Daniel Sternheimer

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It was a great pleasure for the organizers to learn that Prof. Daniel Sternheimer who was invited as a plenary speaker to the XXXII Workshop on Geometric Methods in Physics will celebrate his 75th birthday during the conference together with us. On this happy occasion we decided to dedicate one day of the workshop to recent work in and around some of the topics Daniel is working on (see the program of this day appended).

Daniel is one of the fathers of an exact formulation of deformation quantization. For everybody working in the field, or in related topics his joint article [1] with Bayen, Flato, Frønsdal and Lichnerowicz is the basic reference. There they exemplified the basic importance of the concept of deformations in physics. Quantum mechanics should be considered as deformation of classical mechanics. The precise mathematical object giving the quantization is the deformation of the Poisson algebra of functions (with commutative point-wise product of the functions) into a non-commutative algebra, a star product.

Deformation quantization is not the only field of interest, research and competence of Daniel. Daniel was born in 1938 in Lyon, France. There he also started his university studies in mathematics. He went to Israel to work in a kibbutz. Luckily he was "ordered" to continue his studies in mathematics at the Hebrew University in Jerusalem, from which he received his master degree. Returning back in 1961 to Paris he first worked in analysis, e.g., in the theory of PDEs, operator theory, and symbol calculus. In 1968 he graduated with his *thèse de doctorat* with Bruhat and Demazure. Already in 1964 his extremely fruitful collaboration with Moshe Flato begun, whom he already met during his stay in Jerusalem. This collaboration suddenly ended by the unexpected passing away of Moshe Flato in 1998. With the collaboration with Moshe, Daniel shifted more and more to mathematical physics. Some of the topics he worked on (and on some he still continues working) are the fundamental symmetry properties of elementary particles, quantum gravity, foundations of quantum mechanics, conformal symmetry, quantum field theory, Lie algebras, general deformation concepts, quantum groups, Hopf algebras, cohomology, Nambu mechanics, AdS universe and singleton physics. In particular, in respect to the latter his interest has revived recently again.

He was a member of the CNRS (first in Paris then in Dijon) till his retirement in 2003. Furthermore, he was and still is a member of the Mathematics Institute of the Université du Bourgogne.

Since 2004 he spends at least half of the year in Japan. From 2004 to 2010 he was Visiting Professor at the University of Keio and since 2010 he is Visiting Researcher at the Rikkyo University in Tokyo. In 2004 he was appointed Honorary Professor of the University of Sankt Petersbourg, Russia.

He has always served the community. Together with Moshe Flato he initiated to create a mathematical physics association at the European level, which finally came into life as the *International Association of Mathematical Physics* (*IAMP*). He is editor of the *Letters in Mathematical Physics*, editor of several book series, organizer of several international conferences, evaluator of research proposals, and is involved in many more tasks.

His scientific influence was and is still very strong. Beside being an author of numerous publications (more than 90) he is frequently invited as speaker at international conferences (like the current one in Białowieża).

On the more personal level we enjoy very much his friendliness, openness and sense of humour. Daniel and Moshé were not only scientific influential figures but also always close friends to us whose help were invaluable. It is a great pleasure to wish Daniel a

Happy Birthday !!

References

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[4] Dito, G., and Sternheimer, D., *Deformation quantization: genesis, developments and metamorphoses.* (In) IRMA Lectures in Math. Theoret. Phys. 1, (eds. G. Halbout, et al.), pp. 9–54, Berlin 2002

[5] Sternheimer, D., *A very short presentation of deformation quantization, some of its developments in the past two decades, and conjectural perspectives*, Travaux mathématiques, Vol. 20 (2012), 205–228.