

## G rard A. Maugin, 60 years young

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When, on November 28, 2001, 19:00, in the Harnack House in Berlin-Dahlem, Maugin was honoured by the Max-Planck Society and the Humboldt Foundation with the Max-Planck Prize for the French-German cooperation, he and his wife Eleni were already well-known guests in Berlin: They had stayed here during the academic

year 1991/92 after Maugin received the Fellowship of the Wissenschaftskolleg zu Berlin. From this period on, the ongoing numerous scientific and personal contacts that began in November 1987 between the Institut für Theoretische Physik (ITP) and the Laboratoire de Modélisation en Mécanique (LMM) increased. In September/October 1992, Maugin was one of the invited lecturers of the 336th CISM-Course on Non-Equilibrium Thermodynamics at the International Centre for Mechanical Sciences in Udine organized by ITP. In 1996/97, the cooperation between LMM and ITP was supported by the PROCOP program of the DAAD (Deutscher Akademischer Austauschdienst). From this time on, Maugin came to Berlin nearly every year for at least one week as a guest of the ITP.

I know Gérard from numerous meetings and conferences around the globe: We first met in July 1981 in Stockholm and, since that time, we have attended more than twenty meetings together all over the world. Although Maugin was (and still is) a member of several editorial boards of such renowned scientific journals as the International Journal of Engineering Science, Wave Motion, International Journal of Applied Electromagnetics and Mechanics, Applied Mechanics Review, Archives of Mechanics, Archives of Applied Mechanics and others, the editors of JNET were pleased to gain him as a member of the journal's Editorial Board in 1985.

Born on December 2, 1944, in Angers, Maugin started his career as a mechanical engineer in 1966. After his diploma of Aeronautical Engineering (1968) and his advanced diploma in mathematics at the Université Paris 6, he obtained the Master of Arts (1969) and Ph.D. (1971) at Princeton University (USA). In May 1975, Maugin completed his scientific education with the Doctorat d'Etat (Habilitation) of the Université Pierre et Marie Curie (UPMC) in Paris. During this time he held several scientific positions in France and in Princeton, such as the famous International NASA Fellowship.

The year 1972 was an important one in Maugin's life: After a national competition he was admitted to the Centre National de la Recherche Scientifique (CNRS) in October. What followed was a highly auspicious time of scientific research and of climbing the career ladder: In 1985, Maugin became the head of the research team on Continuum Mechanics at the LMM. In 1977, during this time of intensive research, he was awarded the Medal of CNRS for Physical Sciences in Engineering and, in 1982, a Prize of Mechanics of the French Academy of Sciences.

Thirteen years after his nomination as the head of the Continuum Mechanics research team, Maugin was nominated and elected by CNRS and UPMC to head the entire LMM-Institute in 1998. In the meantime he had created the "International Seminar on Geometry, Continua and Microstructure", which took place for the first time in 1997 in Paris and which prospered in the ensuing years. Foreign academies awarded memberships to him: Academy of Arts and Letters of Messina (1993), Polish Academy of Science (1994), Estonian Academy of Science (2002). He obtained the honorary titles of a Prof.h.c. from the Lomonossov State University in Moscow and Dr.h.c. from the TU Darmstadt. I was delighted to be present when Gérard was awarded by the Society of Engineering Science with the Eringen Medal on October 13, 2003, in Ann Arbor, Michigan.

Maugin is without any doubt an outstanding, successful scientist active in various fields embracing not only Mechanics in a very broad sense, but also aspects of electrodynamics, thermodynamics and relativity theory. His research domain can be characterized by the term ‘‘Classical Non-Linear Field Theories’’. To give a brief survey on his research is difficult, because of its range and complexity, but I will nevertheless attempt it.

Maugin’s early research was on relativistic continuum mechanics (genius loci of Princeton, not only scientific, but also personal: Eleni and G rard married there in December 1978), specifically on general and special relativistic electro-magneto-elastic interactions in continua. Later on, he remarked that the non-relativistic theory of these phenomena, such as non-linear oscillations in deformable, electromagnetic, dissipative and anisotropic media, was not really developed. The papers and books cited below<sup>1</sup> are representative of this period.

But Maugin was not only interested in constitutive theory. He authored two historical subjects of mechanics and thermodynamics: the virtual power<sup>2</sup> and the internal variables<sup>3</sup>. Yet another broad field of Maugin’s research activities can be found in non-linear waves in deformable solids<sup>4</sup>, especially solitons in connection with the Tallinn School<sup>5</sup>. Maugin also reopened an important field of research stemming from Eshelby: the mechanics of material and configurational forces<sup>6</sup>.

This is only a very brief description of Maugin’s publications, which encompass more than 10 books and over 400 papers. But finally I should mention that he has also written a book on non-linear thermomechanics<sup>7</sup>, whose cover is decorated with the logo that was invented at ITP in the early seventies. It shows the difference between reversible and irreversible processes for ‘‘pedestrians’’.

Dear G rard, the Editors and the Editorial Board of the Journal of Non-Equilibrium Thermodynamics congratulate you cordially on your 60th birthday and hope that

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<sup>1</sup> On the covariant equations of the relativistic electrodynamics of continua I–IV, *J. Math. Phys.* 15 (1978) 1198–1226

Continuum Mechanics of Electromagnetic Solids, Elsevier, Amsterdam, 1988

Electrodynamics of Continua I–II (Co-author A.C. Eringen), Springer, New York, 1990

<sup>2</sup> The principle of virtual power in continuum mechanics: Application to coupled fields, *Acta Mechanica* 35 (1980) 1–70

<sup>3</sup> Internal variables and the thermodynamics of macromolecule solutions (Co-author R. Drouot), *Int. J. Engn. Sci.* 21 (1983) 705–724

Thermodynamics with internal variables I–II (Co-author W. Muschik), *J. Non-Equilib. Thermodyn.* 19 (1994) 217–289

<sup>4</sup> Nonlinear Waves in Elastic Crystals, Oxford University Press, Oxford, 1999

<sup>5</sup> Physical and Mathematical Models of Nonlinear Waves in Solids, in: *Nonlinear waves in Solids* (Eds A. Jeffrey, J. Engelbrecht) pp. 109–233, Springer, Wien, 1994 (CISM Lecture Notes)

<sup>6</sup> Material Inhomogeneities in Elasticity, Chapman & Hall, London, 1993

Material Forces: Concepts and Applications, *A.S.M.E. Applied Mechanics Reviews*, 48 (1995) 213–245

<sup>7</sup> The Thermomechanics of Nonlinear Irreversible Behaviors, World Scientific, Singapore, 1999

you will be able to continue your scientific career for many more years to come, and that you, as in the past, will push forward the multifaceted knowledge of the science that we all love so much. The best to you and Eleni

yours  
Wolfgang