

Electrostatic Precipitator (ESP) for Radionuclide Particle Collection as Part of Integration into RASA 2.0

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Creare has designed, built, and tested an electrostatic precipitator (ESP) collection system for integration into the next generation of monitoring stations, RASA 2.0. The new system design has several significant improvements including advanced detectors, increased particle collection efficiency, lower power consumption, and potentially shorter collection times. Our advanced two stage ESP collects atmospheric aerosol particles on a flexible media. The particle-laden material can be folded compactly and presented to a coincidence detector system unlike the impact filter material used on the current RASA system. View factor modeling showed a large improvement moving from a wraparound detector system to a sandwich coincidence detector system which can enable large reductions in sampling intervals. Our ESP system has previously demonstrated over two times the standard flow rate of the current RASA system at significantly low power consumption. At the nominal flow rate of the RASA system, our system consumes about an order of magnitude lower power while meeting CTBT requirements for collection efficiencies. We have demonstrated reliable material handling in a full-scale lab-based prototype, with up to one years' worth of material loaded on the system. Our system also demonstrated on-the-fly changes of collection efficiency and flow rate.

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Promotional text

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Oral preference format

in-person

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