



## **Streaker samplers and optical particle counters for the apportionment of size-segregated particles number concentration**

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We describe a new experimental methodology based on the use of two-stage streaker samplers and optical particle counters. We have developed a complementary approach to size-segregated particulate matter (PM) sampling which gives information on the elemental size distribution and on the contribution to dimensional classes of PM sources. PM samples have been collected by a two-stage streaker sampler and analyzed by Particle Induced X-ray Emission (PIXE) to obtain time series of elemental concentration values (from Na to Pb) with hourly resolution. PM sources and profiles have been deduced by Positive Matrix Factorization (PMF). A linear regression of size-segregated number of particles versus the PM sources time trends have been performed to apportion the particles number concentration in 32 intervals (between 0.25 and 32  $\mu\text{m}$ ) in a fast and direct way. We will present the results of this novel approach obtained during a dedicated campaign in three sites in the urban area of the city of Genoa (Italy).

Our methodology can be useful when long term, time-resolved, elemental concentration are available and it is complementary to the use of multi stage cascade impactors.