



(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2002/0185595 A1**
Smith et al. (43) **Pub. Date: Dec. 12, 2002**

(54) **IONIZATION SOURCE UTILIZING A MULTI-CAPILLARY INLET AND METHOD OF OPERATION**

Publication Classification

(51) **Int. Cl.⁷** H01J 49/00; B01D 59/44
(52) **U.S. Cl.** 250/288

(76) Inventors: **Richard D. Smith**, Richland, WA (US);
Taeman Kim, Richland, WA (US);
Harold R. Udseth, Richland, WA (US)

(57) **ABSTRACT**

A multi-capillary inlet to focus ions and other charged particles generated at or near atmospheric pressure into a relatively low pressure region, which allows increased conductance of ions and other charged particles. The multi-capillary inlet is juxtaposed between an ion source and the interior of an instrument maintained at near atmospheric pressure, it finds particular advantages when deployed to improve the ion transmission between an electrospray ionization source and the first vacuum stage of a mass spectrometer, and finds its greatest advantages when deployed in conjunction with an electrodynamic (RF) ion funnel deployed within the interior of the mass spectrometer, particularly an ion funnel equipped with a jet disturber.

Correspondence Address:

Stephen R. May
Intellectual Property Services
Battelle Memorial Institute
Pacific Northwest Division, P.O. Box 999
Richland, WA 99352 (US)

(21) Appl. No.: **09/860,727**

(22) Filed: **May 18, 2001**

