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A review of scientific achievements and accomplishments
Professor Eric Rogers, PhD, DSc
For the Senate of the Wrocław University of Technology
Following the procedure of granting the title of Doctor Honoris Causa
University of Zielona Góra

It is with great satisfaction that I have received the news that the University of Zielona Góra has started – at the request of the Department of Computer Science, Electrical Engineering and Automation – the procedure that will confer the title of Doctor Honoris Causa for Professor Eric Rogers from the University of Southampton. This satisfaction results from the fact that in my view, Professor Rogers is fully deserving of this honour, which I will now try to justify more widely. A second source of satisfaction is the field of science which Professor Rogers represents, and in which he has made a significant contribution, namely control theory. This is a field which is at the same time important for contemporary automation and difficult because it is highly mathematicised.

Professor Rogers was a pioneer of research of control theory for repetitive processes, i.e., those in which the production cycle is repeated many times, for example – in parts of chemical processes and in the manufacturing using robotic systems. The applications of this current study are, therefore, mainly civilian in nature. This observation is important because of its origins, which date back to the 1950s, as control theory was mainly inspired by applications in military rocketry.

Professor Rogers returned his work's focus to the additional potential inherent in repetitive processes, namely the fact one can control such processes not only during each individual run, but also learning to apply control between runs, which greatly increases the efficiency of the control and allows one to make the control system resistant to parameter changes, such as raw materials, which occur between individual runs. Today, this theory is known as iterative learning control. Professor Rogers's contribution to the development of this theory was decisive. He formed a scientific school with a truly international reach, focusing on students from England, France, Germany, Poland, Russia, and the USA, which is constantly expanding. An important stage in the development of this theory was its connections with 2d systems theory. As part of this trend, he formed the scientific school, jointly with Professor K. Gałkowski, of the iterative learning control method. With their co-workers, they created more than 200 joint works (including 60 in journals with IF factor) from the University of Zielona Góra.

The scientific achievements outlined above by Professor Rogers have been presented

in over 450 publications, more than 200 of them in journals (with IF factor) in which he is the author or co-author. These articles have been published in the most prestigious journals of control theory and as materials at the most respected conferences, including CDC, ACC, ECC, and IFAC World Congress. Moreover, Professor Rogers is co-author of three monographs published by Springer and one by Wiley, which have had a significant impact on the development of modern control theory. Such recognition also evokes the style in practising science by Professor Rogers. His works include deep theoretical results, but they are always verified empirically or by simulation under realistic examples of applications.

The scientific achievements of Professor Rogers have won worldwide recognition. This recognition manifests itself in, among others:

- Citations – the SCOPUS base records approximately 3,500, including over 2,000 without self-citation and an h-index of 29. In control theory, this is a rarely-seen number.
- Prestigious awards: Sir Harold Hartley Medal awarded by the Institute of Measurement and Control 2011 for 'outstanding contribution to the development of metrology and control theory' as well as many awards for the best articles.
- Membership of the programme committees of many prestigious conferences and editorial boards of magazines.
- Acting editor-in-chief of two leading international journals: International Journal of Control and Multidimensional Systems and Signal Processing.

It should be emphasised that as editor of these journals Professor Rogers is not subject to 'market pressure' that is, an easy readership and high IF coefficients, but cares primarily about the development of the field, publishing important articles, even if they are very sophisticated mathematically. He maintains both very high levels of these magazines as well as sympathetic to the authors.

As to the recognition of scientific achievements of Professor Rogers, the level of funding for research grants from government agencies and industry is also highlighted, amounting to over 6.5 million pounds, including 1.5 million on current projects. With such a ceremonial occasion as that of an honorary doctorate, the financial aspects are not usually emphasised. In specific Polish conditions, however, it was deemed worthy to do so.

Professor Rogers has supervised 22 PhDs, including two in Zielona Góra. Currently he serves as promoter in the next 6 doctoral proceedings, including PhD students from Zielona Góra.

Professor Rogers is known for his openness to international cooperation. He cooperates with many centres on all the inhabited continents. Deserving of special attention – which has lasted for more than 20 years – is the cooperation with Polish scientists. This cooperation is to a large extent concentrated at the Politechnic of

Zielona Góra and currently at the University of Zielona Góra. Together with Professor Gałkowski, from the Institute of Control and Information Systems, the Department of Computer Science, Electrical Engineering and Automation at the University of Zielona Góra was in 1998 the co-founder of the international annual conference called International Workshop on Multidimensional Systems (NDS). This year's conference will be held in Poland. Professor Rogers has a significant contribution in the development of the young scientists. Thanks to the joint research programme from Professor Gałkowski, many students, graduate students and people working on their habilitation have held internships at the University of Southampton, and participated in research.

The cooperation and the impact Professor Rogers has had on the development of Polish science does not restrict itself to the centre in Zielona Góra. Professor Rogers is a member on the editorial board of many journals, including those in Poland, published in the International Journal of Applied Mathematics and Computer Science and scientific conferences, including the periodically organised Międzyzdrojach International Conference on Methods and Models in Automation and Robotics (MMAR).

In summary, I consider that Prof. Eric Rogers has made, and still has a very large contribution to make to the development of science, especially at the foundation of the development of control theory. His achievements have gained widespread international recognition, and he himself is the sole institution for the automation environment.

With full confidence, therefore, I ask the Rector and Senate of the Wroclaw University of Science and Technology to endorse the intention of Rector and the Senate of the University of Zielona Góra, in granting Professor Eric Rogers the title of Doctorate Honoris Causa.

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Ewaryst Rafajłowicz