REFEREE REPORT

By Professor PhD Nikolai Manev,

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On the announced competition for a position of Professor in the

Professional field: 4.5. *Mathematics*,

Scientific specialty: *Computational Mathematics (High Performance Computing)*

1. General description of the procedure and submitted documents

The competition for a position "Professor" subject of this report is announced in the State Gazette (Darzhaven vestnik) no. 41 / 21.05.2019. The open position is at department „High Performance Computer Systems, Networks and Algorithms" of the Institute of Information and Communication Technologies – BAS (IICT).

There is only one applicant, namely

assoc. prof. PhD Emanuil Yordanov Atanassov

2. Candidate's Biographical data.

Emanuil Atanassov received Ms Degree on mathematical analysis in 1996 at SU „St. Kliment Ohridski". The Ph.D. degree was conferred on him in 2002 after defending the thesis titled „Monte Carlo and quasi Monte Carlo methods of computing integrals with higher speed of convergence ". In the period 2002 – 2003 Emanuil Atanassov was post doctoral fellow at Saarland University, Saarbrüken, Germany. Since 2004 he has been associate professor at IICT, and since 2009 he has been the Head of the

department „High Performance Computer Systems, Networks and Algorithms" of the Institute of Information and Communication Technologies – BAS.

The aforesaid confirms that Emanuil Atanassov corresponds exactly to the requirements of article 29(1) of ЗРАСРБ and article 60(1) of Правилника за приложението му.

3. Description and estimation of the research, papers and contributions in them

E. Atanassov has presented a list of **21** papers which are written after his habilitation. **Six** of them have **impact factor**, **7** are with **SJR,** and the rest appear in **Scopus и Web of Science, too**. All papers are join work with other researchers that is typical for his research area. The numerical indicators corresponding to the presented papers **exceed the legislative requirements**.

Scientific interests of Emanuil Atanassov are highly varied, but the presented works are mainly in the area of High Performance Computing.The works can be classified into four groups:

1. **Development and implementation of algorithms utilize fine levels of parallelism in heterogeneous computing systems**. This group contains papers with numbers 2, 4, 12, 18, 19 from the list of publications.

2. **Optimization of high performance computations used in mathematical modeling ant its applications.** This group consists of papers 3, 5, 7, 8, 9, and 17.

3. **Algorithms for effective generation of sequences with small discrepancy.** Papers with numbers 11, 15, 20, and 21.

4. **Development of services for effective usage of distributed computing systems.** The activities in this direction are described in papers 1, 6, 10, 11, 12, 13, 14, and 16.

The resumes of the papers and list of scientific contributions of the candidate included in his application describe truthfully the content of the papers and represent correctly the candidate's scientific contributions. The style of the papers is very good.

Essential part of candidate's activity is work that is not research but plays substantial role for the research made by many scientists. E. Atanassov is responsible for the permanent work of the supercomputer "Avitohol" having more than 400 Teraflops performance. Besides many research problems the daily weather forecast for the Sofia region is also computed on the "Avitohol".

4. Characterization of the scientific-organizational and educational activity of candidates

Emanuil Atanassov has been a leading researcher or member of the Bulgarian team of 5 and 8 international projects (mainly financed by EC), respectively. He has been leading researcher of 2 (member of the team of 6) national projects. Atanassov has been member of Program Committees of international conferences or an organizer of special sessions at them.

The candidate has given lectures at the Ph.D. Research Career Development Centre of the Bulgarian Academy of Sciences. He has two PhD students.

5. Assessment of the personal contribution of the candidate in joint works

In my opinion the personal contribution of E. Atanassov is at least equipollent.

6. Impact of the candidate's results on work of other scientists

E. Atanassov has presented a list of **46 appeared in SCOPUS and/or Web of Science** papers of other authors citing his results. This number exceeds the legislative requirements.

My conclusion is that **Emanuil Atanassov is well known to the researchers working in his scientific area**.

As a high school student E. Atanassov received the Special Award at the International Mathematical Olympiad in Australia in 1988. In 2004 he received the honorary diploma "John Atanassov" for contribution to Information Technologies; in 2007 – the Award for the Best Paper at MIPRO 2007, Croatia.

CONCLUSION

On the grounds of varied scientific and scientific-organizational works of Emanuil Yordanov Atanassov I can declare without any hesitation that he meets the legislative requirements (Закона за развитие на академичния състав в Република България (ЗРАСРБ), Правилника за прилагане на ЗРАСРБ, Правилника на БАН за прилагане на ЗРАСРБ), and the requirement of IICT for the rank and position of "Professor". **I give my positive estimation with conviction and recommend to the Assessing Committee to propose to the Scientific Council of IICT to confer on assoc. prof. PhD Emanuil Yordanov Atanassov the rank and position "Professor" in**

professional field: 4.5. Mathematics; scientific specialty: Computational

Mathematics (High Performance Computing)

10.09. 2019 г.   Signature: