IMPS 2020 • Virtual • July 14-17
Conference Program
# TUESDAY • JULY 14

## STAGE 1

### Welcome and Opening Remarks
Chair: Daniel Bolt

**STAGE 1**

Welcome and Opening Remarks
Chair: Daniel Bolt

**9:00 a.m.-9:55 a.m. US Eastern Time**

### STAGE 1

**Keynote Speaker: Michel Wedel**

Psychometric Analysis of Eye Movements During Search and Choice
Chair: Irini Moustaki

**9:00 a.m.-9:55 a.m. US Eastern Time**

### STAGE 1

1.1: Process Data: Core Concepts and Practical Applications (Symposium)
Chair: Markus Broer

- Markus Broer
  - PROCESS DATA: CORE CONCEPTS AND PRACTICAL APPLICATIONS
- Tiago Calico
  - SO YOU THINK YOU CAN PROCESS: ONTOLOGICAL AND METHODOLOGICAL BARRIERS TO INCORPORATING EVENT DATA IN PSYCHOMETRIC MODELS
- Fusun Sahin
  - TO PENALIZE OR NOT TO PENALIZE NOT-REACHED ITEMS: EFFECTS ON ITEM AND ABILITY ESTIMATIONS
- Xiaying Zheng
  - USING RESPONSE TIME MODELING TO DETECT SPEEDED EXAMINEES WITH MISSING RESPONSES

1.2: Bayesian Inference
Chair: Silvia Vitoratou

- David Kaplan
  - BAYESIAN PROBABILISTIC FORECASTING WITH STATE NAEP DATA
- Sinan Yavuz
  - COMPARISON OF MODEL AVERAGING AND MODEL SELECTION METHODS
- Maximilian Maier
  - BAYESIAN BENEFITS FOR META-ANALYSIS IN THE PRESENCE OF PUBLICATION BIAS
- Yanling Li
  - FORECASTING ALCOHOL USE WITH MISSING DATA: A BAYESIAN APPROACH

1.3: Differential Item Functioning
Chair: Jing Lu

- David Chen
  - INVESTIGATING ITEM PARAMETER DRIFT ON DIFFERENT IRT LINKING METHODS
- Dongmei Li
  - POPULATION INVARIANCE OF EQUATING FOR SUBGROUPS DIFFERING IN ACHIEVEMENT LEVEL
- Weimeng Wang
  - AN ANCHOR-FREE TEST OF DIFFERENTIAL ITEM FUNCTIONING
- Xiaying Zheng
  - A CAUTIONARY NOTE ON USING THE MANTEL-HAENSZEL METHOD TO DETECT DIFFERENTIAL ITEM FUNCTIONING OF 3PL ITEMS

1.4: Advances in Cognitive Diagnostic Modeling
Chair: Matthew Madison

- Siqi He
  - IDENTIFICATION AND ESTIMATION OF DIAGNOSTIC MODELS FOR ORDINAL RESPONSES WITH POLYOMOUS ATTRIBUTES
- James Balamuta
  - AN EXPLORATORY GENERAL DIAGNOSTIC MODEL USING THE LOGIT LINK FUNCTION
- Jiaying Xiao
  - A COGNITIVE DIAGNOSTIC MODEL FOR HIERARCHICAL ATTRIBUTES AND LEARNING TRAJECTORIES
- Yinghan Chen
  - ESTIMATION OF K AND Q MATRIX IN RESTRICTED LATENT CLASS MODELS

**10:40 a.m.-11:15 a.m. US Eastern Time**

### STAGE 1

2.1: Aberrant Response Behavior
Chair: Jorge Tendeiro

- Xiaou Li
  - COMPOUND SEQUENTIAL DETECTION OF COMPROMISED ITEMS
- Hotaka Maeda
  - MODELING UNIQUE ITEM RESPONSE PATTERNS OF SUSPECTED ABERRANT EXAMINEES
- Hongyue Zhu
  - BAYESIAN CHANGE POINT ANALYSIS FOR DETECTING ABERRANT RESPONSE BEHAVIORS
- Kaiwen Man
  - ASSESSING PRE-KNOWLEDGE CHEATING VIA INNOVATIVE TECHNOLOGY-ENHANCED MEASURES
- Daniella Rebouças
  - RESPONSE TIMES AND CLICK-THROUGH DATA FOR DETECTION OF CARELESS RESPONSES

