

Title:	Relativistic calculations of secondary ions produced in plasma desorption mass spectrometry
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Abstract:	<p>In Time of Flight (TOF) mass spectrometry, the ratio; mass/charge of ions of the sample under investigation is determined by a relationship between time of flight and spectrometer parameters. Usually this relationship is derived using classical (Newtonian) mechanics. Since high energies are involved in the flight of the particles a relativistic treatment is considered. It is investigated whether the relativistic effects are significant or not, for the motion of secondary ions produced in the Plasma Desorption Mass Spectrometer. Treating the motion of these ions relativistically, a relationship between the Time of Flight (TOF) and mass/charge of the ion was derived. Using advanced mathematical software package Maple 6, the derived relationship was compared with classically obtained results. Then it was found that relativistic effects are not significant and they can be ignored for the linear Plasma Desorption Mass Spectrometer.</p>