

Laudation for prof. dr Carl Adam Petri

Tomorrow professor Petri will deliver a keynote lecture at the famous International Conference on Application and Theory of Petri-nets in Eindhoven.

This conference that carries his name has been organized annually since 1980. The conference has a sound organization with a steering committee that takes care of continuity and quality of the conferences. The 23 foregoing conferences have been held in many different places all over the world. This is the first time the conference is held in the Netherlands, which we appreciate very much!

In particular, it is a great honour to have professor Petri presenting a lecture at this conference. Professor Petri retired officially 12 years ago, in 1991, as the director of one of the research institutes of the GMD, the (German) National Centre for Mathematics and Computing. GMD has merged into the big German research organisation: the Fraunhofer Gesellschaft. Despite his retirement professor Petri is still active in research and still owns a honorary professorship at the University of Hamburg.

Professor Petri created the famous framework for the research on concurrency in complex systems during his PhD research. His thesis is called: Kommunikation mit Automaten (Note for mr Houben: “concurrency” means parallel activities in a system. The coordination of parallel activities is one of the most difficult problems in Computer Science).

The importance of his work is three fold:

1. he recognized the importance of the interacting systems (up to that time only systems in isolation were studied)
2. he developed a research framework together with a formalism based on a diagram technique that is easy to understand for non-experts and that can be used by experts to analyze the behaviour of complex systems
3. his approach provided a sound base for further research: his theory was not a closed shop, it was rather a passage to a new world of research activities.

His thesis was published in 1962. After a couple of years researchers in other countries picked up the ideas of Petri, in particular in the USA where the name of Petri got attached to the word “net”. The importance of the notion of concurrency in Computer Science maybe compared to the importance of DNA in life sciences.

Petri nets are very well known: the search engine Google finds 108.000 hits on Internet. (That is without the hits for Petri dishes, the famous device in microbiology)

I would like to consider the impact of Petri nets on science, education and industry.

- There are more than 15.000 scientific articles published in Journals and Proceedings. More than 1000 books are written about Petri nets theory and its applications.
- In almost all Computer Science courses at the universities, Petri nets are on the menu. In addition, many Business Schools teach Petri nets because they are very useful to describe business processes and in particular to analyze the interactions of these processes.
- To give an impression of the impact on the industry we note that there are many commercial available software tools to model and analyze systems by means of

Petri nets. There are even ISO standards, used in the process industry, that require to model systems as Petri nets. Many so-called workflow management systems are based on Petri nets. Many ERP-systems use a process model that is related to Petri nets. Almost all of the software products that are using Petri nets are made after 1990, about 30 years after the famous thesis results of professor Petri were published. The impact is still growing and we may expect that in the next 10 years the use of Petri nets in industry will grow rapidly.

Professor Petri has not only developed a beautiful formalism, he also created a scientific movement, which had a great impact on industry. Since our society becomes a more and more complex system, in which computer systems will play essential roles, the need for analysis of these cooperating systems will increase. Therefore, there is a great future for Petri nets.

For all these reasons her Majesty the Queen has decided to honour professor Petri