2.2: Multilevel Analysis
Chair: Holger Brandt

- Hsiu-Ting Yu
  - EFFECT SIZE MEASURES FOR MULTILEVEL MODELS: CONCEPTUAL AND COMPUTATION ISSUES
- Hok Chio Lai
  - MULTILEVEL BOOTSTRAP CONFIDENCE INTERVALS FOR STANDARDIZED EFFECT SIZE
- Diego Carrasco
  - STUDENTS RATING THE LEVELS OF DISCUSSION IN THE CLASSROOM AND SHOWING LACK OF CONSSENSUS
- Sacha Epstein
  - INTRODUCING PSYCHOMETRICS, AN R PACKAGE FOR STRUCTURAL EQUATION MODELLING
- Jorge Bazan
  - RESIDUAL ANALYSIS IN SINGLE LEVEL AND MULTILEVEL RASCH COUNTS MODELS

2.3: Novel Constructs and Formats
Chair: Peter Halpin

- Anne Thissen-Roe
  - ESTIMATING APPROXIMATE NUMBER SENSE (ANS) ACUITY
- Lewis Baker
  - DIFFERENCES IN SYMBOLIC AND NON-SYMBOLIC MEASURES OF APPROXIMATE NUMBER SENSE
- Hojattollah Farahani
  - AFTER THEMATIC ANALYSIS: INTRODUCING THE FUZZY THEMATIC NETWORK ANALYSIS IN PSYCHOLOGICAL RESEARCH
- Jing Chen
  - PSYCHOMETRIC MODELS FOR NEXT GENERATION SCIENCE STANDARDS ALIGNED SCIENCE ASSESSMENTS

2.4: Causal Inference
Chair: Jee-Seon Kim

- Youmi Suk
  - EVALUATING THE EFFECTS OF EXTENDED TIME ACCOMMODATIONS IN OBSERVATIONAL STUDIES
- Soojin Park
  - ESTIMATION AND SENSITIVITY ANALYSIS FOR CAUSAL DECOMPOSITION ANALYSIS IN DISPARITY RESEARCH
- Satoshi Usami
  - A POTENTIAL OUTCOME APPROACH TO WITHIN-PERSON CAUSAL EFFECTS OF TIME-VARYING CONTINUOUS TREATMENTS: AN EMPHASIS ON CONTROLLING PERSON’S STABLE TRAIT FACTORS
- Keith Markus
  - NON-CAUSAL DETERMINATION: IMPLICATIONS FOR CAUSAL EXPLANATION AND CAUSAL MODELING
### TUESDAY • JULY 14

#### 11:20 a.m.–11:55 a.m.

**STAGE 2**

**3.1: Regression Modeling and Prediction**
Chair: Kenneth Wilcox

- **Eduardo Alarcón-Bustamante**
  - NEW INSIGHTS ON MARGINAL EFFECTS

- **Jorge Tendeiro**
  - ROBUSTNESS OF BAYESIAN NULL HYPOTHESIS TESTING UNDER OPTIONAL STOPPING

- **Sierra Bainter**
  - SSVS FOR PSYCH: AN ONLINE TOOL FOR PERFORMING STOCHASTIC SEARCH VARIABLE SELECTION

- **Joshua Chiroma Gandi**
  - PARSIMONY-PARAMETER MODEL FOR EVIDENTIAL ACCURACY AND PRECISION

