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# Antonello De Martino (1954–2014): in memoriam

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The head of the polarimetric group of the Laboratory of Physics of Interfaces and Thin Films (LPICM) at École polytechnique, France, Dr. Antonello De Martino, passed away on August 23, 2014, after 35 years of a brilliant research career (see Fig. 1). He was an alumni of the École polytechnique French engineering school, and a senior scientist 1<sup>st</sup> class at the National Centre of Scientific Research (CNRS). He was also a professor in the Physics Department of École polytechnique. Antonello, as he was known to his colleagues and friends, started his career at Quantum Optics Laboratory in 1980, working on the generation of far-infrared (IR) radiation, IR multiphoton absorption, and the interaction of gas clusters with surfaces. In 2000 he joined the group of polarimetric optical instrumentation of LPICM. Antonello, who had acquired great expertise in using polarized light for detection of resonance-enhanced multiphoton ionization, was able to see the potential of Mueller matrix polarimetry experiments for a number of practical uses. Pushing the limits, he led the development of new polarimetric instruments and applications.

In particular, Antonello contributed to the development of the spectroscopic Mueller matrix polarimeter, suggesting a new instrumental design based on the use of liquid crystals.<sup>1</sup> Thereafter, he expanded this Mueller matrix polarimetric technique into the imaging field. Apart from important contributions to the instrument development, Antonello pioneered the applications of Mueller matrix polarimetry in several diverse areas. The ability of Mueller matrix polarimetry to provide all polarimetric properties of a sample, such as depolarization, retardance, and diattenuation, has opened new perspectives in the biomedical field, in particular for the early diagnosis of cancer.<sup>2</sup> For his preclinical studies on the application of a multiwavelength Mueller matrix imaging polarimeter for the optical biopsy of cervical cancer,<sup>3</sup> Antonello was awarded the *Prize for Innovation of École Polytechnique* in 2012. His seminal ideas were at the core

of the research project devoted to the development of an endoscopic Mueller matrix polarimeter for *in vivo* biomedical applications.<sup>4</sup>

Antonello was the author of many scientific papers, several book chapters, and patents. Also an inspired educator, he taught for many years in the Physics Department of École polytechnique. In particular, he was responsible for the activities of the Center of Experimental Physics for almost ten years. He succeeded to transfer his enthusiasm and passion for science to the students by confronting them with new experimental facts and placing them at the frontiers of knowledge of modern physics.

All those who had the privilege to know, work, and interact with Antonello feel the pain of losing a colleague and a great friend who will be remembered as an outstanding researcher



Fig. 1 Dr. Antonello De Martino.

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and passionate teacher. He showed admirable courage in facing his illness, against which he fought for many years.

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