19 Time Series Forecasting – Twenty Days Ahead **(Ref: *151*)**
Kathleen Carvalho, João Vicente and João Paulo Teixeira

Analyzing the effectiveness of COVID-19 lockdown policies using the time-dependent reproduction number and the regression discontinuity framework: comparison between countries **(Ref: *235*)**
Shangjun Liu, Gui-Ying Cao, Tatiana Ermolieva, Chen and Zheng

What are the perspectives for blood donations and blood component transfusion worldwide? A systematic review of time series studies **(Ref: *132*)**
Elias Oliveira and Ilka Reis

Methods for Velocity Estimation from X-ray Angiography **(Ref: *245*)**
Irina Tache

Detection of cornea disease keratoconus using detection algorithms **(Ref: *262*)**
Namisha Bhasin and Sandhya Tarar

High Mass X-Ray Binary timing analysis, 4U0114+65 and Cen X-3 **(Ref: *283*)**
Graciela Sanjurjo Ferrin

Assessment of annual runoff series temporal behaviour through an hybrid modelling approach Bayesian Causal/Multivariate Linear **(Ref: *284*)**
José Luis Molina González, Carmen Patino-Alonso and Santiago Zazo del Dedo

The use of Multivariate General Linear Model in hydrological analysis **(Ref: *285*)**
Carmen Patino-Alonso, José Luis Molina González and Santiago Zazo del Dedo

(13:00-14:00) Plenary Talk (virtual/on-line): Prof. Dr. Friedrich Schneider

R. I. Banking and Finance, Johannes Kepler University of Linz

Shadow economies all over the world from 1991 to 2017 and the US one over 1870 to 2019: What do we (not) know?

(16:00-17:10) Session A.15: Energy forecasting

Chairman: Dr. Luis Javier Herrera

Are renewable energies on a sustained path? Analysis of selected case-studies from the pre-pandemic-era **(Ref: *153*)**
Alessandro Bessi, Mariangela Guidolin and Piero Manfredi

Analyzing Seasonality in HPP Energy Production and External Variables **(Ref: *277*)**
Eralda Gjika, Lule Basha, Aurora Ferrja and Arbesa Kamberi

Decomposition-based hybrid models for very short-term wind power forecasting **(Ref: *163*)**
Juan Manuel González Sopeña, Vikram Pakrashi and Bidisha Ghosh

(16:00-17:10) Session B.15: Theoretical and Methodological Advances in High-Dimensional Time Series Analysis

Chairman: Dr. David Degras

Tourism and Big Data: Forecasting with Hierarchical and Sequential Cluster Analysis. **(Ref: *20*)**
Miguel Ángel Ruiz Reina

Asymptotic distributions of M-estimates for parameters of multivariate time series with strong mixing property **(Ref: *181*)**
Alexander Kushnir and Alexander Varypaev

Wavelet Spatio-Temporal Change Detection on multi-temporal PolSAR images **(Ref: *221*)**
Rodney Fonseca, Aluísio Pinheiro and Abdourrahmane Atto

Recent Advances in Portfolio Construction and Expected Return Estimates Using Graph Theory **(Ref: *278*)**
Bernard Lee

(17:10-18:10) Plenary Talk (virtual/on-line): Dr. Julien Siebert

IESE in Kaisersautern, Germany

A systematic review of Python packages for time series analysis
Julien Siebert, Janek Groß and Christof Schroth

(18:10-19:00) Session A.16: Theoretical and Methodological Advances in High-Dimensional Time Series Analysis

Chairman: Dr. Rafael González-Val

Bootstrap-based nonlinear shrinkage of sample eigenvalues **(Ref: *256*)**
Eran Raviv

Predictability of Scrub Typhus Incidences Time Series in Thailand **(Ref: *276*)**
Valeria Bondarenko, Pierre Mazzega and Claire Lajaunie

Meta-Parameter Selection for Embedding Generation ofLatency Spaces in Auto Encoder Analytics **(Ref: *282*)**
Maria Walch, Peter Schichtel, Dirk J Lehmann and Amala Paulson

(18:10-19:10) Session B.16: Advanced Econometric and Macroeconomic Methods

Chairman: Dr. Dávid Burka and Dr. Dimitris Katsianis

Historical-time Functional Linear Model and its Inference with Cross-sectional Dependence **(Ref: *68*)**
Renfang Tian

Predicting online consumer reviews – an INARX(p,q) model **(Ref: *194*)**
Shahiduzzaman Quoreshi, Henrik Sällberg and Emil Numminen

Improved Output Gap Estimates and Forecasts Using a Local Linear Regression **(Ref: *24*)**
Marlon Fritz

Bernoulli Time Series Modelling with Application to Accommodation Tourism Demand **(Ref: *124*)**
Miguel Ángel Ruiz Reina

(19:00-20:00) Session A.17 Advanced mathematical model in Time Series. Part III.

Chairman: Dr. Ignacio Rojas

Personalized Prediction of Chronic Disease Progression with Noisy Measurements Using Filtered Forecasting Methods **(Ref: *113*)**
Pooyan Kazemian and Maryam Zokaeinikoo

Filtering and forecasting via duality methods **(Ref: *149*)**
Matteo Ruggiero

Bayesian Robust Multivariate Time Series Analysis in Nonlinear Models with Autoregressive and t-Distributed Errors **(Ref: *257*)**
Alexander Dorndorf, Boris Kargoll, Jens-André Paffenholz and Hamza Alkhatib

Inference in Markov-Switching State-Space Models **(Ref: *274*)**
David Degras, Chee Ming Ting and Hernando Ombao

(19:10-20:00) Session B.17: COVID-19 and Time Series Analysis

---

(tentative) Chairman: Dr. Zorica Mladenovic and Dr. Marcelo Fiori

The effect of mobility in the COVID-19 epidemic propagation in Uruguay **(Ref: *128*)**
Marcela Peláez, Marcelo Fiori, Paola Bermolen, Nicolás Wschebor and María Inés Fariello

System for Forecasting Covid-19 Cases Using Time Series and Neural Networks Models **(Ref: *210*)**
Mostafa Abotaleb and Tatiana Makarovskikh

Early COVID-19 Contagion Dynamics Within Hidden State Autoregressive Markov Models **(Ref: *220*)**
Zorica Mladenovic, Lenka Glavas and Pavle Mladenovic