

The preface of the special issue “Analytic and algebraic methods in physics 7”

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In a preface to this special issue of Acta Polytechnica one has to appreciate, first of all, the steady conversion of this Journal into a medium which serves, better and better, the needs of the national as well as international subcommunity of scientists which are associated, this or that way, with the research currently performed at CTU.

Secondly, one has to remind the readers that the scope and subject coverage of this particular special issue was again inspired by the international workshop “Analytic and algebraic methods in physics VII” which took place in March 2011 (cf. <http://gemma.ujf.cas.cz/znojil/conf/micromeetsedm.html>) and which was organized in a close a lasting collaboration between CTU (mainly FNSPE) and several other academic institutions in/near Prague (i.e., in our case, traditionally and mainly, with NPI ASCR in Řež).

This being said it should be emphasized that the special issue itself does not in fact represent just the AAMP 7 proceedings. One may easily check that the set of authors of the papers in this issue involves a number of people who were not able to participate in the conference this time (note: in March, in the middle of the University term). Some of them participated in the past so that their submission of a paper may be interpreted as the demonstration

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of the survival of the scientific ties established, presumably, during their previous stay or stays in Prague.

In this sense, the organizers of the AAMP series of meetings (cf.

<http://gemma.ujf.cas.cz/znojil/conf/mikroindex.html>) suspect that besides the appeal of the methods-related scientific projects themselves, contemporary and previous, one of the complementary sources of these “written returns to Prague” might also have been caused by the unconscious appeal of the meeting place itself, viz., of the ASCR’s (and truly very nice) Villa Lanna in Bubeneč.

The latter hypothesis appears partially disproved by the existence of the third group of authors who seem to be solely attracted by the publication opportunity offered by *Acta Polytechnica*. This observation might sound flattering to the Editorial Board, indeed. Hopefully, the Journal will acquire an impact factor (i.e., a formal recognition of a top-level scientific quality) soon.

For several years the team of the AAMP-7 organizers is trying to accelerate such an administrative development. It certainly helps that the research associated with the conference could have been inspired by the ideas and project(s) emerging in the framework of the so called Doppler-Institute (cf. <http://doppler.ujf.cas.cz/>). In particular, the monetary consequences of the existence of the related “center of excellence” budget also proved nontrivially helpful.

During the meeting the science itself proved more or less spontaneously separated into eight more or less homogeneous sections covering not only the overall traditional and “keyword” subjects of the analytic and algebraic methods in physics but also a number of specific subsubjects ranging from the rather exotic effect algebras (studied in the Slovak-dominated and persuasively purely mathematical section Nr. I) to the truly physics-oriented section Nr. III (on effective Hamiltonians in many-body systems and in Bose-Einstein condensates).

The tactics used by some of the most traditional participants (typically, from Imperial College or from City University in London) was to outnumber the local competitors this time. This enabled them to “monopolize” sections

Nr. II - on the complexified non-quantum mechanics - or Nr. IV - on various systems exhibiting PT symmetry (and ranging, from the point of view of applications, from optics to nonlinear waves to multiparticle solvable models).

The scope of the talks was, naturally, much broader than that, covering Brownian motion in 2D (R. Hudson) as well as the chaos in the Feigenbaum's approach (H. H. Lee from USA - the most distant but traditional participant) or the innovative versions of the representation theory (V. V. Kisil, the newcomer). We do not intend to name all of the speakers here - just sampling the types. In this sense one should not forget to mention at least some of the years-long ties between the participants: typically, of Ray Rivers (London) with Petr Jizba (Prague), or of Maurice Kibler (Lyon) with Jiří Tolar (Prague), or of Boris Shapiro (Stockholm) with Miloš Tater (Řež), etc.

Last but not least it was really pleasant to see that several subjects presented by our local students and postdocs fitted the level of the AAMP-7 meeting very well. All of them made a good impression by their talks. Their "minischool" section managed to cover a fully competitive range of topics of the mathematical as well as computational physics.

We believe that the present special issue inspired by the AAMP-7 meeting will provide an inspiring reading about the sample of topics covered by the meeting. The authors of the written texts truly tried to make their respective messages addressed to the advanced-engineering-oriented readership of Acta Polytechnica. After all, this readership and the organizers of the meeting do overlap.

Nontrivially, the latter fact even contributed to the smoothness of the AAMP-7 meeting. Indeed, during its only dramatic and critical hour, i.e., immediately after our overhead projector collapsed at the very least suitable moment, the local organizing committee immediately grew and "virtually coopted" Zuzana Masáková (Dept. of Math. FNSPE), Karel Klouda (FIT) and Libor Šnobl (Dept. of Phys. FNSPE) (so, our explicit thanks to them).