I. Electrospray aerosol generator Model 3480 (from TSI):

A method of generating nanometer particles is now available from TSI. The Model 3480 Electrospray Aerosol Generator produces stable, monodisperse, submicrometer aerosol in the range from less than 3 to greater than 100 nanometers. It achieves such small diameters by moving a conductive liquid solution or suspension through a capillary and applying an electrical field to the liquid at the capillary tip. The electrical field draws the liquid from the tip into a conical jet from which ultrafine charged droplets are emitted. Air and CO$_2$ are merged with the droplets, and the liquid evaporates while the charge is neutralized by an ionizer. The result is a neutralized, monodisperse aerosol that is practically free of solvent residue.

Particle generation rate: >10$^7$ particles/cm$^3$
Liquid conductivity: 0.2 S/m nominal
Liquid flow rate: 50 to 100 nL/min
Particle size range: <3 to >100 nm
Initial droplet diameter: 150 nm
Differential pressure: 0 to 5 psi (3.0 psi nominal)
Air flow: 0.2 to 2.5 L/min (1 L/min nominal)
CO$_2$ flow: 0.05 to 0.5 L/min (0.1 L/min nominal)

One exemple of particle size distributions obtained by electrospray:
II. Mesoporous cerium oxide - silica microspheres

In previous work, the synthesis of various nanoparticle/mesoporous silica composites with narrow size distribution by spray drying has been already obtained. TEM micrographs of analogous mesoporous silica spheres containing CeO2 are shown here after.
P123-SiO$_2$-CeO$_2$  
CTAB-SiO$_2$-CeO$_2$