(1) Lubomira Anderkova

Introduction: Repetitive transcranial magnetic stimulation (rTMS) is a non-invasive 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 due to 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 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 then used for data analysis.

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, no significant cognitive after-effects of rTMS applied over the STG and/or vertex were observed.
Conclusions: High frequency rTMS of the right IFG induced significant improvement of attention and psychomotor speed in patients with MCI and dementia due to 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 the Conference Paper

The analysis focuses on the reactions of the Unification Church members to the death of the leader, and to the articles that appeared in the media referring to this event. Reverend Sun Myung Moon, the founder of the new religious movement Unification Church, died at the age of 92 in South Korea in September 2012. Surprisingly, his death was received with relative calm mind by his church members. They smoothly organized the funeral ceremony and the officials claimed that his death is understood only as a transformation into another state of being, and it should thus be celebrated. However, Moon's death also attracted a lot of media attention, mostly in the negative sense. The emotions were suddenly churned up around the death of the man, who claimed himself to be the Messiah and True Father of mankind. Considering the data including specifically interviews and written texts, I conducted a case study analysis using the methods of qualitative sociology 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" by the Unificationists according to the theology; they demand respect and compassion for their grieving rather than 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 a profane world by religious movements.

(3) Jana Pazurikova

Molecular dynamics simulations of longer simulations 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—adding more processors does not shorten the time to results. Inspired by gravitational N-body simulations, we propose the algorithm calculating molecular dynamics parallel in time. Our implementation of the parareal method combined with the multilevel summation method for the evaluation of long-range interactions achieved almost perfect strong scaling up to half a million cores. Thus, compared to the simulation sequential in time, we reduced the wallclock time of simulation by an order of magnitude. Shortening the calculations can push research in medicine and pharmacy further as it condenses the time from an idea to the evaluation of 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 its emphasis on common approaches to energy security among its members in the last couple of years meaning these states were required to reflect on this tendency in their own approach to energy policy. Additionally, both the EU and its members were forced to react to 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 can also help to anticipate future development.
This article focuses on the energy policy of the Czech Republic and European Union from the perspectives of the strategic and market-oriented approach 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 at both levels during the period 2004-2012, and what this means in terms of energy policy coordination within the EU.

(5) Monika Schön

This essay deals with matters pertaining to the education of a child where a possible conflict of opinions among the persons who realize the education of a child may arise. This subject is explored, with reference to 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 does not focus only on the right to education which belongs to the child´s parents, and the involvement of the State), but also on the right to education which belongs to the child and the interests of that child to be educated.

(6) Petr Dvorak

Institutional Responsiveness in Parliamentary Democracies: A Longitudinal Study

The paper proposes a research framework to analyse institutional responsiveness and parliamentary regimes in established parliamentary democracies. A 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 logics of operation, different degrees of intra-institutional political conflict, and different models of responsiveness. Moreover, they have been seen as stable, fixed attributes. This paper argues that components of parliamentary regimes such as the degree of government dominance and the degree of intra-parliamentary cooperation can vary significantly over time. In a wider context, they can contribute to our understanding of long-term evolution of representative democracy.

Inspired by recent debates on different 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 itspreliminary 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 undergo significant change. Therefore, types of parliamentary regimes 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 impairmentsand 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 of 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 headmaster 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 headmaster 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 was already 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) during the period of one week. Faecal samples and cloacal swabs were taken at four different oints 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 then 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, all different to the challenge strain. All isolates of enterococci and streptococci harboured a plasmid of the same size as that of pAMβ1. qPCR revealed an increase of erm(B) in all treated groups throughout the 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 one the specificity of antibiotic pressure, but also on 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 administrated and the sampling time point. Although the results do not supply the exact information on the spread of MLSB resistance; however, as observed for enterococci, these correlated 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

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

This poster presents a 25-year-long progress of tools used to research learning tasks in the basic school instruction in the Czech Republic. We perceive a learning task as an opportunity to learn and we suppose that one of their main functions is to activate pupils. Contemporary concepts of Czech instruction stress the importance of not only content knowledge, but also of developing the 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 employee and employer requirements of work, new alternatives are emerging within the modern approach to human resources 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 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, the founding father of western phenomenology, had formulated a theory of the consciousness. The Gautama the Buddha, too as far back as the 6th century B.C., had 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, and 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 which 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. This study uses both primary and secondary sources of Husserlian and Buddhist phenomenologies. It is hoped that this research will contribute immensely to future researches on similar topics

(12) Blanka Kubesova

TP53 mutated clones in MPN patients

Myeloproliferative neoplasms (MPN) are diseases with chronic course but with a risk of transformation into secondary acute myeloid leukemia. Several mutations and cytogenetic aberrations were published to be associated with 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 patients with MPN 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 the defects in the gene TP53 and transformation.

Our study includes patients in the chronic phase of their disease. The aim of this work 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. The RNA is subsequently isolated from these samples and transcribed into cDNA. The samples are then analysed using the method FASAY (functional analysis of separated alleles in yeast); yeast colonies containing mutated TP53 gene are sequenced by Sanger sequencing.

Mutations in the gene TP53 were found in 3/18 patients treated using 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 the treatment with hydroxyurea could represent a selection pressure supporting the expansion of clones with mutated gene TP53.