Geophysical Research Abstracts
Vol. 20, EGU2018-19446, 2018
EGU General Assembly 2018

Removal of air-borne particulate matter from air by using the Counterfog® system

José Luis Pérez-Díaz (), Tania Martín-Pérez (1,2), Francisco Llerena (1), Juan Sánchez-García-Casarrubios (3), Elisa María Ruiz-Navas (4), and Ignacio Valiente-Blanco (5)

(1) Universidad de Alcalá, Departamento de Teoría de la Señal y Comunicaciones, Escuela Politécnica Superior, Universidad de Alcalá, 28805 Alcalá de Henares, Madrid, Spain, (2) Universidad de Alcalá, Departamento de Biomedicina y Biotecnología, Facultad de Farmacia, Universidad de Alcalá, 28805 Alcalá de Henares, Madrid, Spain., (3) San Jorge Tecnológicas S.L., 28341, Valdemoro, Madrid, Spain, (4) Instituto Pedro Juan de Lastanosa, Universidad Carlos III de Madrid, Avda. Universidad 30, 28911 Leganés, Madrid, Spain, (5) MAG-SOAR S.L., 208341, Valdemoro, Madrid, Spain

There is a serious health risk associated with exposure to micron-sized solid particles in suspension (Dockery et al 1993, Pope et al 1995, WHO 2013). Direct exposure includes direct inhalation from air or ingestion of those deposited on food (EEA 2017). It is generally admitted that particles with a diameter lower than 10 μm (known as PM10) can penetrate the respiratory system, reaching high respiratory tract and bronchi while those under 2.5μm can reach bronchioles and alveoli (Nel 2005).
Natural mechanisms removing particles from the atmosphere are too slow to deal with the huge amount of particles daily released by human activity.
In this work the new technology for decontamination of air-borne particles in air called Counterfog® is demonstrated to remove air-borne PM10 originated from a Diesel engine by 2 orders of magnitude; PM 5 by 3 orders of magnitude and PM2.5 by 4 orders of magnitude using just compressed air and water.

Acknowledgments
This work has been funded by FP7-SEC-2012-1 program of the EU Commission under grant number 312804.