DEVELOPMENTAL POSIBILITIES AND LIMITS IN MODELS OF SELECTED REGIONAL SYSTEMS

Vladimír IRA[1], Milan LEHOTSKÝ[2]

Abstract: *This paper attempts to assess the effects of several factors on spatial organisation, regional disparities and development in two marginal districts of eastern Slovakia (Bardejov and Rimavská Sobota) that belong to the group of regions most impacted by transition. The structural analysis method setting up chorems is used to represent and help to understand spatial organisation and developmental possibilities and limits of the studied districts.*

Key words*: regional development, regional system, choremathics, spatial model, Eastern Slovakia.*

INTRODUCTION

Research of regional systems as structured multidimensional spaces defined by varied classes of relationships and processes acquires varied forms when holistic approach is applied. If diagnostic approach to research of material (natural and socio-economic) spatial structures prevailed so far in geography, now it also includes the research of substance-energetic exchange, social, capital and information relationships and processes regarding their economic, social and cultural identity, regionalism, position in hierarchy of spatial systems and sustainability of their development. An adequate use of knowledge and science in its post-modern interpretation (Paulov 1997, Lehotský 2003), i.e. as the science that expands its traditional elements, facts and actors of scientific community, science conceiving the new integral level of practice leads to its democratisation and communicativeness.

This paper has been conceived in a similar spirit. Its aim is to outline the model characteristics of spatial organization of regional systems, to characterise briefly regional development and problems of regional development in the SR from the geographical point of view, to identify factors affecting regional differentiation and to characterize regional systems in terms of developmental possibilities and limitations using the example of two model territories (the former districts Rimavská Sobota a Bardejov) applying the method of graphic models.

MODELS OF SPATIAL ORGANIZATION OF REGIONAL SYSTEMS

Regional system is the reflection of existing and developing socio-economic processes and of characteristics proper to natural structures including the value relationship between humans and the environment. It is a very complex and multidimensional picture of region covering the economic, social and natural elements in their interaction. It changes along

1 ***Doc. RNDr. Vladimír Ira, CSc.,***
Intitute of Geography, Slovak Academy of Sciences, 814 73 Bratislava, Štefánikova 49, e-mail: geogira@savba.sk
2 ***RNDr. Milan Lehotský, CSc.,***
Intitute of Geography, Slovak Academy of Sciences, 814 73 Bratislava, Štefánikova 49, e-mail: geogleho@savba.sk

with differentiation of its material substance and time. Its present state determines the future state.

The graphic model of regional system represents the picture of geographical reality, its spatial structure, which has been compiled by logical process i.e. visualisation of regional system. Axiomatic basis of graphic modelling is the hypothesis that all points of space belong to certain fields that structure the space. If so, then every type of structure can be defined by static and dynamic properties both in temporal and spatial dimensions while the expression is graphic. The basic, dual elements of the graphic models, i.e. both elementary construction elements and the graphically visualised expressions of structures are called chorems. After Brunet (1980) and Brunet and Dolfus (1990), their compilation, hence the description of reality depends on eight basic features by which the regional systems are "exhumed". Features of areas make it possible to delimit the explored area – region in form of a square, circle and hexagon harmonizing their symbolism with reality of the region but also symmetry or asymmetry, the interior, sub-whole, etc. A point defines strictly the location, place. A line represents the link but also separation or breach and can capture the aspect of symmetry or asymmetry. Flows always express asymmetry but their bulkiness and rate can differ. Transition represents the openness, but also its development and grade of closeness can be expressed. Signs "+" and "-" or "→" express increase or decay and decrease, attraction or repulsion. A gradient can represent varied types of fields and surfaces with varied value, quality, intensity, etc. Their logical combinations result in the basic system of chorems, which analyses and represents spatial geographical phenomena, regional structures as points, lines, areas, and networks taking into account quasi generally valid laws controlling their formation, such as aspects of space fragmentation, location, diffusion, gravitation, and the like.

Combination of chorems based on the above-said, will reach both simpler and more complex capture and representation of basic laws controlling spatial organization of regional system and the potential of its further development, and eventually to compilation of its graphic model. Graphic model can, due to the logical matrix combination of chorems and basic features and thanks to the compromise between capture of the substance by simple form and less precise non-map representation of certain states of reality, grasp practically all aspect of the regional system (Lehotský 1998).

REGIONAL DEVELOPMENT OF THE SR IN GEOGRAPHICAL TERMS

In time of transiting society, the issue of regional development and factors, which condition development, or decay of regions and the origin of regional disparities have become a subject of interest of varied scientific disciplines including geography. Causes of this increased interest in regional (geographic) structuring of social development are connected above all with practical questions of territorial differentiation, i.e. particular problems of regions but also with wider interest in development or knowledge of progress made in socio-scientific disciplines (Hampl 2001).

The interest in issues of regional development in Slovakia has also manifested in some governmental measures in favour of the differentiated development in the period between the First and Second World Wars. The socialist State policy in after war period focused on balancing of economic development and living standards in individual regions of the country and above all on neutralizing the economic gap existing between Slovakia and Czechia.

Insufficient or absenting regional policy in the first years of transformation (1990-1998) manifested in increasing regional disparities and in formation of marginal regions. Studies dealing with regional development issues often report that Slovakia is divided into two macroregions – the rich north-western and poor south-eastern (see for instance Pašiak et al. 2001, Gajdoš 2002, Korec 2005). Pašiak et al. (2001) classified districts of the south-Slovakian basin or the southern part of the mountains Slovenské Rudohorie among the most underdeveloped ones while district Rimavská Sobota was tagged problematic. Another compact area with considerable problematic parts is the north-eastern part of Slovakia (including district Bardejov). Hence, the two selected model districts of the east-Slovakian region represent marginal areas.

FACTORS OF REGIONAL DIFFERENTIATION

Transition changes spurred (at least temporarily) increase of regional differentiation of Slovakia. The levelled up situation in regions during the socialism was not altogether natural. This is the reason why increased disparities between regions can be interpreted as a natural process perhaps unavoidable in economic terms. Some regions of Slovakia have coped with transition successfully; others suffer from economic or social tensions. Factors determining the differentiated development in regions are numerous. Based on knowledge drawn from studies about regional development of Slovakia after 1989 (Gajdoš 2004, Ira et al. 2005 and above all Korec 2005), and from other relevant to the theme (Lukniš 1985, Bezák 2000), developmental chances and limits of two model regions have been assessed by the following aspects: the primary or situational potential, territorial-administrative division, settlement hierarchy activities within the macro position, character of settlement, specific features of demographic structure, "big" transport infrastructure, historical marginality, economic specialization, rate of depression of contiguous cross-border countries, action capacity of self-administration and the environment.

Charakteristics of model regional systems (former districts Bardejov and Rimavská Sobota) – estimation of developmental possibilities and limits

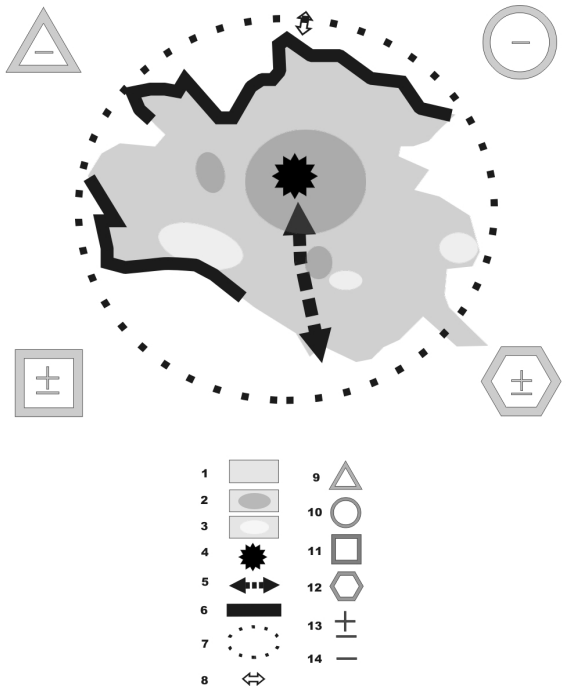
Models of selected regional systems (districts) like for instance in work of Brunet et al. (1989) and Lehotský et al. (1993) are constructed with the concept of what is referred to as elementary models – chorems which schematically reflect the specific features and uniqueness of spatial organization.