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**STAGE 3**

**3.3: Testlets and Hierarchical Factor Structure**
Chair: Ken Fujimoto

- **Debby ten Hove**
  - SELECTING THE APPROPRIATE ICC TO ESTIMATE INTRARATER RELIABILITY

- **Pedro Henrique Ribeiro Santiago**
  - A NEW APPROACH FOR BAYESIAN OMEGA ESTIMATION

- **Nadja Bodner**
  - A COMPARISON OF INTRARATER AGREEMENT MEASURES FOR BINARY TIME SERIES

- **Zhengqi Lu**
  - A STRUCTURAL EQUATION MODELING APPROACH TO MULTILEVEL RELIABILITY ANALYSIS

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**STAGE 4**

**3.4: Response Times and Diagnostic Modeling**
Chair: Xiaou Li

- **Chen Tian**
  - ROTATION CRITERION THAT ENCOURAGES A HIERARCHICAL FACTOR STRUCTURE

- **Xin Xu**
  - LATENT VARIABLE SELECTION FOR TESTLET-BASED TESTS

- **Evan Olson**
  - A MULTILEVEL TESTLET MODEL FOR RESPONSES AND RESPONSE TIMES

- **Nana Kim**
  - APPLICATION OF NONCOMPENSATORY MIRT TO PASSAGE-BASED TESTS

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### 12:00 p.m.–12:55 p.m.

**STAGE 1**

Invited Talk: Zhiyong Johnny Zhang
Psychometric Models for Social Network Data Analysis
Chair: Sophia Rabe-Hesketh

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**STAGE 2**

Invited Talk: Anna-Lena Schubert
Neurocognitive Psychometric Approaches to the Measurement of Individual Differences in Cognitive Processes
Chair: Matthias von Davier

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### WEDNESDAY • JULY 15

#### 9:00 a.m.–9:25 a.m.

**STAGE 1**

Spotlight Talk: Amanda Luby
Psychometrics for Forensic Decision-Making
Chair: David Kaplan

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**STAGE 2**

Spotlight Talk: Holger Brandt
Detecting Mediator Variables when Important Confounders are Omitted
Chair: Eric Loken

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#### 9:30 a.m.–9:55 a.m.

**STAGE 1**

Spotlight Talk: Susu Zhang
Uncovering Cross-Situational Consistency with Canonical Correlation Analysis of Process Data
Chair: Qiwei He

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**STAGE 2**

Spotlight Talk: JoonHo Lee
Bayesian Deconvolution for Measuring Treatment Effect Heterogeneity in Multisite Trials
Chair: Marie Wiberg

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#### 10:00 a.m.–10:35 a.m.

**STAGE 1**

**4.1: Poster Session 1**
Chair: Oscar Gonzalez

- **Yu Liu**
  - MODEL FIT IN ORDINAL SEM WITH MISSINGNESS: D2 VS MI2S

- **Allison Cooperman**
  - A COMPREHENSIVE REVIEW OF HEYWOOD CASES IN EXPLORATORY FACTOR ANALYSIS

- **Ting Sun**
  - VALIDATING A WRITING SELF-EFFICACY MEASURE USING CFA AND IRT ANALYSES

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**STAGE 2**

**4.2: Poster Session 2**
Chair: Ya-Hui Su

- **Qi (Helen) Huang**
  - THE POTENTIAL FOR INTERPRETATIONAL CONFOUNDING IN DISCRETE SKILLS MODELS

- **Gamze Kartal**
  - EXPLORING A NEW CTT METHOD FOR CLASSROOM CDM

- **Yoshito Tan**
  - BAYESIAN PENALIZATION FOR VARIABLE SELECTION IN EXPLANATORY COGNITIVE DIAGNOSTIC MODELS

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**STAGE 3**

**4.3: Poster Session 3**
Chair: Nadja Bodner

- **John Denbleyker**
  - REVIVING LORD-MCNEMAR'S TRUE GAIN SCORE IN THE MODERN WORLD

- **Kazuki Hori**
  - LATENT CURVE MODEL APPROACH TO THE TREND IN TIME-VARYING PREDICTOR

- **Kahyun Lee**
  - VALIDITY OF THE SINGLE-ITEM MEASUREMENT OF STATE EMOTION AND STATE SELF-ESTEEM IN THE EXPERIENCE SAMPLING METHOD

