(1) Lubomira Anderkova

Introduction: Repetitive transcranial magnetic stimulation (rTMS) is a noninvasive tool for modulating cortical activity.

Objectives: We studied the effects of high frequency rTMS applied over the right inferior frontal gyrus (IFG) and the right superior temporal gyrus (STG) on cognitive functions in patients with amnestic mild cognitive impairment (MCI) and incipient dementia caused by Alzheimer´s disease (AD).

Methods: Ten patients (6 men; 4 women, mean age 72 ± 8 years; MMSE 23 ± 3.56) were enrolled in the randomized, placebo-controlled study with a crossover design. All participants underwent 3 sessions of 10 Hz rTMS over the non-dominant right hemisphere (2250 stimuli/day, intensity 90% of motor threshold) in a random order: 1. IFG (an active stimulation site); 2. STG (an active stimulation site); 3. vertex (a control stimulation site). The Trail Making Test (TMT), the Stroop test and the visual memory encoding task (VMET) were administered before and immediately after each session. The Wilcoxon paired test was used for data analyses.

Results: Only the stimulation applied over the IFG induced significant improvement in the TMT part A ($p = 0.037$) and B ($p = 0.049$). No significant changes were found in the Stroop test and in the VMET after the IFG stimulation. Moreover, we observed no significant cognitive after-effects of rTMS applied over the STG and/or vertex.

Conclusions: High frequency rTMS of the right IFG induced significant improvement of attention and psychomotor speed in patients with MCI and dementia caused by AD. This is an interim analysis of an ongoing study.

(2) Andrea Belanova

When Messiah Dies: Unification Church Members' Perceptions of Reverend Moon's Death
Abstract of a Conference Paper

This analysis focuses on the reactions of the Unification Church members to the death of their leader, and to the articles that appeared in the media which referred to this event. Reverend Sun Myung Moon, the founder of a new religious movement, the Unification Church, died at the age of 92 in South Korea in September 2012. Surprisingly, his death was received by the church members with relative calm. They smoothly organized the funeral ceremony and the officials claimed that his death should be understood only as a transformation into another state of being, and thus should be celebrated. However, Moon's death also attracted a lot of media attention, mostly in a negative sense. The emotions were suddenly churned up around the death of the man, who claimed himself as Messiah and True Father of mankind. Considering data that included specifically interviews and written texts, I conducted a case study using qualitative sociology methods to investigate this unique situation. In my paper I argue that the reactions of the members are ambivalent in nature depending on the further context. Although Moon's death is viewed as "not a sad event" according to Unificationist theology, they demand respect and compassion for their grieving at the same time when it concerns media attention. The inner life of the church and the public image are thus understood as two different worlds where different emotions should be presented. The analysis shows how the "sacred" aspect may be protected from the profane world by religious movements.

(3) Jana Pazurikova

Molecular dynamic simulations of longer simulation times (~ tens of μs and more) capture events of great chemical and biological interest. Parallel-in-space runs of these simulations hit the strong scalability wall and adding more processors does not shorten the time to results. Inspired by gravitational N-body simulations, we propose an algorithm calculating molecular dynamics parallel in time. Our implementation of parareal method combined with multilevel summation method for evaluation of long-range interactions achieved almost perfect strong scaling up to half a million cores. Thus, compared to the simulation sequence in time, we reduced the wallclock time of simulation by an order of magnitude. Shortening the calculations can push the research in medicine and pharmacy further as it condenses the time from an idea to the evaluation of a simulated experiment.

(4) Martin Jirusek

Strategic and market-oriented approaches to energy policy in policy documents of the Czech Republic and European Union

The EU has been gradually increasing the emphasis on a common approach to energy security among its members over the last couple of years and these states had to reflect this tendency in their own approach to energy policy. Additionally, both EU and its members were forced to react on several challenges regarding energy security. Reactions and tendencies within energy policies could be assessed on the basis of theoretical approaches that can not only clarify reasons for implementing specific tools and procedures, but also can help to anticipate future development.

This article is focused on the energy policy of the Czech Republic and European Union from the perspectives of strategic and market-oriented approaches, which are the two dominant theoretical approaches in this field of study. The aim was to identify how these approaches are reflected in policy documents on both levels during the selected period of time (2004-2012) and what it means in terms of energy policy coordination within the EU.