Areas in the models of selected districts are the territories with favourable and unfavourable values of human potential and settlement conditions, territories with important agriculture and nature protection. Point symbols represent important and less important settlement centres or border crossings. Line symbols stand for: the 1st level developmental axis – main developmental axis of Slovakia, the 2nd level developmental axis, natural barrier and the boundary of the functional region. Developmental chances in economy, demography, action capacity of self-administration and infrastructure with the corresponding importance level are quoted in margins of graphic models (Fig. 1, Fig. 2).

District Bardejov (Fig. 1) is one of geographically marginal regions in the northern part of eastern Slovakia. Its position potential is low. Natural barriers in the northern and western parts of the districts are its developmental limits. Insufficient linkages to "big" transport infrastructure accompany it. Regarding the number of communes (86), it is the

second most important district of the administrative region. Rate of urbanization (43.9%) though, is lower than the regional average and far below the national average. The town of Bardejov represents an important centre. No other centre as a carrier of developmental acceleration above all of tertiary or quaternary activities exists in the area. Developmental possibilities concerning the action capacity of self-administration are average. The factor of the environmental situation is relatively favourable. The delimited district and functional urban region are almost identical. Disharmony in terms of regional structure is acceptable – the territorial harmony index is higher than 90% (Bezák 2000).

Fig. 1: *Model of developmental possibilities and limits for district Bardejov*



1. District territory
2. Territory with favourable values of human potential and settlement conditions
3. Territory with adverse values of human potential and settlement conditions
4. Important settlements
5. Developmental axis of the 2nd level
6. Natural barrier
7. Boundary of functional urban region
8. Border crossings
9. Possibilities of economic development
10. Developmental possibilities in terms of human potential and social situation
11. Developmental possibilities in terms of action capacity of self-administration
12. Developmental possibilities in terms of infrastructure
13. Average possibilities of development
14. Limited possibilities of development

District Rimavská Sobota (Fig. 2) is part of the south-Slovakian (single axis) corridor region (SSCR). The core space of SSCR is the 10-25 km wide flat south-Slovakian basin. The hilly surface of the basin is easy to transit (far-distance pipelines and conduits of oil, gas, electricity, etc.) The district boasts remarkable mineral resources. The effect of the west-east gradient is the result of the long distance from the western borders of the country.

Essentially, the district consists of two independent functional urban regions (FUR). Apart from two FURs (Rimavská Sobota and Hnúšťa) there is also the peripheral area of the third FUR (Tornaľa). The district is closed from the exterior but as far as its interior is concerned, it is an incoherent territorial unit (Bezák 2000). There are three towns but their size is insignificant and the rate of urbanization is low (44.2% of urban population), what manifests in insufficient attractiveness for non-production sector entities. The most important limitations include the low value of human potential and adverse social situation of population.

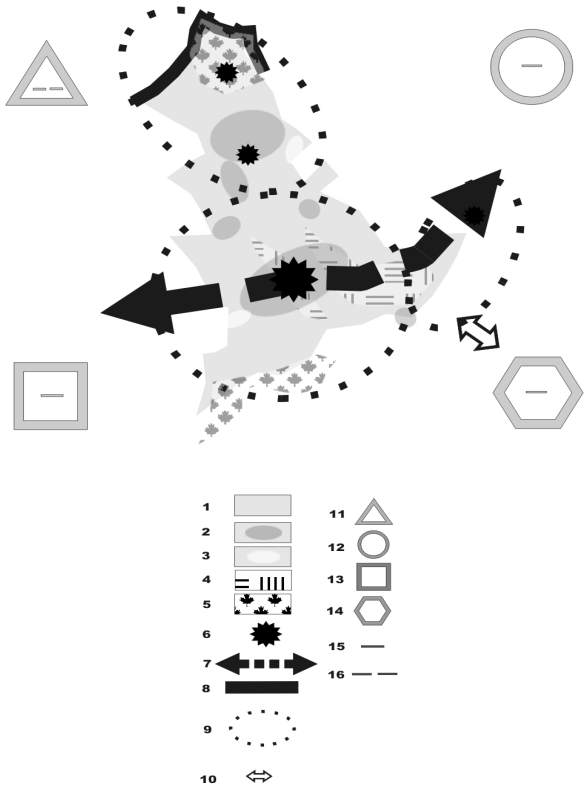
CONCLUSION

Analysis of several model territories and its results demonstrate that the distinct regional disparities characterize the present state of socio-cultural and socio-economic situation in Slovakia (Gajdoš 2004, Ira et al. 2005, Korec 2005). Developed regions (with prevailingly significant representation of urban structures) formed on the one side while on the other there are less developed regions (two of them were subjects of this study) where the synergic effect of several factors is unfavourable. They are areas with unfavourable parameters of situation potential, poor linkage to "big" transport infrastructure with higher share of unemployed, poorly developed and diversified economic structure, low educational level of population (district Rimavská Sobota), and the like.

