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Recent gas gain calculations: Xe-TMA, C3H8- and CH4-based TEG, Ne-CO2

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Penning transfer rates were derived from measured gas gain data with Micromegas (MMs) detector in Xe-TMA mixtures at different pressures. In the calculations Parallel Plate Chamber (PPC) model was assumed.
Simulations of the experimental gas gains in C3H8- and CH4-based TEG mixtures indicates that dissociative excitations of the molecules and non-equlibrium effects for the different anode wires should be taken into account.
The transfer rates in Ne-CO2 mixtures interestingly drop at high CO2 fractions. In addition, excimers, home-nuclear associative ionisations and impurities of the gas can play important roles for the fitting the gain curves of pure Ne measurements.

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