Dr. Türker ÖZKAN

“TRAFFIC PSYCHOLOGY FOR SAFE TRAVELS”

Field of Research: Driver behaviour and traffic psychology, safety culture

Prominent Project: Measurement of road safety signals and evaluation and reporting of after intervention in Turkey (Afyon and Ankara)

Project Coordinator: Johns Hopkins University

Funding Scheme: Bloomberg Family Foundation Inc.

Project Budget (for ODTÜ): 145,000.00 EUR

Dr. Türker Özkan received his Ph.D. in Psychology with a minor in Traffic Psychology at the University of Helsinki, Finland. Dr. Özkan’s studies are based on cultural differences, the role of gender, sex, extra-motives’, personality, explicit and implicit measures in safety in general and traffic and transport in particular. He also has studies about the acceptability of intelligent transportation systems, helmet usage and psychological models, seat-belt and child-seat usage, development of psycho-technical assessment tests, organizational and safety culture/climate, human factor issues among professional and train drivers.

Dr. Özkan has experience in coordinating work packages within various internationally-funded research programmes, such as FP6, COST, and Leonardo da Vinci projects and has been the principal investigator of many national projects supported by the Turkish State Railways and The Scientific and Technological Research Council of Turkey (TÜBİTAK) and an international project together with Johns Hopkins University.

Dr. Özkan, currently a member of the Department of Psychology at ODTÜ, serves as the Co-Editor of Transportation Research Part F and the Associate Editor of Turkish Journal of Psychology. Dr. Özkan was awarded in 2009, 2010, 2011, and 2012 with ODTÜ’s Young Scientist Achievement Awards. Some scholarships and research fellowships were also granted by Marie Curie Fellowships in the field of Transfer of Knowledge (ToK) Programmes, Centre for International Mobility (CIMO), Graduate School of Psychology in Finland, and Henry Ford Foundation.

Developing New Generation Seismic Codes

Project Coordinator: Prof. Dr. Haluk SUCUOĞLU	**Funding Scheme:** TÜBİTAK - KAMAG (Public Institutions' Research and Development Projects Support Programme)
	Project Budget: 461,000.00 EUR

"LARGEST BUILDING MODELS TESTED IN TURKEY!"

A new chapter on assessment and strengthening has been added to the Turkish Earthquake Code in 2007. Leading countries in earthquake engineering such as Japan, USA and the European Community have issued legal documents and codes on performance-based assessment and design only recently. Verification or ratification of the performance-based assessment and design procedures employed in the Turkish Code through experimental and analytical research is essential.

The project aimed at exploring the applicability of different performance assessment procedures to the existing and new buildings in Turkey, their consistency with each other and their conformance with the analytical procedures in the 2007 Seismic Code. In the first phase of the experimental studies, data from the experiments on reinforced concrete components under simulated earthquake loads were compiled. The performance of structures which represent the Turkish building stock was investigated experimentally in the second phase with laboratory testing. The third phase was devoted to developing the most effective and economically feasible retrofitting techniques for school and residential buildings, and testing the seismic performances of retrofitted buildings with laboratory experiments.

The project was completed within 38 months. Relevant revisions in the Seismic Code were suggested in view of the results obtained.

9 researchers from ODTÜ and 5 researchers from AFAD were in the project team. Consultants from EU countries and the US (Michael Fardis and Kenneth Elwood) served as experts on the seismic codes. Within the scope of the project, 2 M.Sc. and 2 Ph.D. degrees were pursued.

ASTARTE: Assessment, STrategy And Risk Reduction for Tsunamis in Europe

Project Coordinator from ODTÜ: Prof. Dr. Ahmet Cevdet YALÇINER	**Funding Scheme:** FP7 – Collaborative Project
Project Budget: 6,000,000.00 EUR	**www.astarte.eu**

"ASTARTE WILL DEVELOP CRITICAL SCIENTIFIC AND TECHNICAL ELEMENTS REQUIRED FOR A SIGNIFICANT ENHANCEMENT OF THE TSUNAMI WARNING SYSTEM (TWS) IN THE NEAM REGION IN TERMS OF MONITORING, EARLY WARNING AND FORECAST, GOVERNANCE AND RESILIENCE."

