

## About

Technology has always been pivotal in shaping the society. Advances in information technologies and material sciences in the course of the twenty-first century have irreversibly altered not only everyday life of individuals, so that the structural tenets of societies, but also the design, construction and management methods in architectural, engineering and urban practices. Beyond these alterations, recent innovations in emergent technologies such as Internet of Things (IoT) and/or Machine Learning have started to define unprecedented needs and requirements for the built environments. Moreover, environmental problems like pollution, source limitations, overcrowded cities, climate change, extreme weather conditions and the social crises that they cause on the doorstep require each and every profession to rethink its role in the ever changing conditions of today's dynamic political and economic agenda, make urgent decisions to adjust itself and take immediate actions. Cutting edge technological developments and innovations have the potential of being both remedy and poison for these environmental, economic and social upheavals.

In order to give insights into the role of technology and innovation in the practice and critical theory of contemporary architecture, Yaşar University initiates the International Symposium of Architecture, Technology and Innovation (ATI), which is planned to be organized annually from this very first one onwards. The symposium aims to provide scholars a transdisciplinary platform where theoretical, technical and/or practice-based state-of-the-art research findings revolving around a yearly theme in the larger framework of ATI can be discussed reciprocally.

## Themes

- ▶ Big Data and Data analytics
- ▶ Virtual Reality (VR) Technologies
- ▶ Augmented Reality (AR) Technologies
- ▶ Energy Efficient Design
- ▶ Smart Energy Grid
- ▶ Smart Transportation and Parking
- ▶ IoT Applications
- ▶ Artificial Intelligence and Machine Learning
- ▶ GIS, Smart Communities and Urban Mobility
- ▶ Transformable / Deployable Structures
- ▶ Adaptive Systems
- ▶ Responsive Façades
- ▶ Origami-Based Structures
- ▶ Computational Design and Fabrication
- ▶ Sustainability and Structural Design
- ▶ Smart and Bio-based Materials
- ▶ BIM Technologies
- ▶ Digital Humanities

## Participation

To participate in the presentations online, please follow the program tab on our website [ati.yasar.edu.tr](http://ati.yasar.edu.tr). Zoom and youtube links required for the presentations will be updated on the website.



## Keynote Speaker

### PATRICK TEUFFEL

CONCEPTUAL STRUCTURAL  
DESIGN, LIGHTWEIGHT STRUCTURES,  
ADAPTIVE STRUCTURES



Patrick Teuffel studied civil engineering at the University of Stuttgart from 1991 to 1996 with a focus in Conceptual Structural Design. From 1999-2003 he carried out his PhD, about the application of adaptive systems in architecture and engineering, at the University of Stuttgart. Patrick's vision for the research of ISD focuses on lightweight and adaptive structures, as well as the application of innovative materials, such as smart materials or bio-based materials. In the context of lightweight and adaptive structures he is using numerical and experimental models to optimize the design and construction processes. In addition, he is conducting research for the development of 'smart skins' using textiles with integrated smart materials, which have variable properties in shape, stiffness, viscosity and transmission.

## Invited Speaker

### KORAY VELIBEYOĞLU

SMART CITIES, URBAN  
TECHNOLOGIES, SUSTAINABLE  
STRATEGIES



Koray Velibeyoğlu completed his master's and doctoral studies at Izmir Institute of Technology, after graduating from Dokuz Eylül University, Department of City and Regional Planning. He is a faculty member at the Faculty of Architecture, Department of City and Regional Planning. He has been working at Izmir Institute of Technology since 1995 and has also held various administrative positions. Development strategies, smart city studies, urban design theory and practice, knowledge management, spatial development, local development, sustainable living strategies, urban technologies are the areas of study. Koray Velibeyoğlu was the coordinator of the "Sustainable Development Strategy of the Izmir Peninsula" projects.

## Special Talk

### REFİK ANADOL

NEW MEDIA ARTIST



Refik Anadol is a media artist and director born in Istanbul, Turkey in 1985. Currently lives and works in Los Angeles, California. He is a lecturer and visiting researcher in UCLA's Department of Design Media Arts. He is working in the fields of site-specific public art with parametric data sculpture approach and live audio/visual performance with immersive installation approach, particularly his works explore the space among digital and physical entities by creating a hybrid relationship between architecture and media arts with machine intelligence.

## Invited Speaker

### OZAN ÖNDER ÖZENER

TECHNOLOGY, ARCHITECTURE,  
INNOVATION



Ozan Önder Özener is an Associate Professor of Architecture at the ITU School of Architecture. Dr. Özener has multiple building projects and design competition awards. He also collaborates with architecture firms in Istanbul for improving process performance, sustainability and design quality in complex projects. Prior to his post at ITU, he worked as a Research Scholar at Texas A&M University CRS Center and TAMU-VizLab Visualization Laboratory. He has also held Visiting Professorships at Texas A&M University and Prairie View A&M University. His particular research and teaching interests include BIM, design practice, design technology and innovation, studio culture, and digital design. Dr. Özener holds B.Arch and M.Arch in Design Computing degrees from Istanbul Technical University and a Ph.D. degree from Texas A&M University, College of Architecture.



# Program-Day 1

(GMT +3 TIME ZONE)

ATI Symposium Program			
26.08.2020 –Opening			
18:00-18:15	Opening Ceremony		
18:15-19:15	Keynote Speech: Prof. Dr.-Ing. Patrick Teuffel - "Innovative and Sustainable Structural Design"		
27.08.2020 –Day 1 of the Symposium			
Time	Topic	Notes	
10:00-11:00	<p>Session 1A: <b>Energy Efficient Design 1</b></p> <p><b>Ahmet İlker Yaliner and Hasan Begec</b>-Wind Effects Research of Tall Buildings- İzmir New City Center Examples</p> <p><b>Sahin Akin, Orçun Koral İşeri, Bilge Erdogan and İpek Gursel Dino</b>-An exploratory multi-objective retrofit decision-making process</p> <p><b>Gizem Elbiz and Veli Mustafa Yönder</b>-The Daylight Quality in Educational Buildings in Terms of The Form of Skylight</p>	<p>Session 1B: <b>Computational Design and Fabrication 1</b></p> <p><b>Yusuf Buyruk, Şehnaz Cenani and Gülen Çağdaş</b>-An Agent-based Home Exchange Model to Reduce Commute Times of University Students</p> <p><b>Dielza Elshani, Ekaterina Vitineva and Artem Gilmanov</b>-A Parametric Approach on Vital Co-Urbanization Following Urban Metabolism Based Planning Strategies</p>	5 papers will be presented (15 mins. presentations + 15 mins. questions)
11:00-12:00	<p>Session 2A: <b>Computational Design and Fabrication 2</b></p> <p><b>Erenalp Saltik and Sema Alaçam</b>-Experiments for Design and Optimization of Thin Shell Structures</p> <p><b>Esra Karatepe, Mauricio Morales-Beltran, Kaan Çetin, Berk Selamoğlu and Fulya Özbey</b>-Combining Digital and Analog Fabrication: A Freeform Gridshell Structure as an Urban Furniture Experiment in a Public Space</p> <p><b>Sara Khelil, Ebru Cubukcu and Alla Eddine Khelil</b>-A parametric Approach to Optimize the Environmental Performance of Urban Streets in Izmir</p>	<p>Session 2B: <b>Energy Efficient Design 2</b></p> <p><b>Lars Oliver Grobe</b>-Irregular Light Scattering Properties of Innovative Fenestration for Comfortable and Energy-Efficient Buildings</p> <p><b>Lars Oliver Grobe, Michaela Terwilliger and Stephen Wittkopf</b>-Designing the Colour, Pattern and Specularity of Building Integrated Photovoltaics</p> <p><b>Tony Geagea and Philippe H. Saleh</b>-What Can We Learn About Heavy Weight Thermal Performance in Lebanon's Upper Mountains Cold Climate</p>	6 papers will be presented (15 mins. presentations + 15 mins. questions)
12:00-13:00	Lunch Break		
13:00-14:00	<p>Session 3A: <b>Kinetic Architecture 1</b></p> <p><b>Sara Khelil, Alla Eddine Khelil, Koray Korkmaz and Nouredine Zemmouri</b>-Raising the Efficiency of Deployable Building Façades with Biomimetics for Hot and Arid Regions</p> <p><b>Zihni Yasinci, Tuğçe Kazanasmaz and Koray Korkmaz</b>-Daylight Performance of Origami-Based Kinetic Facade Component in Terms of LEED Criteria</p> <p><b>Merve Cerrahoğlu and Feray Maden</b>-A Review on Portable Structures</p>	<p>Session 3B: <b>Sustainability and Structural Design 1</b></p> <p><b>Kutlu Enç and Lale Başarır</b>-At the Dawn of Space Architecture: What can Architects Learn from International Space Station and Architectural Design Challenges for Outer Space</p> <p><b>Nur Efsan Erusta and Begum Sertyesilisik</b>-An Investigation into the Smart Site and Smart Site Management as Tools for Reducing Accidents and Near-Misses Caused by Environmental Risks</p>	5 papers will be presented (15 mins. presentations + 15 mins. questions)
14:00-15:00	<p>Session 4A: <b>Sustainability and Structural Design 2</b></p> <p><b>Çağla Ercanlı</b>-Integration of Sustainable and Technological Approaches to Flood Risk Management Systems in Coastal and Delta Cities</p> <p><b>Matthieu Pedernana and Soofia Tahira Elias Ozkan</b>-Hygro-Thermal and Hydric Properties of Fibre and Aggregate Reinforced Earth Plaster</p>	<p>Session 4B: <b>Kinetic Architecture 2</b></p> <p><b>Gülçin Özen and Koray Korkmaz</b>-Mobility Analysis of Reciprocal Frames</p> <p><b>Fulya Atarer, Zehra Tuğçe Kazanasmaz, Koray Korkmaz and Gökhan Kiper</b>-The Architectural Application of Altmann Linkage as a Light Shelf</p> <p><b>Andrée Sonad Karaveli Kartal</b>-Overview of Origami Patterns Used in Folded Plate Structures</p>	5 papers will be presented (15 mins. presentations + 15 mins. questions)
15:00-15:30	Coffee Break		
15:30-16:30	<p>Session 5A: <b>Transformable / Deployable Structures</b></p> <p><b>Aylin Gazi Gezgin and Koray Korkmaz</b>-Relation Between the Iteration of Planar Retractable Plate Structure and Plane Symmetry Group</p> <p><b>Volkert van der Wijk</b>-Inherent Gravity Force Balance in Moving Architecture</p> <p><b>Mesude Oraj Maral and Koray Korkmaz</b>-A Novel Method for Design of Deployable Polygonal Surface with Plano-Spherical Linkages</p>	<p>Session 5B: <b>BIM Technologies</b></p> <p><b>İlayda Güngör and Nuray Benli Yıldız</b>-Evaluation of Building Information Modelling (BIM) based Life Cycle Assessment (LCA)</p> <p><b>Selda Toklu and Seher Güzelçoban Mayuk</b>-A Research for the Integration of BIM with the Architecture Education in Turkey</p> <p><b>Tugba Saricaoglu and Nezihat Köşklük Kaya</b>-As-Built Environment Paradata Model Utilized by hBIM</p>	6 papers will be presented (15 mins. presentations + 15 mins. questions)
17:30-18:30	Invited Speech: Dr. Ozan Önder Özener - "Innovation and Smart Concepts in Architectural Design"		
18:30-19:30	Invited Speech: Dr. Koray Velibeyoğlu - "Be smart to build smart..."		