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**STAGE 4**

**4.4: Poster Session 4**
Chair: Anne Thissen-Roe

- **Onur Demirkaya**
  - DETECTING ITEM PREKNOWLEDGE WITH SPEED, ACCURACY AND REVISITS

- **Jiawei Xiong**
  - AN EMPIRICAL STUDY OF DEVELOPING AUTOMATED SCORING ENGINE USING SUPERVISED LATENT DIRICHLET ALLOCATION

- **Merve Sarac**
  - A SCORE DIFFERENCING METHOD FOR ITEM PREKNOWLEDGE DETECTION IN REAL-TIME
### 4.1: Poster Session 1
- **Kentaro Hayashi**
  - Title: On the Relationship Between Factors and Principal Components via Coefficient Alpha in High-Dimensions

- **Chris Strauss**
  - Title: Evaluating the Use of Factor Scores in Latent Mediation Models

- **Selim Havan**
  - Title: Model Size Effect on SEM Model Fit Indices with Non-Normal Data

- **Ellen Fitzsimmons**
  - Title: Marginal and Conditional Posterior Predictive P-Values for Bayesian SEM

- **Raul Corrêa Ferraz**
  - Title: Should We Compute Observed Power in Structural Equation Modeling Applications?

- **Zachary Goodman**
  - Title: Modeling Brain Signal Variability as Neural Network Latent Variables

### 4.2: Poster Session 2
- **Athul Sudheesh**
  - Title: Exploring Temporal Functional Dependencies Between Latent Skills in Summative Assessments

- **Mingying Zheng**
  - Title: Computerized Adaptive Testing Item Selection for Bayesian Diagnostic Classification Models

- **Jake Cho**
  - Title: A Statistical Procedure for Q-Matrix Specification in Diagnostic Classification Models

- **J. Rachael Ahn**
  - Title: Diagnostic Classification Using a Polytomous Measure of Korean Organizational Commitment

- **Ellen Fitzsimmons**
  - Title: A Rasch Analysis and Cross-Cultural DIF Analysis of the Purpose Scale

- **Marcelo Henklain**
  - Title: Multigroup Confirmatory Factor Analysis with the Teacher Behavior Checklist

- **Sam Cacace**
  - Title: Invariance Analysis of the CMNNI-46: Differences in Sub Scales Between Men and Women

- **Tuba Gezer**
  - Title: Differential Item Analysis of a Common Statistics Exam

- **Tuba Gezer**
  - Title: Simulation Studies of Item Bias Estimation Accuracy

- **Heather Gunn**
  - Title: Comparison of IRT and CFA Procedures for Testing DIF

- **Chichen Chen**
  - Title: Improving Performance of DIF Assessment by Using Latent Class Information

- **Brooke Houck**
  - Title: Using Pairwise Preference Choice Modeling for Exam Development

- **Ching Yi Chiang**
  - Title: Applying Data Mining in the Chinese Optimism-Pessimism Traits Scale

- **Mengting Lee**
  - Title: Psychometric Examinations of Authentic Happiness Inventory Among Australians

- **Biao Zeng**
  - Title: The Influence of Wording Direction on Undergraduate Learning Burnout Scale

- **Tung Min Liang**
  - Title: The Establishment of Evaluation Indicators for the Performance Arts Curriculum

- **Wenqian Lin**
  - Title: Measuring Online Social Loneliness

- **Diego Luna Bazaldua**
  - Title: A Generalizability Study of Teach, a Global Classroom Observation Tool

