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PLASMIANTE: A plasma filter for the detection of airborne asbestos

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Even if forbidden in french constructions since 1997, asbestos remains present in most of the buildings constructed before this date. Thus, in the case of degradations, asbestos fibers can be emitted in air. The smaller the asbestos particles, the longer they stay in suspension in air, increasing the risk of inhalation.

The current determination of asbestos presence in air in France follows a long and cumbersome normative protocol (NF X 43-050), with an analysis carried out on a Transmission Electron Microscope at laboratory after air filtration on-site. Such a protocol is therefore accompanied by numerous error factors.

PLASMIANTE aims to develop a direct and global on-line analysis method to detect, identify and characterise in real time asbestos fibers potentially present in the air. To this end, particles will be trapped in a low pressure plasma and analyzed with several metrological methods such as multi angle laser light scattering, the effect of the particles on the electrical characteristics of the plasma and the discharge, Infra-Red spectroscopy and Laser Induced Breakdown Spectroscopy (LIBS).

This contribution presents the aim of the project along with the first results and the challenges we will face.

References:

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