## Program-Day 2

(GMT +3 TIME ZONE)

28.08.2020 –Day 2 of the Symposium			
Time	Topic	Notes	
10:00-11:00	Session 6A: <b>Energy Policies</b> <b>Elif Topçu and Hasan Begeç</b> -A Comprehensive Design Framework for Sustainable High-Rises <b>Egemen Sertyesilisik and Nur Efsan Erusta</b> -An Investigation into the Integration of Smart Water Systems to the Smart Water Policies	Session 6B: <b>Smart Cities</b> <b>Gülce Kırdar and Gülen Çağdaş</b> -Decision Support Systems' Applications in Smart City: A Comparative Study <b>Orçun Koral İşeri and Onur Dursun</b> -The Comparative Study on the Influence of Early Architectural Design Decisions on Energy Demand: A Case Study in Turkey	4 papers will be presented (15 mins. presentations + 15 mins. questions)
11:00-12:00	Session 7A: <b>Smart Cities</b> <b>Didem Şahin and Koray Vellibeyoğlu</b> -Bioeconomy and Circular Economy Models in Smart Strategies and Their Adaptation to Developing and Low-Income Countries <b>Didem Ugurlu and Begum Sertyesilisik</b> -Usage of Artificial Intelligence and Machine Learning in Disaster Resilient Smart Cities	Session 7B: <b>Smart Energy Grid</b> <b>Belgin Terim Cavka, Hasan Burak Cavka and M. Mahdi Salehi</b> -An Investigation on the Design Process Effect on a Building's Actual Energy Performance <b>Ganze Altındaş and Koray Velibeyoğlu</b> -Smart City Implementations in Turkey	4 papers will be presented (15 mins. presentations + 15 mins. questions)
12:00-13:00	Lunch Break		
13:00-14:00	Session 8A: <b>Urban Mobility</b> <b>Didem Ugurlu and Begum Sertyesilisik</b> -Smart Mobility and BIM Integrated City Model <b>Graeme Hanssen</b> - Evolving Urban Mobility and Requirements of New Transport Modes	Session 8B: <b>Smart and Bio-based Materials</b> <b>Onur Kırdök, Sevede Nur Sertkaya, Yonca Yaman, İrem Kale, Esin Hameş Tuna, Ayça Tokuş, Didem Akyol Altun</b> -Biodesign with Mycelium in Architecture <b>Setenay Sürmelioğlu, Özge Andiç-Çakır, Esin Hameş Tuna, Aylin Şendemir, Gülden Köktürk, Feyzal Avcı Özbakan and Aykut İsar</b> - Bacterial Biocalcification as an Opportunity for Green Building Sector	4 papers will be presented (15 mins. presentations + 15 mins. questions)
14:00-15:00	Session 9: <b>Digital Humanities</b> <b>Marilia Kaisar</b> -Smartphones, Embodiment, and Perception of Space <b>Pınar Çalışır Adem and Gülen Çağdaş</b> - Computational Analysis and Design Strategies in Historic Urban Texture and A Conceptual Framework for New Design Processes		2 papers will be presented (15 mins. presentations + 15 mins. questions)
15:00-15:30	Coffee Break		
18:30-19:30	Special Closing Speech: Refik Anadol		