Assessment, preparedness and development of mitigation strategies for tsunamis are very important issues for the safety of coastal communities. ASTARTE Project (2013-2016) is aimed to reach a higher level of tsunami resilience in the North-East Atlantic and Mediterranean (NEAM) region. The main objectives are: (i) Assessing long term recurrence of tsunamis; (ii) Improving the identification of tsunami generation mechanisms; (iii) Developing new computational tools for hazard assessment; (iv) Ameliorating the understanding of tsunami interactions with coastal structures; (v) Enhancing tsunami detection capabilities, forecast and early warning skills in the NEAM region; (vi) Establishing new approaches to quantify vulnerability and risk, and to identify the key components of tsunami resilience and their implementation in the NEAM region.

The ASTARTE team is comprised of 25 partners from 15 countries. ASTARTE consists of 10 work packages (WPs) covering all aspects of tsunamis from the sources to the targets. All these WPs will provide an up-to-date knowledge background to the project. They involve dedicated fieldwork, including research cruises, in locations that are considered highly significant to obtain new critical background information. The deliverables will also provide required information and guidelines for structural and societal resilience of the coastal communities. ASTARTE considers 9 test sites in the Mediterranean and North-East Atlantic where interactions with stakeholders and practical applications will also be tested.

ASTARTE will result in: (i) an improved knowledge on tsunami generation involving novel empirical data and statistical analyses so that the long-term recurrence and associated hazards of large events in sensitive areas of the NEAM can be established; (ii) the development of numerical techniques for tsunami simulation concentrating in real-time codes and novel statistical emulations, and (iii) refined methods for the assessment of tsunami hazard, vulnerability and risk.

ODTÜ-BİLTİR Research and Application Center

A center with 11 multi-disciplinary units working for the ultimate goal of providing a bridge between University and industry in a widely-ranging field from vehicle safety and intelligent transportation systems to defence systems and from forging process to rapid prototyping technology.

Director: Prof. Dr. Mustafa İlhan GÖKLER **www.biltir.metu.edu.tr**

Turkey's first CAD/CAM Research and Application Center METU-BİLTİR is a good model for university-based research and application centres encouraging multi-disciplinary studies.

ODTÜ-BİLTİR Center is a bridge between University and Industry. Its multi-disciplinary structure provides productive collaboration platforms for national and international public and industrial projects. The academicians of ODTÜ contributing to BİLTİR's projects are from almost all engineering departments as well as basic science, economy, business administration and industrial design departments. The center has a state-of-the-art research infrastructure located in four different buildings with an area of about 6,000 m^2, in addition to its qualified human resources. ODTÜ-BİLTİR Center also contributes to the preparation of strategic and development plans of various state departments by participating in their workshops.

ODTÜ-BİLTİR CENTER was originally founded as Turkey's first CAD/CAM Research and Application Center in 1992. After completion of the mission of pioneering and disseminating CAD/CAM/CAE technologies throughout the Turkish Industry from large scale to small scale enterprises, the center was reorganized by the formation of multidisciplinary expert units as of 1999. Today, eleven units exist under the umbrella of the center. The Industrial Design and Production Unit, Automation-Robotics-Electrical-Electronics Unit and Numerical Modelling-Analysis-Design Unit were the first three units formed in 1999. In 2003, the Defence Systems Unit and Product Usability Unit with the first "Product Usability Laboratory" of Turkey were added. In 2006, the Metal Forming Unit with the first "Forging Research and Application Laboratory" of Turkey, the Automotive Industrial Design Unit, Unmanned Land Vehicle Unit and Unmanned Sea Vehicles Units became operating.

The Vehicle Safety Unit with the first “Sled Test Facility” of Turkey was established in 2009. The Vehicle Safety Unit Sled Test Facility has been accredited for several international regulations and directives as of November 14, 2011 after the inspection carried out by the Turkish Accreditation Agency (TÜRKAK) in accordance to TS EN ISO/IEC 17025. The Intelligent Transportations Systems Unit has been founded in 2013 as the eleventh unit of the center. The emblems of ODTÜ-BİLTİR Center and ODTÜ-BİLTİR Vehicle Safety Unit have been registered as trademarks by the Turkish Patent Institute in 2013.

The Center especially focuses on automotive and transportation industries, the defence industry, white goods and electrical appliance industry, manufacturing and machinery industry. The center is recognized with its quick and professional response to the demands coming from the industry. The center assigns project teams from the pool of academicians, who are members of the center and experts in their research areas, according to the different requirements of projects.

