REPORT

From Prof. PhD eng Maria Ivanova Karsheva, Dept. of Chemical Engineering, UCTM-Sofia, scientific jury member

Concerning Competition for academic position Associate professor for Dr.eng. Dimitar Kolev

The competition for academic position Associate professor is announced in SG issue No 37 on May the 7th 2021 for needs of the Institute of Chemical engineering BAS (laboratory of transport phenomena in multiphase media). Code of the competition is 4.2 – Chemical sciences (Unit operations in chemical and biochemical technology). The candidate to occupy the position is one – Dr Dimitar Kolev.

He defended his PhD thesis in 2005. The documents presented demonstrate his area of interests as effective packings and heat exchangers.

In the materials for the competitions are presented 18 publications for the period 1993– 2013, 5 of them in reviews with Impact factor, as follows 0.964, 1.129, 1.518, 1.156, 1.959. There are also enclosed 9 publications in full text in different proceedings in Bulgaria and abroad. Among the publications 6 are with two authors, 5 – with three, 3 – with four, 4 – with 5 and more authors. The pretender is the first author in 6 papers, second – in 5, third – in two papers, fourth and more – in 5 ones. 65 citations of his publications are found in scientific works, patents and dissertations.

There are also presented 10 patents for the period 1988-2006 and 5 industrial applications – for 1993-2015.

Dr Kolev took part in two scientific projects for Bulgarian scientific and research foundation.

The teaching activity of Dr Kolev includes giving lectures and seminars in Mining University – totally 168 hours (101 h. lectures, 67 h seminars) for the period 2010-2012.
No information is presented for written by the candidate books, textbooks or manuals.

So, it could be concluded that the basic activity of the candidate is research and technology, not teaching.

The basic contributions of Dr Kolev are, as follows:

1. Creating of new element for redistribution bed with low pressure drop and determination of characteristics of redistribution bed.
2. Construction of experimental equipment and method for measuring of liquid distribution and determination of optimal packed bed height for uniform liquid distribution.
3. The pressure drop of the redistribution packing is determined and compared with other ones existing.
4. New lamellar heat exchanger is constructed and its effectiveness is proved for different distances between the lamellas.
5. An experimental equipment was constructed, a-method was chosen and the characteristics of highly effective packings were found through comparison between them.
6. The characteristics of new packing were studied.
7. New gas turbine cycle is proposed, operating in the burner with lack of air and adding the rest of it, up to the stoichiometric value, thought the internals cooling channels of the first part of the turbine. This ensures significant increasing of the efficiency and prevention of Nox emissions.
8. The characteristics of gas turbine cycle are calculated.
9. Technology for flue gases purification from sulfur dioxide for small and middle capacity boilers is created .
10. New method and equipment for producing of compressed slack from char coal, fine wooden particles and plant by-products is proposed.

11. Method and equipment for car motor tires pirolise is proposed. During the process new useful products are obtained.
12. Method and equipment for municipal wastes processing through burning is proposed. The technology gives the possibility for flue gases purification and the use of the heat for heating purposes.

The candidate's contributions could be related as of applied and scientific-applied interest.

Personal (reiting) estimation by BAS system is presented.

Dr Kolev claims to has

- From publications – 34.896 points
- From reports – 10.889 points
- Total impact factor – 6.726 points

Totally from scientific activity - 45.785 points.

- From scientific projects (contracts) – 2.680 points
- PhD degree – 2 points

Totally 50.456 points (minimal requirement for associated professor position in BAS are 46 points). Candidate meets the institution requirements.

In the materials of the competition, presented by Dr Dimitar Kolev, I find enough scientific-applied and applied contributions. The candidate meets the requirements of the Regulations for obtaining scientific degrees and holding academic positions in BAS, ZRASRB and PPZRASRB. All this gives me the reason to propose to the esteemed Scientific Jury to award him the academic position "Associate Professor" in the scientific specialty "Unit operations in chemical and biochemical technology " in the professional field, 4.2 Chemistry.

Sofia, 07.09.2021

Reporter:

/Prof Dr.Eng.Maria Karsheva/