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## Diffusion and mobility measurements in CS<sub>2</sub> and CS<sub>2</sub> mixtures.

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Using a 10cm-long time projection chamber operating at 40 Torr, we measured the mobility and diffusion of CS<sub>2</sub><sup>-</sup> ions using pure CS<sub>2</sub> and using mixtures where He, Ne, Ar and CF<sub>4</sub> were added as a second gas. Measurements were made with electric fields varying from 40 to 600 V/cm. The electron temperature and drift velocity for all those mixtures and fields were obtained from the code MAGBOLTZ. The CS<sub>2</sub><sup>-</sup> lateral diffusion is consistent with room temperature while the longitudinal diffusion shows a marked increase at the higher fields that could be caused by a long electron attachment mean free path. The obtained longitudinal temperature at lower fields is larger than room temperature. Results will be presented. This analysis will allow us to better understand results obtained with the existing DRIFT detectors. This project is funded by NSF.

**Authors:** Prof. SNOWDEN-IFFT, Daniel (Occidental College); Dr GAUVREAU, Jean-Luc (Occidental College)

**Orateur:** Dr GAUVREAU, Jean-Luc (Occidental College)

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