The center has been managed by Prof. Dr. Mustafa İlhan Gökler since 1999. In addition to his administrative and research activities in the center, Dr. Gökler is an academic staff of the Mechanical Engineering Department, ODTÜ. Dr. Gökler has led the establishment of the Center' Units; conducted several projects including the establishment of the Sled Test Facility being used for the simulation of crash and founding of the Forging Research and Application Laboratory; and motivated the establishment of the Intelligent Transportation Systems Unit. In 2002, he also initiated the SAVTEK Defence Technologies Congress which is a prestigious national congress organised every two years.

Prof. Dr. Murat DİCLELİ

“FROM RESEARCH TO INVENTION: MULTI-DIRECTIONAL TORSIONAL HYSTERETIC DAMPER”

Structural Engineering for the Development of an Anti-seismic Device

Dr. Murat Dicleli’s career as a structural engineer began in 1987 after graduating from the Orta Doğu Teknik Üniversitesi in Ankara. He got a M.Sc. degree from the same university in 1989, followed by a Ph.D. degree from the University of Ottawa in 1993. He got involved in a variety of design and consulting projects, including steel and reinforced concrete buildings, bridges, silos, stacks and industrial facilities at Morrison Hershfield Ltd as a Structural Design Consultant and at the Ontario Ministry of Transportation as a Sr. Design Engineer/Project Manager in Canada. Dr. Dicleli became a faculty member at Bradley University, in the state of Illinois in USA in 2000, where he held the position of associate professorship, but eventually decided to return to Turkey and serve his country.

As a member of the Department of Engineering at ODTÜ, Dr. Dicleli’s research has always focused on practice-oriented subjects due to his industrial experience. The spur for development of a new anti-seismic device (a hysteretic damper) came with the realization of shortcomings in other systems currently practiced in seismic resistant design of important structures. The project was defined in the framework of a Ph.D. research. The initial crude design went through numerous modifications and refinements. Development of the damper was accompanied by extensive analytical studies and development of automatic design programs. Practicality of the new device, as the offspring of an academic sphere, was assured through close collaboration with the industry in its final design stage, prototyping and verification test programs. The newly-developed damper is peculiar in its geometric gradual stiffening feature, which is a technically advanced behaviour characteristic from an earthquake engineering standpoint.

The product is an outcome of merging academic research and industrial know-how. The device has already been approved by the Patent Cooperation Treaty (PCT). Currently, the device is patented in Georgia, Turkey, Ukraine, USA, Eurasia, China and Japan. The patent is also pending in Europe, India and many other countries. The device is currently licenced to a German company, Maurer Söhne, which is a leading firm in the production and sales of anti-seismic devices.

ODTÜ-LEVENT BAYINDIRLI FOOD ANALYSIS LABORATORY
DEPARTMENT OF FOOD ENGINEERING

Generating new knowledge and innovation in order to enable consumers' access to safe, healthy, high quality and affordable food

Directors: Prof. Dr. Alev BAYINDIRLI - Prof. Dr. Hami ALPAS **fde.metu.edu.tr/tr/gal-hakkinda**

"Ensuring the safety of your food"

The Food Analysis Laboratory (Levent Bayındırlı Food Analysis Laboratory) was established as a part of the Department of Food Engineering in 2007. As a consequence of the support received from the government and the ODTÜ President's Office of the infrastructure of the laboratory has expanded in 2012 in order to become a laboratory undertaking many non-routine and more research-based analyses.

The main objective of laboratory is to generate new knowledge and innovation for the access of consumers to safe, healthy, high quality and affordable food. Our research on safe foods focuses on chemical and biological hazards throughout the total food material.

The infrastructure of the laboratory includes AAS, GC, HPLC, LC-MS/MS, PCR, flow cytometer and climatic cabinet together with the laboratory equipment required for basic food analysis and sample preparation. Basic food analyses are moisture, total ash, protein, fat, carbohydrates, acidity, peroxide value, salt, and color (CIE). Most of the mineral and trace element analyses are conducted in the laboratory. Nutritional value analysis includes vitamins, fatty acid composition, sugar components, artificial sweeteners and organic acids. Among the microbiological analysis are APC, identification and enumeration of food pathogens, starter cultures, yeast and mold. GMO analysis studies aim to develop methods to screen the presence or absence of unauthorised GMO's and conducting the routine analysis for authorised ones. Advanced analysis performed includes phenolics, pesticides, herbicides, antibiotics, additives, colorants, antioxidants, allergens, bacterial and fungal toxins and metabolites. Accelerated shelflife storage analysis is also executed. Besides the analysis, trainings on laboratory accreditation and food safety management are also organized upon demand.

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