(5) Monika Schön

This essay deals with the matters of education of a child and a possible conflict of opinions among the persons who realize the education of a child. This is discussed in light of the Convention for the Protection of Human Rights and Fundamental Freedoms (hereinafter „Convention"), before all art. 8, art. 9 of the Convention and art. 2 of the Protocol No. 1.

The essay not only focuses on the right to education which belongs to the child´s parents, and eventually to other persons (such as the state), but also on the right to education which belongs to the child and on the interest of a child to be educated.

(6) Petr Dvorak

Institutional Responsiveness in Parliamentary Democracies: A Longitudinal Study

This paper proposes a research framework to analyse institutional responsiveness and parliamentary regime in established parliamentary democracies. Parliamentary regime is a good indicator of an overall democracy type. Traditionally, three main types of parliamentary regimes have been described: Westminster-style, cooperative, and chaotic. These regimes have been associated with different logic of operation, different degree of intra-institutional political conflict, and different models of responsiveness. Moreover, they have been seen as stable, fixed attributes. The paper argues that components of parliamentary regime, such as the degree of government dominance and the degree of intra-parliamentary cooperation, can vary significantly in time. In a wider context, they can contribute to our understanding of the long-term evolution of representative democracy.

Inspired by recent debates on the types of democracy, the paper introduces a research framework based on a longitudinal analysis of two institutional features: (1) government dominance in key parliamentary committees; and (2) cohesion of government in parliamentary voting. In the preliminary analysis, the paper analyses data from five established parliamentary democracies (known for different typical coalition patterns) over the last twenty years. The results indicate that while the degree of dominance in parliamentary committees remains stable, the levels of voting cohesion keep changing significantly. Therefore, types of parliamentary regime and types of responsiveness in established countries are indeed evolving.

(7) Martin Vrubel

Barriers to school inclusion of students with visual impairment in high schools

This article describes how high schools are prepared for the inclusion of students with visual impairments. It focuses on the importance of school management attitudes to inclusive education. Furthermore, it discusses the impact of school management on inclusive education. This article also describes our research on the topic of inclusion, which was carried out in cooperation with 250 heads of high schools in the East Bohemian Region. The paper summarizes the phase of a larger research project, which deals with the issue of inclusion of students with visual impairments. This paper presents some of the partial results, such as the comparison between the significance of headteacher attitudes to the hard and soft barriers (external financial resources, teaching assistants, teacher training in special education, architectural barriers, teacher collaboration, attitudes of parents and children, and legislative support for inclusive education), and the importance of the same barriers to the particular institution. This text also presents headteacher attitudes to different types of visual impairment.

(8) Durdica Marosevic

In vivo spread of macrolides-lincosamides-streptogramin B (MLSB) resistance: a model study

INTRODUCTION: The extensive use of antimicrobial agents in animal husbandry poses a risk for the selection of resistant microorganisms. The gastrointestinal tract of animals has already been defined as rich in a variety of resistance genes and such animals can serve as reservoirs of resistant bacteria or genetic determinants of resistance that can be transmitted to humans.

METHODS: Four week old chickens colonized with Enterococcus faecalis carrying pAMβ1 (the challenge strain) were per orally exposed to three different antibiotics (tylosin, lincomycin and chlortetracycline) for one week. Faecal samples and cloacal swabs were taken at four different time points and isolates of resistant E.faecalis and E.faecium were subjected to PFGE (pulsed-field gel electrophoresis) and plasmid isolation. The erm(B) gene was quantified in the DNA isolated from faeces by qPCR. The same DNA was subjected to 16S-rDNA pyrosequencing in order to gain better insights into the faecal microbiota composition and changes induced by the different antibiotics administered.

RESULTS: A total of 77 enterococci and 22 streptococci were isolated. Two PFGE clones of each E.faecalis and E.faecium were observed, which were all different from the challenge strain. All isolates of enterococci and streptococci harboured a plasmid the same size as that of pAMβ1. qPCR revealed an increase of erm(B) in all treated groups during the whole monitored period, whereas the challenge species E. faecalis rapidly declined over time. The impact of a non-specific antibiotic pressure represented by TET was similar to that of TYL and LIN. Furthermore, in two out of five chickens from the NCO group a significant increase of erm(B) was detected at the last sampling point. This is an interesting finding indicating that the spread of genetic determinants of MLSB resistance may be independent not only of the specificity of antibiotic pressure, but also of the antimicrobial pressure per se. A similar phenomenon was also observed under field conditions where MLSB resistant bacteria were isolated from piglets which had never before been treated with macrolides or lincosamides. The relative composition of faecal microflora was dependent on the antibiotic administered and the sampling time point. These results do not supply the exact information on the spread of MLSB resistance. They do however, as observed for enterococci, correlate with the qPCR results.