- **Magdalen Beiting-Parrish**
  - Title: Choose All That Apply: A Problematic Item Type?
<table>
<thead>
<tr>
<th>STAGE 1</th>
<th>STAGE 2</th>
<th>STAGE 3</th>
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<tbody>
<tr>
<td><strong>10:40 a.m.-11:15 a.m. US Eastern Time Continued</strong></td>
<td><strong>11:20 a.m.-11:55 a.m. US Eastern Time</strong></td>
<td><strong>6.1: Poster Session 5</strong> Chair: Satoshi Usami Chunling Niu A SIMULATION STUDY: COMPARING THE DIF DETECTION CAPACITIES OF THE RASCH TREES MODEL TESTS TO TWO COMMON DIF APPROACHES FOR PARTIAL CREDIT MODELS</td>
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**Keynote Speaker: Bin Yu**

**Veridical Data Science: The Practice of Responsible Data Analysis and Decision Making**

Chair: Francis Tuerlinckx
### Keynote Speaker: Alina von Davier

**Miss Marple's Search for Truth in Big Data: On Design, Causal Inference and Computational Psychometrics**

Chair: David Thissen

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### STAGE 1: Missing Data

**Chair: Andries van der Ark**

- Egamaria Alacam
  - NOVEL BAYESIAN MODEL-BASED IMPUTATION METHOD FOR MISSING ITEMS IN QUESTIONNAIRES

- Brenna Gomer
  - SUBTYPES OF THE MISSING NOT AT RANDOM (MNAR) MECHANISM

- Feng Ji
  - DIAGNOSING AND HANDLING COMMON VIOLATIONS OF MISSING AT RANDOM (MAR)

- Xueying Tang
  - A HIDDEN MARKOV MODEL FOR IDENTIFYING PROBLEM-SOLVING STRATEGIES IN PROCESS DATA

- Cathy (Xijuan) Zhang
  - HOW TO COMPUTE SEM FIT INDICES IN THE PRESENCE OF MISSING DATA

- Qiwei He
  - CLUSTERING GENERAL BEHAVIOR PATTERNS ACROSS MULTIPLE TASKS WITH SEQUENCE MINING

- Nader Houshyar
  - DETECTING DISEASE SUBTYPES BY MEANS OF CLUSTERWISE INDEPENDENT COMPONENT ANALYSIS

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### STAGE 2: Process Data

**Chair: Steve Culpepper**

- Shuqin Tao
  - ON-THE-FLY MULTISTAGE TESTING WITH ADAPTIVE BLUEPRINTS

- Giada Spaccapanico Proietti
  - A PROPOSAL OF AUTOMATED TEST ASSEMBLY VIA STOCHASTIC PROGRAMMING

- Jitong Qi
  - DIF DETECTION AND REMOVAL BY PROCESS FEATURES AND TRANSFER LEARNING

- Kun Su
  - ANALYZING STUDENTS PHYSICS PROBLEM SOLVING STRATEGIES USING PROCESS DATA

- Yusuke Masaru
  - A MODEL FOR IDENTIFYING PROBLEM-SOLVING STRATEGIES IN PROCESS DATA

- Qiwei He
  - CLUSTERING GENERAL BEHAVIOR PATTERNS ACROSS MULTIPLE TASKS WITH SEQUENCE MINING

- Nader Houshyar
  - DETECTING DISEASE SUBTYPES BY MEANS OF CLUSTERWISE INDEPENDENT COMPONENT ANALYSIS

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### STAGE 3: Classification

**Chair: Stephen France**

- Pablo Torres Irribarra
  - STUDENTS AS INFORMANTS: A MIXED PCM TO COMPARE SCHOOL ENVIRONMENTS