The study of model regions pointed to the need to analyse the key chances and limitations of development and the need to assess it scientifically. In this way, prerequisites for the preparation of an efficient regional policy necessary for the solution of the unfavourable differentiation in Slovakia and elaboration of quality regional policies at the lower hierarchic level are created.

Spatial graphic models also offer the chance of identifying the developmental possibilities and limitations of regional systems based on the key factors of regional development. The significance of graphic modelling is in identification of the unique and specific features of spatial structure of a region. A non-transitive model makes it possible to compare similar types of spaces. Graphic models also represent a very rapid, visualised and clear form of communication both in the field of scientific learning and application in territorial or regional planning. But it should be also noted that the graphic map schemes are not simplified schemes of maps, they detect the spatial organization of regional systems by a logical visualised form.

Fig. 2: *Model of developmental possibilities and limits for district Rimavská Sobota*



1. District territory
2. Territory with favourable values of human potential and settlement conditions
3. Territory with adverse values of human potential and settlement conditions
4. Territory important in terms of agriculture
5. Territory important in terms of nature protection
6. Important settlements
7. Developmental axis of the 1st level the main developmental axis of Slovakia
8. Natural barrier
9. Boundary of functional urban region
10. Important and less important border crossing
11. Possibilities of economic development
12. Developmental possibilities in terms of human potential and social situation
13. Developmental possibilities in terms of action capacity of self-administration
14. Developmental possibilities in terms of infrastructure
15. Limited possibilities of development
16. Distinctly limited possibilities of development

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References

BEZÁK, A. (2000): Funkčné mestské regióny na Slovensku. Geographia Slovaca, 15, 1-89 .

BRUNET, R., (1980): La composition des modèles dans l`analyse spatiale. L`Espace géographique, 4, 253-265.

BRUNET, R., DOLFUS, O. (1990): Mondes nouveaux. Hachette/Reclus, Paris, 551 s.

BRUNET, R., LEHOTSKÝ, M., PODOLÁK, P. (1989): Geografický model regionálneho systému – príklad Východolsovenskej nížiny. Architektúra a Urbanizmus, 23, 139-146.

GAJDOŠ, P. (2002): Človek Spoločnosť Prostredie. Priestorová sociológia. Sociologický ústav SAV, Bratislava, 379 s.

GAJDOŠ, P. (2004): Typológia regionálnej diferenciácie SR, In Falťan, Ľ., Pašiak J., eds. Regionálny rozvoj Slovenska – východiská a súčasný stav. Sociologický ústav Slovenskej akadémie vied, Bratislava., s. 54-78.

HAMPL, M. (2001): Teorie regionálního vývoje: principy a /anebo problémy. In Hampl, M. a kol: Regionální vývoj: specifika české transformace, europská transformace a obecná teorie. DemoArt , Praha, s. 17-41.

IRA, V., PAŠIAK, J., FALŤAN, Ľ., GAJDOŠ, P., eds. Podoby regionálnych odlišností na Slovensku (príklady vybraných okresov). Sociologický ústav SAV, Bratislava, 381 s.

KOREC, P. (2005): Regionálny rozvoj Slovenska po roku 1989 (identifikácia menej rozvinutých regiónov Slovenska). GeoGrafika, Bratislava, 227 s.

LEHOTSKÝ, M. (1998): Chorematic model and perception of the cultural landscape. In Miklós, L. ed.: Evaluation and perception of landscape patterns. Proceedings from 3rd International Cionference on Culture and Environment. UNESCO-Chair for ecological awareness. Banská Štiavnica. s. 93-100.

LEHOTSKÝ, M. (2003): Postmoderna a epistemológia krajinného priestoru s akcentom na fluviálne geosystémy. In Herber, V. ed.: Fyzickogeografický zborník 1. Fyzická geografia – vzdelávanie, výskum, aplikácie. Přírodovedecká fakulta MU v Brne, Brno, s. 146-151.

LEHOTSKÝ, M., PODOLÁK, P., SZÉKELY, V. (1993): Modèle d`un système régional: Spis en Slovaquie. L`Espace géographique, 2, 125-132.

LUKNIŠ, M. (1985): Regionálne členenie Slovenskej socialistickej republiky z hľadiska jej racionálneho rozvoja. Geografický časopis, 37, 137-163.

PAŠIAK, J., GAJDOŠ, P., FALŤAN, Ľ. (2001): Regional Patterns in Slovak Development. In Gorzelak, G., Ehrlich, E., Falťan, Ľ., Illner, M, eds., Central Europe in Transition.: Towards EU Membership. Scholar, Warszawa, s. 330-363.

PAULOV, J. (1997): Postmodern Geography: A Brief Characterization. Acta Universitatis Caroline, Geographica, Supplementum, s. 45-50.

MODELY ROZVOJOVÝCH MOŽNOSTÍ A OBMEDZENÍ VYBRANÝCH REGIONÁLNYCH SYSTÉMOV

Zhrnutie

Výskum regionálnych systémov ako štrukturalizovaných multidimenzionálnych priestorov definovanými rôznymi druhmi vzťahov a procesov má pri aplikácii holistického prístupu rôzne podoby a polohy. Vklad adekvátneho využívania vedeckých poznatkov a vedy v jej postmodernom chápaní, t. j. ako vedy rozširujúcej tradičné prvky vedeckej praxe, faktov i účastníkov vedeckej komunity, vedy koncipujúcej novú integrálnu úroveň poznávacej praxe vedie ku komunikatívnosti , čím sa približujú ňou získané výsledky viac k "človeku".

V tomto duchu je koncipovaný aj nesledujúci príspevok. Jeho cieľom je načrtnúť charakteristiku modelov priestorovej organizácie regionálnych systémov, stručne charakterizovať problematiku regionálneho rozvoja z hľadiska geografie a problémy regionálneho rozvoja SR, identifikovať faktory ovplyvňujúce rozvoj regiónov a na príklade dvoch modelových území (bývalé okresy Rimavská Sobota a Bardejov) charakterizovať prostredníctvom grafických modelov regionálne systémy z hľadiska rozvojových možností a obmedzení.

Grafický model regionálneho systému predstavuje obraz geografickej reality, priestorovej štruktúry, ktorý je zostavený logickým procesom vizualizácie regionálneho systému. Základné, duálne chápané prvky grafického modelu, t. j. ako elementárne konštrukčné prvky i ako grafické vizualizované vyjadrenia priestorovej štruktúry sa nazývajú chorémy. Na ich zostavenie a tým aj postihnutie reality slúži podľa Bruneta (1980) a Bruneta a Dolfusa (1990) osem základných znakov, prostredníctvom ktorých „exhumujeme" regionálny systém.

Kombináciou chorém dospievame k jednoduchšiemu i zložitejšiemu postihnutiu a zobrazeniu základných zákonov priestorovej organizácie regionálneho systému a potenciálu jeho ďalšieho rozvoja, k tvorbe jeho grafického modelu. Grafickým modelom je, vďaka logickému maticovému kombinovaniu chorém a základných znakov a vďaka kompromisu medzi vystihnutím podstatného jednoduchou formou a menej presným, nemapovým postihnutím určitých stavov reality, možné postihnúť prakticky všetky aspekty regionálneho systému (Lehotský 1998).

Problematika regionálneho rozvoja a faktorov, ktoré ovplyvňujú rozvoj či úpadok regiónov a vznik regionálnych nerovností sa stali v období transformačných zmien spoločnosti predmetom záujmu viacerých vedných disciplín, vrátane geografie. Príčiny narastajúceho záujmu o regionálnu (geografickú) štruktúraciu spoločenského vývoja sa spájajú predovšetkým s praktickými otázkami územnej diferenciácie, to znamená praktickými problémami regiónov, ale aj so širším záujmom o otázky rozvoja , resp. so záujmom o rozvoj poznania v sociálno-vedných disciplínach (Hampl 2001).

