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(54) **ION MOBILITY MEASUREMENT AT A POTENTIAL BARRIER**

(75) Inventors: **Oliver Räther**, Bremen (DE); **Gökhan Baykut**, Bremen (DE); **Jochen Franzen**, Bremen (DE)

(73) Assignee: **Bruker Daltonik GmbH**, Bremen (DE)

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See application file for complete search history.

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Primary Examiner — Phillip A Johnston

(74) *Attorney, Agent, or Firm* — Law Offices of Paul E. Kudirka

(57) **ABSTRACT**

Ion mobilities are measured by entraining the ions in a gas and adiabatically expanding the ion-containing gas through a nozzle to form a gas jet. An electrical field barrier with variable height is located at the nozzle exit. The field barrier may be located adjacent to the nozzle exit or an ion guide may be located between the nozzle and the field barrier. If a continuous ion current is supplied, the height of the barrier is varied and the ion current of the ions passing over the barrier is measured, the ion current can be differentiated to generate a mobility spectrum. Alternatively, the ions can be temporarily stored in the ion guide so that measurement of the ion current of the ions passing over the barrier results in a direct measurement of the mobility spectrum.

21 Claims, 4 Drawing Sheets

