

QCM biosensors for water quality monitoring

One of the basic problems of environmental water analysis is that the standard analytical methods require complex and expensive procedures, sampling and laboratory measurements. Miniaturized and reliable apparatus, able to perform rapid measurements or analysis in continuous mode and for dangerous chemical/biological species, will promisingly satisfy a the market demand driven by the realization of remote monitoring networks and early warning systems, to prevent the occurrence of dangerous conditions for the environment and for people, to ensure safety in case of critical events, thus implementing effective policies for environmental management and health protection. Biosensors are excellent candidates that meet the above requirements, and among biosensors, Quartz Crystal Microbalances (QCMs) stand out for their limited cost, robustness and easy readout. Since QCM is essentially a scale in its nature, its functionalization is necessary in order to make it specific against a pollutant.

QCM based biosensors has been a R&D trajectory Promete has continuously pursued during the last years, since it has been until Dec. 2015 and for more than 7 years one of the main shareholders of Novaetch Srl, a spin-off company of the National Institute for Astrophysics (INAF), active in research and development of mass sensor based on QCM (Quartz Crystal microbalances). Recently PROMETE opted to refocus its business in this research area, valuing far more appealing to reinvest the cash flow generated by the divestment in Novaetech in new strong collaboration with R&D partners strongly committed in the sensible element functionalization, as the pivotal key factor that could pave the way to a wide market application of these sensors. Moreover, the company also tighten strong partnerships with some of the major European and International players in the water network sector, being one of the initial promoter of the Action Group (AG) "CTRL+SWAN - Cloud Technologies & Real time monitoring + Smart WATER Network" (<http://www.swan.technology>)