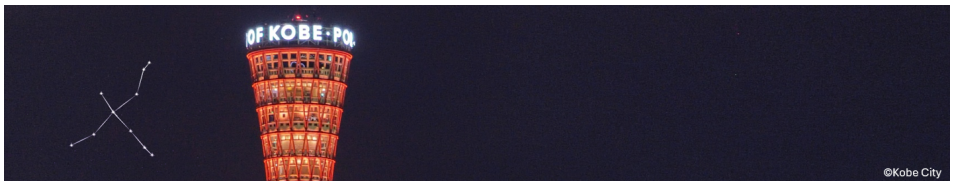

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Negative ion formation in pure CF4 via dissociative electron attachment

Monday, 23 February 2026 14:25 (25 minutes)

Negative ion drift is an attractive option for minimising diffusion in large micropatterned gaseous Time Projection Chambers. The use of select electronegative gases to create negative ions introduces technical challenges, most notably, a reduction in gain when compared to conventional gas mixtures. In this talk, I will report on measurements that demonstrate negative ion generation via dissociative electron attachment using the conventional molecular fill gas CF4, in an optically read-out TPC. We have measured negative ion attachment lengths of <1 mm and comparable gain to electrons, with individual negative ion avalanches resolvable with time via the fast PMT readout.

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