- Brenda Brouwer
  - USING LATENT PROFILE ANALYSIS (LPA) TO EXAMINE SECTION SCORE PROFILES ON THE MCAT EXAM

- Zheng He
  - FACTORS AFFECTING THE CLASSIFICATION ACCURACY IN COGNITIVE DIAGNOSIS BASED ON BP NEURAL NETWORK

- Zhang Chen
  - DETECTING DISEASE SUBTYPES BY MEANS OF CLUSTERWISE INDEPENDENT COMPONENT ANALYSIS

- Yunfeng Li
  - COMPARISON OF OUTLIER DETECTION STATISTICS IN NEAT DESIGN

- Jing Lu
  - A MIXTURE RESPONSE TIME PROCESS MODEL TO DETECT ABERRANT BEHAVIOR AND TO EXPLAIN ITEM NONRESPONSE

- Leslie Rutkowski
  - A SURVIVAL MIXTURE MODEL FOR UNDERSTANDING QUITTING BEHAVIOR

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### STAGE 4: Equating

**Chair: Ya-Hui Su**

- Pablo Torres Irribarra
  - STUDENTS AS INFORMANTS: A MIXED PCM TO COMPARE SCHOOL ENVIRONMENTS

- Brenda Brouwer
  - USING LATENT PROFILE ANALYSIS (LPA) TO EXAMINE SECTION SCORE PROFILES ON THE MCAT EXAM

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- Leslie Rutkowski
  - A SURVIVAL MIXTURE MODEL FOR UNDERSTANDING QUITTING BEHAVIOR

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### STAGE 5: Item Response Theory

**Chair: Ya Zhang**

- Pablo Torres Irribarra
  - STUDENTS AS INFORMANTS: A MIXED PCM TO COMPARE SCHOOL ENVIRONMENTS

- Brenda Brouwer
  - USING LATENT PROFILE ANALYSIS (LPA) TO EXAMINE SECTION SCORE PROFILES ON THE MCAT EXAM

- Zheng He
  - FACTORS AFFECTING THE CLASSIFICATION ACCURACY IN COGNITIVE DIAGNOSIS BASED ON BP NEURAL NETWORK

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- Leslie Rutkowski
  - A SURVIVAL MIXTURE MODEL FOR UNDERSTANDING QUITTING BEHAVIOR
### STAGE 1

#### 10.1: Psychometric Issues in Multistage Testing (Symposium)

**Chair:** Peter van Rijn

- **Peter van Rijn**
  - Design Issues Related to Estimation and Conditional Independence in Multistage Adaptive Testing

- **Hyo Jeong Shin**
  - Increasing Measurement Efficiency and Accuracy of PISA through a Multistage Adaptive Testing

- **Timo Bechger**
  - Bayesian Inference in Large-Scale Multistage Testing

- **Hyung Jin Kim**
  - Evaluating Approaches to Handling Local Item Dependency in Testlet-Based MST

#### 10.2: Response Style Modeling

**Chair:** Keith Markus

- **Allison Boykin**
  - Response Style Stability Across Scales and Item Formats

- **Francisca Calderon**
  - Accounting for Response Style in Scoring of Non-Cognitive Latent Traits

- **Weicong Lyu**
  - A Psychometric Model for Anchoring on Self-Reporting Rating Scale Instruments

- **Joshua Starr**
  - Relative Performance of Limited-Information Test Statistics with Response Style Models

- **Aaron Myers**
  - A Non-Compensatory and Compensatory MIRT Model for Modeling Response Styles

### STAGE 2

#### 10.3: Modeling Student Cognition

**Chair:** Dmitry Abbakumov

- **Maxwell Hong**
  - A Joint Modeling Framework for Item Response and Topic Models

- **Hye-Jeong Choi**
  - Probabilistic Topic Modeling for Identifying Students’ Misconceptions or Alternative Concepts in Mathematics

- **Chia-Wen Chen**
  - Combining Item Responses and Certainty Responses to Predict Misconceptions

- **Aaron Myers**
  - A Simulation Guide for Topic Models of Constructed-Response Items

### STAGE 3

#### 10.4: Bayesian Applications

**Chair:** Han Du

- **Yu-Wei Chang**
  - Bayesian Estimation for an Item Response Theory Tree Model

- **Seock-Ho Kim**
  - Priors in Bayesian Estimation for the Two- and Three-Parameter Logistic Models