CONCLUSIONS: The erm(B) gene increased in all the treated groups and, therefore, it could be speculated that those bacterial taxons which prevailed under certain conditions might be considered as potential recipients. Thus it could be presumed that MLSB resistance can spread in different ways depending on the particular antibiotic pressure.

(9) Tereza Ceskova

The Progress of Tools for the Investigation of Learning Tasks in Czech Basic School Instruction over the Last 25 Years

This poster presents the progress over a 25 year period of tools for the research of learning tasks in basic school instruction in the Czech Republic. Learning tasks are perceived as opportunities to learn and it is supposed that one of their main functions is to activate pupils. A contemporary conception of Czech instruction stresses not only content knowledge but also the developing of key competencies.

(10) Eva Lysonkova

DEMOCRATICALLY-RUN BUSINESSES IN THEORY AND IN REALITY

Due to the development of society, technology, work characteristics and the change of employees and employers requirements of work, new alternatives are emerging within the modern approach to human resource management. The concept of democratically-run businesses is one of these approaches. This article aims to introduce and define the concept of democratically-run businesses. Firstly democratically-run businesses are characterized Secondly they are defined from the perspective of theory and thirdly from the point of view of practitioners. Lastly, the article mentions the main reasons for the further investigation of democratically-run businesses.

(11) Saman Pushpakumara

Edmund Husserl's Transcendence of the Early Buddhist Theory of Consciousness

Edmund Husserl (1859-1938), the founding father of western phenomenology, formulated a theory of the consciousness. The Gautama the Buddha, too as far back as the 6th century B.C., provided an analysis of the conscious phenomena. Many scholars who trace parallels between the Buddhist view of consciousness and Husserl's phenomenology deal mostly with the similarities between the two philosophies. The present paper argues that Husserl's analysis of consciousness, despite its limitations, is more advanced than the Buddha's formulation. Husserl articulated his phenomenology of consciousness as a result of his encounter with Cartesian cogito on the one hand and the positivistic foundation of empirical sciences on the other. Husserl's notion of phenomenological consciousness was situated within an industrially advanced capitalist society and nurtured by scientific epistemology. He was living in a different Time-Space dimension, which has to be taken seriously when assessing his phenomenology. The Buddha, in contrast, theorized his notion of consciousness within a backward, slow-moving, agricultural and feudal setting. He developed his notion of consciousness as a normative concept as a basis for achieving the spiritual objective he envisaged. While acknowledging the fact that no other philosophy that existed during the Buddha's time had articulated such a meticulous and in depth analysis of the phenomenology of consciousness, his analysis seems to be less advanced when assessed and compared with the twentieth century phenomenology of Husserl. The present study will be carried out having used original and secondary sources of Husserlian and Buddhist phenomenologies. This research will contribute significantly to future research on similar topics.

(12) Blanka Kubesova

TP53 mutated clones in MPN patients

Myeloproliferative neoplasms (MPN) are chronic diseases that carry a risk of transformation into secondary acute myeloid leukemia. Several mutations and cytogenetic aberrations have been associated with the transformation, but its mechanism still remains unclear. Lesions in the pathway of the gene TP53 are considered to play an important role in the transformation. Some MPN patients are treated long term with low doses of hydroxyurea as a cytoreductive agent. This drug was reported by several authors as mutagenic and leukemogenic and associated with defects in the gene TP53 and transformation.

This study included patients in a chronic phase of the disease. The aim is to identify, analyse and monitor patients with mutations in the gene TP53. Consequently the frequency of the occurrence of TP53 mutated clones, the relationship of their presence and the evolution of the disease and the type of treatment are evaluated.

Leukocytes are obtained from patient blood samples. Subsequently the RNA is isolated from these samples and transcribed into cDNA. Then the samples are analysed by the method FASAY (functional analysis of separated alleles in yeast) and yeast colonies containing the mutated TP53 gene are sequenced by Sanger sequencing.

Mutations in the gene TP53 were found in 3/18 patients treated with hydroxyurea and in 1/22 patients treated with a different cytoreductive drug. In one patient treated by hydroxyurea the mutated clone expanded by the time of monitoring and the second healthy allele was almost lost. Clinically the patient is stable. Current results suggest that treatment with hydroxyurea could represent a selection pressure supporting the expansion of clones with the mutated gene TP53.