V prvých rokoch transformácie (1990-1998) sa začala prejavovať v narastaní regionálnych disparít a vo formovaní depresných (marginálnych) regiónov. Vo viacerých prácach venovaných otázkam regionálneho rozvoja sa stretávame s názorom, že Slovensko je z hľadiska členenie regionálnej štruktúry rozdelené na dva „makroregióny" – bohatý západný, resp. severozápadný a chudobný východný, resp. juhovýchodný. Pašiak et al.

(2001) zaraďujú medzi najviac zaostalé regióny územia okresov Juhoslovenskej kotliny, resp. južnej časti Slovenského Rudohoria (okres Rimavská Sobota bol klasifikovaný ako problematický). Druhou územne kompaktnou oblasťou so značne a výrazne problematickými teritóriami je severovýchodná časť Slovenska (medzi nimi aj okres Bardejov). Z uvedeného je zrejmé, že dva vybrané modelové okresy východoslovenského regiónu predstavujú územia zaujímavé z hľadiska marginality.

Rozvojové možnosti a obmedzenia dvoch modelových regiónov boli hodnotené na základe viacerých faktorov (primárneho/polohového potenciálu, územno-správneho členenia, sídelnej hierarchie, makropolohovej atraktivity, charakteru osídlenia, osobitostí demografických štruktúr, „veľkej“ dopravnej infraštruktúry, historickej marginality, ekonomickej špecializácie regiónov, depresnosti priľahlých regiónov susedných štátov, akčnosti samosprávy a faktor environmentálnej situácie).

Modely vybraných regionálnych systémov (okresov) podobne ako napr. v prácach Bruneta et al. (1989) a Lehotského et al. (1993) sú konštruované na základe koncepcie tzv. elementárnych modelov – chorém, ktoré schematickým spôsobom odzrkadľujú zvláštnosti a jedinečnosť priestorovej organizácie. V rámci modelov vybraných okresov, sú areálmi vyznačené územia s priaznivými a nepriaznivými hodnotami ľudského potenciálu a sídelných podmienok, územia významné z hľadiska poľnohospodárstva a ochrany prírody. Bodovými symbolmi sú vyjadrené významné a menej významné centrá osídlenia a významné a menej významné hraničné priechody. Líniovými symbolmi sú vyjadrené: rozvojové osi, prírodné bariéry a hranice funkčných regiónov. Po okrajoch grafických modelov sú značkami naznačené rozvojové možnosti z hľadiska ekonomického, demografického, z hľadiska akčnosti samosprávy a rozvojové možnosti z hľadiska infraštruktúry s príslušným označením stupňa významnosti.

Výsledky analýz modelových regiónov dokumentujú, že okr. Bardejov sa zaraďuje medzi o územia s nepriaznivými parametrami polohového potenciálu, s nedostatočnou nadväznosťou na „veľkú“ dopravnú infraštruktúru, s vyšším podielom obyvateľov žijúcich vo vidieckych sídlach a okr. Rimavská Sobota medzi regióny s rastúcim podielom nezamestnaných slabo rozvinutou a málo diverzifikovanou ekonomickou štruktúrou, nižšou vzdelanostnou úrovňou obyvateľstva a pod.

Štúdium modelových regiónov poukázalo na potrebu analýzy kľúčových možností a obmedzení rozvoja a potrebu vedeckého zhodnotenia tohto stavu. Vytvárajú sa tak predpoklady pre vypracovanie efektívnej regionálnej politiky na riešenie nepriaznivého stavu regionálnej diferenciácie na Slovensku, ale aj predpoklady pre vypracovanie kvalitných regionálnych politík na nižšej hierarchickej úrovni.

Význam grafického modelovania tkvie v identifikácii jedinečnosti a špecifičnosti priestorovej štruktúry regiónu. Vyjadrením je netransitívny model, ktorý umožňuje porovnanie podobných typov priestorov. Grafické modely predstavujú súčasne veľmi rýchlu, vizualizovanú a jasne zrozumiteľnú formu komunikácie, či už v oblasti vedeckého poznávania, aplikácii v územnom a regionálnom plánovaní, apod. Súčasne je však potrebné podotknúť, že grafické modely nie sú zjednodušené schémy máp, naopak detekujú priestorovú organizáciu regionálnych systémov logickou vizualizovanou formou.

Recenzovali: Prof. RNDr. Eva Michaeli, PhD.
Prof. RNDr. René Matlovič, PhD.