- **Wenya Chen**
  - A Bayesian Solution to Bifactor IRT Modeling of Rating Data

- **Ken Fujimoto**
  - The General Bayesian Three-Tier Item Response Theory Model

- **Lijin Zhang**
  - BLCFA: An R Package for Bayesian Model Modification in Confirmatory Factor Analysis

### STAGE 4

#### 11.1: Causal Inference

**Chair:** Gabriel Wallin

- **Xiao Liu**
  - Causal Inference with Partially Nested Designs: A Propensity-Score-Based Approach

- **Jee-Seon Kim**
  - Classification and Estimation of Heterogeneous Treatment Effects

- **Ge Jiang**
  - Propensity Score Analysis with Latent Variables: Alternatives to Logistic Regression

- **Kubra Atalay Kabasakal**
  - Construction and Use of a Causal Model to Identify the Possible Causes of DIF

#### 11.2: Online Learning

**Chair:** Sacha Epskamp

- **Yuning Xu**
  - Using Simulations to Support Product Development for Online Learning Environments

- **Hulya Duygu Yigit**
  - Extending Exploratory Diagnostic Classification Models: Inferring the Effect of Covariates

- **Suhwa Han**
  - Sequential Monitoring of Examinee Aberration Based on Response Times

- **Dmitry Abbakumov**
  - Combining Explanatory IRT and Psychological Networks for Understanding and Modeling Online Learners’ Difficulties

- **Maxim Skryabin**
  - Parameters Estimation for Dynamic IRT Models with Feedback

#### 11.3: International Assessment

**Chair:** Leslie Rutkowski

- **Justin Wild**
  - Cross-Cultural Comparability of Diversity Constructs in International Large-Scale Assessments

- **Laura Raffaella Zieger**
  - Conditioning: How Background Variables Can Influence PISA Scores

- **Pan Tang**
  - Factors Affecting Collaborative Problem-Solving: An Empirical Study Based on PISA

- **Edwin Cuellar**
  - What Can We Learn from DIF Analysis in Large-Scale Assessments?

- **Burhanettin Ozdemir**
  - Comparing the Performance of Different Groups Across Testing Methods: Multi-Group Mimic Approach
### STAGE 1: Factor Analysis
**Chair:** Silvia Bianconcini

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>12:00 p.m.-12:55 p.m.</td>
<td>Testing P-technique factor analysis with non-normal time series</td>
</tr>
<tr>
<td></td>
<td>A note on exploratory item factor analysis by singular value decomposition</td>
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<tr>
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<td>An efficient scheduling algorithm for parallel planar rotations of factors</td>
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<td>Evaluating the effect of multivariate non-normality on confirmatory factor analysis</td>
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<td>Understanding sources of variability in factor analytic results</td>
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<td>Semi-parametric factor analysis for continuous data</td>
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</tbody>
</table>

### STAGE 2: Response Times
**Chair:** Hyeon-Ah Kang

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>11:20 a.m.-11:55 a.m.</td>
<td>The covariance structure of response time and accuracy during a test</td>
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<td>Modelling not-reached items with response time censoring approach</td>
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<td>Multiple group hierarchical speed accuracy revisit model</td>
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<tr>
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<td>Response time relationships within examinees: implications for item response time models</td>
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<tr>
<td></td>
<td>Rasch model with time parameters for tests with speediness-items and achievement-items</td>
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### STAGE 3: Differential Item Functioning
**Chair:** Eduardo Alarcón-Bustamante

<table>
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<tr>
<td>11:20 a.m.-11:55 a.m.</td>
<td>Bayesian regularization methods in measurement invariance evaluation</td>
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<tr>
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<td>Regularization methods for DIF detection in multidimensional IRT models</td>
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<td>Explanatory item response theory: an explanatory approach for investigating differential item functioning in PISA tests due to the test mode effect</td>
</tr>
<tr>
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<td>Using meta-analysis to assess differential bundle functioning</td>
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