

Title (en)  
PROCESS FOR OPERATING A TIME-OF-FLIGHT SECONDARY ION MASS SPECTROMETER

Title (de)  
VERFAHREN ZUM BETREIBEN EINES FLUGZEIT-SEKUNDÄRIONEN-MASSENSPEKTROMETERS

Title (fr)  
PROCEDE D'EXPLOITATION D'UN SPECTROMETRE DE MASSE POUR IONS SECONDAIRES FONCTIONNANT PAR MESURE DU TEMPS DE VOL

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Application  
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Abstract (en)  
[origin: DE4416413A1] The invention pertains to a process for operating a time-of-flight secondary ion mass spectrometer for analysis of mass spectra, wherein a number of finely structured mass ranges appear in isolation at major intervals, involving the following steps: a) a surface of a material sample is bombarded with primary ion pulses that follow each other at regular time intervals  $t_z$  (cycle time), b) the secondary ions of various masses  $m$  released from the material sample surface by the primary ions are accelerated to the same energy, c) the mas-dependent time of flight  $t$  is measured over a path  $l$  and the mass is determined therefrom. To increase the resolution and the signal-to-noise ratio the process is characterized in that: d) each primary ion pulse consists of a number of subpulses, e) each subpulse is so narrow that it allows for resolution of the finely structured mass ranges, f) the interval  $t_B$  between the subpulses is greater than the width of the finely structured mass ranges, g) the number  $n$  of subpulses is selected so that  $n \cdot t_B$  is smaller than the intervals between the finely structured mass ranges, h) the  $n$  subpulse spectra of each finely structured mass range are added up.

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