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Negative ion formation and motion in a mixture of CCl_4 and ArF.B. YOUSIF, Facultad de Ciencias-Universidad Autónoma del Estado de Morelos, H. MARTíNEZ, Centro de Ciencias Físicas, Universidad Nacional Autónoma de México, A.B. MONDRAGÓN, Facultad de Ciencias-Universidad Autónoma del Estado de Morelos, FACULTAD DE CIENCIAS, UAEM TEAM, CENTRO DE CIENCIAS FÍSICAS, UNAM TEAM — This work deals with the measurement of the mobility of negative ions in the mixtures of CCl_4 with Ar with the CCl_4 ratio up to 33.3%. The Pulsed Townsend Technique was employed to produce an integrated ionic avalanches over a range of the density-reduced electric field E/N for which ionization is either negligible or absent, and attachment processes are dominant, leading to the formation of mostly CCl_4^- . The E/N range of measurement was 1 to 50 Td ($1Td = 10^{-17}Vcm^2$) and gas pressure of 80Torr. Our measurements strongly suggest that attachment is the dominant process and only negative ions are formed. The characteristics of the measured transients, indicating that there is only one drifting ionic species. That, and the low E/N values used, led to the assumption that the majority ion species under investigation is CCl_4^- . This method proved to be highly sensitive for detecting negative ion signals even for small amounts of CCl_4 in the mixture. The relevance of electron attachment processes in these gas mixtures are desirable and it is our hope that the present data are of use for gas discharge simulation and complex ion chemistry of CCl_4/Ar mixtures.

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