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Alternating gradient guiding of strong-field seeking polar molecules THOMAS WALL, SIMON ARMITAGE, JONY HUDSON, BEN SAUER, ED HINDS, MIKE TARBUTT, CENTRE FOR COLD MATTER, IMPERIAL COLLEGE LONDON TEAM — Cold molecules are useful in a wide variety of research areas, from tests of fundamental physical theories to applications in chemistry and biology. It is of great value to these experiments to cool and control molecules. Strong-field seeking molecules are attracted to maxima of electric field strength. Static maxima cannot be created in free space, but dynamic control can be achieved with a field that alternates in time. We have built an alternating gradient electric guide and have used it for transporting beams of CaF over a length of 1m. We present data showing how the guiding efficiency depends on the amplitude and switching frequency of the applied field. We compare our results with those obtained from a simple analytical model, and with those from complete numerical simulations of the experiments.

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